# **VIJAYA VITTALA INSTITUTE OF TECHNOLOGY**

Hennur Bagalur Road, Bangalore-560077



# Affilated to VTU, Accredited by NAAC

# Scheme & Syllabus for 1<sup>st</sup> Semester:

•	Physics Cycle	Pg.No-01
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• Chemistry Cycle .....Pg.No-70

# Scheme & Syllabus for 2<sup>nd</sup> Semester:

•	Physics Cycle	Pg.No-01
•	Chemistry Cycle	Pg.No-108

Sem	ester (CSE	Stream) (Phys		theacademicyear 20	22 23	<u></u>							
				pol-			hing /Week						
SI. No		and course Course titlee		10/PSB	Theory Lecture	Tutorial	Practical/ Drawing	VOS	Duration in hours	CIE Marks	SEE Marks	Total Marks	Candita
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1	*ASC(IC)	BMATS101	Mathematics-I for CSE Stream	Maths	2	2	2	0	03	50	50	100	04
2	#ASC(IC)	BPHYS102	Applied Physics for CSE stream	Physics	2	2	2	0	03	50	50	100	04
3	ESC	BPOPS103	Principles of Programming Using C	CSE	2	0	2	0	03	50	50	100	0
4	ESC-1	BESCK104x	Engineering Science Course-I	Respective Engg Dept	3	0	0	0	03	50	50	100	03
	ETC-I	BETCK105x	Emerging Technology Course-I		3	0	0	0	03				
5		<u> </u>	OR	Any Dept			2 2 2			50	50	100	0
	PLC-I	BPLCK105x	Programming Languages Course-I		2	0	2	0	03				
		BENGK106	Communicative English										
6	AEC		OR	Humanities	1	0	0	0	01	50	50	100	01
		BPWSK106	Professional Writing Skills in English		[ ]								
		BKSKK107 BKBKK107	Samskrutika Kannada/ Balake Kannada						01	50	50	100	01
7	HSMC		OR	Humanities	1	0	0	0	01	50	50	100	U
	<sup>™</sup>	BICOK107	Indian Constitution										
	1.111-Constants	BIDTK158	Innovation and Design Thinking	VIES WASHING	1	0	0	0	02				40000
8	AEC/SDC	EC/SDC OR		Any Dept						50	50	100	0
	1	BSFHK158	Scientific Foundations of Health		1	0	0	0	01				

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				BETCK105H	Introduction to Internet of Things (IOT)	3	0	0
	2			BETCK105I	Introduction to Cyber Security	3	0	0
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• The student has to select one course from the ESC-I group.

CSE/ISE and allied branches Students shall opt for any one of the courses from the ESC-I group except, BESCK104E-Introduction to C
 Programming

• The students have to opt for the courses from ESC group without repeating the course in either 1st or 2nd semester

• The students must select one course from either ETC-I or PLC-I group.

• If students study the subject from ETC-I in 1st semester he/she has to select the course from PLC-II in the 2nd semester and vice-versa

#### **Course objectives**

Total Hours of Pedagogy

Teaching Hours/Week (L:T:P: S)

- To make students learn the scope of various specializations of civil engineering.
- To make students learn the concepts of sustainable infrastructure
- To develop students' ability to analyse the problems involving forces, moments with their applications.

2:2:0:0

25 hrs Lecture+25 hrs Tutorial = 50 hrs

Exam Hours

Credits

03

03

- To develop the student's ability to find out the center of gravity and moment of inertia and their applications.
- To make the students learn about kinematics

### **Teaching-Learning Process**

These are sample Strategies; which teachers can use to accelerate the attainment of the various course outcomes.

- 1. Lecture method (L) does not mean only the traditional lecture method, but a different type of teaching method may be adopted to develop the outcomes.
- 2. Arrange visits to nearby sites to give brief information about the Civil Engineering structures.
- 3. Show Video/animation films to explain the infrastructures and the mechanism involved in the principle.
- 4. Encourage collaborative (Group) Learning in the class.
- 5. Ask at least three HOT (Higher-order Thinking) questions in the class, which promotes critical thinking.
- 6. Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develop thinking skills such as the ability to evaluate, generalize, and analyze information rather than simply recall it.
- 7. Topics will be introduced in multiple representations.
- 8. Show the different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.
- 9. Discuss how every concept can be applied to the real world and when that's possible, it helps improve the students' understanding.
- 10. Individual teachers can device innovative pedagogy to improve teaching-learning.

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Module-1 (10)
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### **Civil Engineering Disciplines and Building Science**

**Introduction to Civil Engineering:** Surveying, StructuralEngineering, Geotechnical Engineering, Hydraulics & Water Resources, TransportationEngineering, Environmental Engineering, Construction planning &Project management.

**Basic Materials of Construction**: Bricks, Cement & mortars, Plain, Reinforced &Pre-stressed Concrete, Structural steel, Construction Chemicals.

Structural elements of a building: foundation, plinth, lintel, chejja, Masonry wall, column, beam, slab and staircase

Module-2 (10)

### Societal and Global Impact of Infrastructure

Infrastructure: Introduction to sustainable development goals, Smart city concept, clean city concept,

Safe city concept

**Environment**: Water Supply and Sanitary systems, urban air pollution management, Solid waste management, identification of Landfill sites, urban flood control

**Built-environment:** Energy efficient buildings, recycling, Temperature andSound control in buildings, Security systems; Smart buildings.

#### Module-3(10)

**Analysis of force systems:** Concept of idealization, system of forces, principles of superposition and transmissibility, Resolution and composition of forces, Law of Parallelogram of forces, Resultant of concurrent and non-concurrent coplanar force systems, moment of forces, couple, Varignon's theorem, free body diagram, equations of equilibrium, equilibrium of concurrent and non-concurrent coplanar force systems

#### Module-4(10)

**Centroid:**Importance of centroid and centre of gravity, methods of determining the centroid, locating the centroid of plane laminae from first principles, centroid of built-up sections. Numerical examples

#### Module-5 (10)

**Moment of inertia:**Importance of Moment of Inertia, method of determining the second moment of area (moment of inertia) of plane sections from first principles, parallel axis theorem and perpendicular axis theorem, section modulus, radius of gyration, moment of inertia of built-up sections, Numerical Examples.

Course outcome (Course Skill Set)

At the end of the course the student will be able to:

C01	Understand	the various	disciplines o	f civil engineering
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CO2 Understand the infrastructure requirement for sustainable development

CO3 Compute the resultant and equilibrium of force systems.

CO4 Locate the centroid of plane and built-up sections

CO5 Compute the moment of inertia of plane and built-up sections.

## Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

### Continuous Internal Evaluation(CIE):

Three Tests each of 20 Marks;

- 1<sup>st</sup>, 2<sup>nd,</sup> and 3<sup>rd</sup> tests shall be conducted after completion of the syllabus of 30-35%, 70-75%, and 90-100% of the course/s respectively.
- Assignments/Seminar/quiz/group discussion /field survey & report presentation/ course project/Skill development activities, suitably planned to attain the COs and POs for a total of 40 Marks.

If the nature of the courses requires assignments/Seminars/Quizzes/group discussion two evaluation components shall be conducted. If course project/field survey/skill development activities etc then the evaluation method shall be one.

Total CIE marks (out of 100 marks) shall be scaled down to 50 marks

### Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

## Suggested Learning Resources:

- Text Books
- 1. Bansal R. K., Rakesh Ranjan Beohar and Ahmad Ali Khan, Basic Civil Engineering and Engineering Mechanics, 2015,Laxmi Publications.

2. Kolhapure B K, Elements of Civil Engineering and Engineering Mechanics, 2014, EBPB

## **Reference Books:**

1. Beer F.P. and Johnston E. R., Mechanics for Engineers, Statics and Dynamics, 1987, McGraw Hill.

2. Irving H. Shames, Engineering Mechanics, 2019, Prentice-Hall.

- 3. Hibbler R. C., Engineering Mechanics: Principles of Statics and Dynamics, 2017, Pearson Press.
- 4. Timoshenko S, Young D. H., Rao J. V., Engineering Mechanics, 5th Edition, 2017, Pearson Press.

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<u>CO1</u>	1					1						
CO2	1					1	1					
CO3	2	3	ļ		ļ							<b> </b>
	2	3		1		1			1	1	1	1
CO4 CO5	2	3										

concerned course instructor.

## I Semester

Course Title:	Mathematics-I for Computer Science and Engineering stream						
Course Code:	BMATS101	CIE Marks	50				
Course Type	Integrated	SEE Marks	50				
(Theory/Practical/Integrated)		Total Marks	100				
Teaching Hours/Week (L:T:P: S)	2:2:2:0	Exam Hours	03				
Total Hours of Pedagogy	40 hours Theory + 10 to12 Lab slots	Credits	04				

Course objectives: The goal of the course Mathematics-I for Computer Science and Engineering stream(22MATS11) is to

- **Familiarize** the importance of calculus associated with one variable and multivariable for computer science and engineering.
- **Analyze**Computer science and engineering problems by applying Ordinary Differential Equations.
- Apply the knowledge of modular arithmetic to computer algorithms.
- **Develop** the knowledge of Linear Algebra to solve the system of equations.

## **Teaching-Learning Process**

## **Pedagogy** (General Instructions):

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

- 1. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted so that the delivered lessons shall develop students' theoretical and applied mathematical skills.
- 2. State the need for Mathematics with Engineering Studies and Provide real-life examples.
- 3. Support and guide the students for self–study.
- 4. You will also be responsible for assigning homework, grading assignments and quizzes, and documenting students' progress.
- 5. Encourage the students to group learning to improve their creative and analytical skills.
- 6. Show short related video lectures in the following ways:
  - As an introduction to new topics (pre-lecture activity).
  - As a revision of topics (post-lecture activity).
  - As additional examples (post-lecture activity).
  - As an additional material of challenging topics (pre-and post-lecture activity).
  - As a model solution of some exercises (post-lecture activity).

## Module-1:Calculus (8 hours)

Introduction to polar coordinates and curvature relating to Computer Science and Engineering.

Polar coordinates, Polar curves, angle between the radius vector and the tangent, angle between two curves. Pedal equations. Curvature and Radius of curvature - Cartesian, Parametric, Polar and Pedal forms. Problems.

Self-study: Center and circle of curvature, evolutes and involutes.

Applications: Computer graphics, Image processing.

(RBT Levels: L1, L2 and L3)

Module-2:Series Expansion and Multivariable Calculus (8 hours)

Introduction of series expansion and partial differentiation in Computer Science & Engineering applications.

Taylor's and Maclaurin's series expansion for one variable (Statement only) – problems. Indeterminate forms - L'Hospital's rule-Problems.

Partial differentiation, total derivative - differentiation of composite functions. Jacobian and problems. Maxima and minima for a function of two variables. Problems.

**Self-study:** Euler's theorem and problems. Method of Lagrange's undetermined multipliers with single constraint.

**Applications:** Series expansion in computer programming, Computing errors and approximations. **(RBT Levels: L1, L2 and L3)** 

#### Module-3: Ordinary Differential Equations (ODEs) of First Order (8 hours)

Introduction to first-order ordinary differential equations pertaining to the applications for Computer Science & Engineering.

Linear and Bernoulli's differential equations. Exact and reducible to exact differential equations -Integrating factors on  $\frac{1}{N} \left( \frac{\partial M}{\partial y} - \frac{\partial N}{\partial x} \right)$  and  $\frac{1}{M} \left( \frac{\partial N}{\partial x} - \frac{\partial M}{\partial y} \right)$ . Orthogonal trajectories, L-R & C-R circuits. Problems.

**Non-linear differential equations:** Introduction to general and singular solutions, Solvable for p only, Clairaut's equations, reducible to Clairaut's equations. Problems.

**Self-Study:** Applications of ODEs, Solvable for x and y.

Applications of ordinary differential equations: Rate of Growth or Decay, Conduction of heat. (RBT Levels: L1, L2 and L3)

Module-4: Modular Arithmetic (8 hours)

**Introduction of modular arithmetic and its applications in Computer Science and Engineering.** Introduction to Congruences, Linear Congruences, The Remainder theorem, Solving Polynomials, Linear Diophantine Equation, System of Linear Congruences, Euler's Theorem, Wilson Theorem and Fermat's little theorem. Applications of Congruences-RSA algorithm.

**Self-Study:** Divisibility, GCD, Properties of Prime Numbers, Fundamental theorem of Arithmetic. **Applications:** Cryptography, encoding and decoding, RSA applications in public key encryption. **(RBT Levels: L1, L2 and L3)** 

Module-5: Linear Algebra (8 hours)

Introduction of linear algebra related to Computer Science & Engineering.

Elementary row transformationofa matrix, Rank of a matrix. Consistency and Solution of system of linear equations - Gauss-elimination method, Gauss-Jordan method and approximate solution by Gauss-Seidel method. Eigenvalues and Eigenvectors, Rayleigh's power method to find the dominant Eigenvalue and Eigenvector.

**Self-Study:** Solution of system of equations by Gauss-Jacobi iterative method. Inverse of a square matrix by Cayley- Hamilton theorem.

**Applications:** Boolean matrix, Network Analysis, Markov Analysis, Critical point of a network system. Optimum solution.

(RBT Levels: L1, L2 and L3).

Listo	f Laboratory experiments (2 hours/week per batch/ batch strength 15)
	b sessions + 1 repetition class + 1 Lab Assessment
1	2D plots for Cartesian and polar curves
2	Finding angle between polar curves, curvature and radius of curvature of a given curve
3	Finding partial derivatives and Jacobian
4	Applications to Maxima and Minima of two variables
5	Solution of first-order ordinary differential equation and plotting the solution curves
6	Finding GCD using Euclid's Algorithm
7	Solving linear congruences $ax \equiv b \pmod{m}$
8	Numerical solution of system of linear equations, test for consistency and graphical
	representation
9	Solution of system of linear equations using Gauss-Seidel iteration
10	Compute eigenvalues and eigenvectors and find the largest and smallest eigenvalue by
	Rayleigh power method.
	sted software: Mathematica/MatLab/Python/Scilab
	e outcome (Course Skill Set)
	end of the course the student will be able to:
CO1	apply the knowledge of calculus to solve problems related to polar curves andlearn the notion of partial differentiation to compute rate of change of multivariate functions
CO2	analyze the solution of linear and nonlinear ordinary differential equations
CO3	get acquainted and to apply modular arithmetic to computer algorithms
CO4	make use of matrix theory for solving the system of linear equations and compute
	eigenvalues and eigenvectors
CO5	familiarize with modern mathematical tools namely
	MATHEMATICA/MATLAB/ PYTHON/ SCILAB
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### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

### **Continuous Internal Evaluation(CIE):**

The CIE marks for the theory component of the IC shall be **30 marks** and for the laboratory component **20 Marks**.

### CIE for the theory component of the IC

- Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.
- Two Assignments/two quizzes/ seminars/one field survey and report presentation/one-course project totalling 20 marks.

Total Marks scored (test + assignments) out of 80 shall be scaled down to **30 marks CIE for the practical component of the IC** 

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted at the end of the semester.
- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.
- The laboratory test (**duration 03 hours**) at the end of the 15<sup>th</sup> week of the semester/after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to **05 marks**.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

• The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

## Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English/Kannada). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

## Suggested Learning Resources:

Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year) Text Books

- 1. **B. S. Grewal**: "Higher Engineering Mathematics", Khanna Publishers, 44<sup>th</sup>Ed., 2021.
- 2. E. Kreyszig: "Advanced Engineering Mathematics", John Wiley & Sons, 10<sup>th</sup>Ed., 2018.
- 3. **David M Burton:** "Elementary Number Theory" Mc Graw Hill, 7<sup>th</sup> Ed., 2017.

## **Reference Books**

- 4. V. Ramana: "Higher Engineering Mathematics" McGraw-Hill Education, 11<sup>th</sup> Ed., 2017
- 5. Srimanta Pal & Subodh C.Bhunia: "Engineering Mathematics" Oxford University Press, 3<sup>rd</sup> Ed., 2016.
- 6. N.P Bali and Manish Goyal: "A Textbook of Engineering Mathematics" Laxmi

Publications, 10<sup>th</sup> Ed., 2022.

- C. Ray Wylie, Louis C. Barrett: "Advanced Engineering Mathematics" McGraw Hill Book Co., New York, 6<sup>th</sup> Ed., 2017.
- 8. **Gupta C.B, Sing S.R and Mukesh Kumar:** "Engineering Mathematic for Semester I and II", Mc-Graw Hill Education(India) Pvt. Ltd 2015.
- 9. **H. K. Dass and Er. Rajnish Verma:** "Higher Engineering Mathematics" S. Chand Publication, 3<sup>rd</sup> Ed., 2014.
- 10. James Stewart: "Calculus" Cengage Publications, 7<sup>th</sup>Ed., 2019.
- 11. David C Lay: "Linear Algebra and its Applications", Pearson Publishers, 4<sup>th</sup> Ed., 2018.
- 12. Gareth Williams: "Linear Algebra with Applications", Jones Bartlett Publishers Inc., 6<sup>th</sup> Ed., 2017.
- 13. Gilbert Strang: "Linear Algebra and its Applications", Cengage Publications, 4<sup>th</sup> Ed. 2022.
- 14. William Stallings: "Cryptography and Network Security" Pearson Prentice Hall, 6<sup>th</sup> Ed., 2013.
- 15. **Kenneth H Rosen:** "Discrete Mathematics and its Applications" McGraw-Hill, 8<sup>th</sup> Ed. 2019.
- 16. Ajay Kumar Chaudhuri: "Introduction to Number Theory"NCBA Publications, 2<sup>nd</sup> Ed., 2009.
- 17. **Thomas Koshy:** "Elementary Number Theory with Applications" Harcourt Academic Press, 2<sup>nd</sup> Ed., 2008.

### Web links and Video Lectures (e-Resources):

- <u>http://nptel.ac.in/courses.php?disciplineID=111</u>
- <u>http://www.class-central.com/subject/math(MOOCs)</u>
- http://academicearth.org/
- VTU e-Shikshana Program
- VTU EDUSAT Program

## Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning

- Quizzes
- Assignments
- Seminar

### COs and POs Mapping (Individual teacher has to fill up)

COs	POs								
	1	2	3	4	5	6	7		
CO1									
CO2									
CO3									
CO4									
CO5									
Level 3- Hi	ghly Mapped,	Level 2-Mo	derately Map	ped, Level	1-Low Mapped	, Level 0- N	ot Mapped		

Course Title:	Applied Physics for CSE Stream		
Course Code:	BPHYS102/202	CIE Marks	50
Course Type	Integrated	SEE Marks	50
(Theory/Practical/Integrated)	Integrated	Total Marks	100
Teaching Hours/Week (L:T:P: S)	2:2:2:0	Exam Hours	03
Total Hours of Pedagogy	40 hours Theory + 10-12 Lab slots	Credits	04

#### **Course objectives**

- To study the essentials of photonics and its application in computer science.
- To study the principles of quantum mechanics and its application in quantum computing.
- To study the electrical properties of materials
- To study the essentials of physics for computational aspects like design and data analysis.

#### **Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective

- 1. Flipped Class
- 2. Chalk and Talk
- 3. Blended Mode of Teaching and Learning
- 4. Simulations, Interactive Simulations and Animations
- 5. NPTEL and Other Videos for theory topics
- 6. Smart Class Room
- 7. Lab Experiment Videos

#### Module-1 (8 Hours)

#### Laser and Optical Fibers:

**LASER**: Characteristic properties of a LASER beam, Interaction of Radiation with Matter, Einstein's A and B Coefficients and Expression for Energy Density (Derivation), Laser Action, Population Inversion, Metastable State, Requisites of a laser system, Semiconductor Diode Laser, Applications: Bar code scanner, Laser Printer, Laser Cooling(Qualitative), Numerical Problems.

**Optical Fiber**: Principle and Structure, Propagation of Light, Acceptance angle and Numerical Aperture (NA), Derivation of Expression for NA, Modes of Propagation, RI Profile, Classification of Optical Fibers, Attenuation and Fiber Losses, Applications: Fiber Optic networking, Fiber Optic Communication. Numerical Problems

#### Pre requisite:Properties of light Self-learning: Total Internal Reflection

Module-2 (8 Hours)

#### **Quantum Mechanics:**

de Broglie Hypothesis and Matter Waves, de Broglie wavelength and derivation of expression by analogy, Phase Velocity and Group Velocity, Heisenberg's Uncertainty Principle and its application (Non existence of electron inside the nucleus - Non Relativistic), Principle of Complementarity, Wave Function, Time independent Schrödinger wave equation (Derivation), Physical Significance of a wave function and Born Interpretation, Expectation value, Eigen functions and Eigen Values, Particle inside one dimensional infinite potential well, Quantization of Energy States, Waveforms and Probabilities. Numerical Problems.

#### Pre requisite:Wave–Particle dualism Self-learning: de Broglie Hypothesis

Module-3 (8 Hours)

#### **Quantum Computing:**

#### **Principles of Quantum Information & Quantum Computing:**

Introduction to Quantum Computing, Moore's law & its end, Differences between Classical & Quantum computing. Concept of qubit and its properties. Representation of qubit by Bloch sphere. Single and Two qubits. Extension to N qubits.

#### Dirac representation and matrix operations:

Matrix representation of 0 and 1 States, Identity Operator I, Applying I to  $|0\rangle$  and  $|1\rangle$  states, Pauli Matrices and its

operations on  $|0\rangle$  and  $|1\rangle$  states, Explanation of i) Conjugate of a matrix and ii) Transpose of a matrix. Unitary matrix U, Examples: Row and Column Matrices and their multiplication (Inner Product), Probability, and Quantum Superposition, normalization rule. Orthogonality, Orthonormality. Numerical Problems

#### Quantum Gates:

Single Qubit Gates: Quantum Not Gate, Pauli – X, Y and Z Gates, Hadamard Gate, Phase Gate (or S Gate), T Gate Multiple Qubit Gates: Controlled gate, CNOT Gate, (Discussion for 4 different input states). Representation of Swap gate, Controlled -Z gate, Toffoli gate.

# Pre requisites: Matrices

Self-learning: Moore's law

#### Module-4 (8 Hours)

#### **Electrical Properties of Materials and Applications**

#### **Electrical Conductivity in metals**

Resistivity and Mobility, Concept of Phonon, Matheissen's rule, Failures of Classical Free Electron Theory, Assumptions of Quantum Free Electron Theory, Fermi Energy, Density of States, Fermi Factor, Variation of Fermi Factor With Temperature and Energy. Numerical Problems.

#### Superconductivity

Introduction to Super Conductors, Temperature dependence of resistivity, Meissner's Effect, Critical Field, Temperature dependence of Critical field, Types of Super Conductors, BCS theory (Qualitative), Quantum Tunnelling, High Temperature superconductivity, Josephson Junctions (Qualitative), DC and RF SQUIDs (Qualitative), Applications in Quantum Computing: Charge, Phase and Flux qubits, Numerical Problems.

#### Pre requisites:Basics of Electrical conductivity

Self-learning: Resistivity and Mobility

#### Module-5 (8 hours)

#### **Applications of Physics in computing:**

#### **Physics of Animation**:

Taxonomy of physics based animation methods, Frames, Frames per Second, Size and Scale, Weight and Strength, Motion and Timing in Animations, Constant Force and Acceleration, The Odd rule, Odd-rule Scenarios, Motion Graphs, Examples of Character Animation: Jumping, Parts of Jump, Jump Magnification, Stop Time, Walking: Strides and Steps, Walk Timing. Numerical Problems

Statistical Physics for Computing: Descriptive statistics and inferential statistics, Poisson distribution and modeling the probability of proton decay, Normal Distributions (Bell Curves), Monte Carlo Method: Determination of Value of  $\pi$ . Numerical Problems.

## Pre requisites: Motion in one dimension, Probability

#### Self-learning: Frames, Frames per Second

#### Course outcome (Course Skill Set)

At the end of the course the student will be able to:

CO1	<b>Describe</b> the principles of LASERS and Optical fibers and their relevant applications.
CO2	Discuss the basic principles of the Quantum Mechanics and its application in Quantum Computing.
CO3	Summarize the essential properties of superconductors and its applications in qubits.
CO4	<b>Illustrate</b> the application of physics in design and data analysis.
CO5	Practice working in groups to conduct experiments in physics and perform precise and honest measurements.

#### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### **Continuous Internal Evaluation(CIE):**

The CIE marks for the theory component of the IC shall be 30 marks and for the laboratory component 20 Marks.

#### CIE for the theory component of the IC

- Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.
- Two Assignments/two quizzes/ seminars/one field survey and report presentation/one-course project totalling 20 marks.

Total Marks scored (test + assignments) out of 80 shall be scaled down to 30 marks

#### CIE for the practical component of the IC

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted at the end of the semester.
- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.
- The laboratory test (**duration 03 hours**) at the end of the 15<sup>th</sup> week of the semester /after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to **05 marks**.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

• The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

#### Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English/Kannada). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.

There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 subquestions), **should have a mix of topics** under that module.

#### Suggested Learning Resources:

#### Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year)

- 1. Solid State Physics, S O Pillai, New Age International Private Limited, 8<sup>th</sup> Edition, 2018.
- 2. Engineering Physics by Gupta and Gour, Dhanpat Rai Publications, 2016 (Reprint).
- 3. A Textbook of Engineering Physics- M.N. Avadhanulu and P.G. Kshirsagar, 10th revised Ed, S. Chand. & Company Ltd, New Delhi.
- 4. Concepts of Modern Physics, Aurthur Beiser, McGrawhill, 6<sup>th</sup> Edition, 2009.
- 5. Lasers and Non Linear Optics, B B Loud, New age international, 2011 edition.
- 6. A Textbook of Engineering Physics by M.N. Avadhanulu, P G. Kshirsagar and T V S Arun Murthy, Eleventh edition, S Chand and Company Ltd. New Delhi-110055.
- 7. Quantum Computation and Quantum Information, Michael A. Nielsen & Isaac L. Chuang, Cambridge Universities Press, 2010 Edition.

- 8. Quantum Computing, Vishal Sahani, McGraw Hill Education, 2007 Edition.
- 9. Quantum Computing A Beginner's Introduction, Parag K Lala, Indian Edition, Mc GrawHill, Reprint 2020.
- 10. Engineering Physics, S P Basavaraj, 2005 Edition, Subhash Stores.
- 11. Physics for Animators, Michele Bousquet with Alejandro Garcia, CRC Press, Taylor & Francis, 2016.
- 12. Quantum Computation and Logic: How Quantum Computers Have Inspired Logical Investigations, Maria Luisa Dalla Chiara, Roberto Giuntini, Roberto Leporini, Giuseppe Sergioli, TrendsinLogic, Volume 48, Springer.
- 13. Statistical Physics: Berkely Physics Course, Volume 5, F. Reif, McGraw Hill.
- 14. Introduction to Superconductivity, Michael Tinkham, McGraw Hill, INC, II Edition

Web links and Video Lectures (e-Resources):

LASER: <u>https://www.youtube.com/watch?v=WgzynezPiyc</u>

Superconductivity : <u>https://www.youtube.com/watch?v=MT5Xl5ppn48</u>

**Optical Fiber :** <u>https://www.youtube.com/watch?v=N\_kA8EpCUQo</u>

**Quantum Mechanics** : <u>https://www.youtube.com/watch?v=p7bzE1E5PMY&t=136s</u>

Quantum Computing : <u>https://www.youtube.com/watch?v=jHoEjvuPoB8</u>

Quantum Computing :<u>https://www.youtube.com/watch?v=ZuvCUU2jD30</u>

**Physics of Animation :** <u>https://www.youtube.com/watch?v=kj1kaA\_8Fu4</u>

Statistical Physics Simulation : https://phet.colorado.edu/sims/html/plinko-probability/latest/plinko-

probability\_en.html

NPTEL Supercoductivity: https://archive.nptel.ac.in/courses/115/103/115103108/

NPTEL Quantum Computing : <u>https://archive.nptel.ac.in/courses/115/101/115101092</u>

Virtual LAB :https://www.vlab.co.in/participating-institute-amrita-vishwa-vidyapeetham

Virtual LAB : <u>https://vlab.amrita.edu/index.php?sub=1&brch=189&sim=343&cnt=1</u>

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

http://nptel.ac.in

https://swayam.gov.in

https://virtuallabs.merlot.org/vl\_physics.html

https://phet.colorado.edu

https://www.myphysicslab.com

#### Laboratory Component:

Any Ten Experiments have to be completed from the list of experiments

Note: The experiments have to be classified into

- a) Exercise
- b) Demonstration
- c) Structured Inquiry
- d) Open Ended

Based on the convenience classify the following experiments into above categories. Select at least one simulation/spreadsheet activity.

#### List of Experiments

- 1. Determination of wavelength of LASER using Diffraction Grating.
- 2. Determination of acceptance angle and numerical aperture of the given Optical Fiber.
- 3. Determination of Magnetic Flux Density at any point along the axis of a circular coil.
- 4. Determination of resistivity of a semiconductor by Four Probe Method
- 5. Study the I-V Characteristics of the Given Bipolar Junction Transistor.
- 6. Determination of dielectric constant of the material of capacitor by Charging and Discharging method.
- 7. Study the Characteristics of a Photo-Diode and to determine the power responsivity / Verification of Inverse Square Law of Intensity of Light.
- 8. Study the frequency response of Series & Parallel LCR circuits.
- 9. Determination of Planck's Constant using LEDs.
- 10. Determination of Fermi Energy of Copper.
- 11. Identification of circuit elements in a Black Box and determination of values of the components.
- 12. Determination of Energy gap of the given Semiconductor.
- 13. Step Interactive Physical Simulations.
- 14. Study of motion using spread Sheets
- 15. Study of Application of Statistics using spread sheets
- 16. PHET Interactive Simulations/filter?subjects=physics&type=html.prototype)

COs and	COs and POs Mapping (Individual teacher has to fill up)													
COs		POs												
cos	1	2	3	4	5	6	7	8	9	10	11	12		
CO1	3	2	-	-	-	-	-	-	-	-	-	2		
CO2	3	3	-	-	-	-	-	-	-	-	-	2		
CO3	3	3	-	-	-	-	-	-	-	-	-	2		
CO4	3	2	1	-	1	-	-	-	-	-	-	2		
CO5	3	2	1	-	2	-	-	3	3	-	-	2		
·	L	evel 3- Hi	ighly Ma	pped,	Level 2-M	Moderate	ly Mappe	ed, Lo	evel 1-Lo	w Mappe	ed,	<u> </u>		

**Note :** The CO-PO mapping values are indicative. The course coordinator can alter the mapping using **Competency and Performance Indicators** mentioned in the **AICTE Exam reforms.** 

Communicative English	Communicative Engli	ch	
Course Title: Course Code:	BENGK106-206	CIE Marks	50
	Theory	SEE Marks	50
Course Type (Theory/Practical /Integrated)		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy Course objectives: The course Communicati	15 hours	Credits	01
<ol> <li>To train to identify the nuances of pho</li> <li>To impart basic English grammar and</li> <li>To enhance with English vocabulary a</li> <li>To learn about Techniques of Informa</li> </ol> Teaching-Learning Process : These are sample Strategies, which teacher can u Teaching –Learning more effective: Teachers shall adopt suitable pedagogy for effective methodologies which suit modern technological tool <ol> <li>(i) Direct instructional method ( Low/O Blended learning (Combination of both)</li> <li>(v) Personalized learning, (vi) Problems learning Tools and techniques, (viii) Us Apart from conventional lecture methods, various ty adapted so that the delivered lesson can progress the skills in general.</li></ol>	essentials of important lan and language proficiency for tion Transfer through prese se to accelerate the attainment teaching - learning process. T ls and software's to meet the ld Technology), (ii) Flipped cl ), (iv) Enquiry and evaluation based learning through discuss e of audio visual methods thro pes of innovative teaching tec	guage skills. or better communicat entation. ent of the various cou The pedagogy shall inve present requirements o lassrooms (High/advan based learning, ssion, (vii) Following t ough language Labs in chniques through video	tion skills. rse outcomes and make olve the combination of differen f the Global employment marke ced Technological tools), (iii) he method of expeditionary teaching of of LSRW skills. s, animation films may be
Grammar, Vocabulary) through tests, activities can be referred as per the AICTE / VTU guidel M Introduction to Communicative English : Co Communication, Barriers to Effective Communication	, exercises etc., comprehen ines. odule-1 ommunicative English, Fun nicative English, Different s	usive web-based learn	ning and assessment systems (03 hours of pedagogy unicative English, Process of
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### 26.10.2022

Course outcome (Course Skill Set)		
At the end	d of the course Communicative English (22ENG16) the student will be able to:	
C01	Understand and apply the Fundamentals of Communication Skills in their communication skills.	
CO2 Identify the nuances of phonetics, intonation and enhance pronunciation skills.		
CO3	To impart basic English grammar and essentials of language skills as per present requirement.	

CO4 Understand and use all types of English vocabulary and language proficiency.

CO5 Adopt the Techniques of Information Transfer through presentation.

### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### **Continuous Internal Evaluation(CIE):**

#### Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration

#### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others.. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks

#### Semester End Examinations (SEE)

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

#### Suggested Learning Resources:

#### Textbook:

- 1) Communication Skills by Sanjay Kumar & Pushp Lata, Oxford University Press India Pvt Ltd 2019.
- 2) A Textbook of English Language Communication Skills, (ISBN-978-81-955465-2-7), Published by Infinite Learning Solutions, Bengaluru 2022.

#### **Reference Books:**

- 1. **Technical Communication** by Gajendra Singh Chauhan and Et al, (ISBN-978-93-5350-050-4), Cengage learning India Pvt Limited [Latest Revised Edition] 2019.
- 2. English for Engineers by N.P.Sudharshana and C.Savitha, Cambridge University Press 2018.
- English Language Communication Skills Lab Manual cum Workbook, Cengage learning India Pvt Limited [Latest Revised Edition] – (ISBN-978-93-86668-45-5), 2019.
- 4. A Course in Technical English D Praveen Sam, KN Shoba, Cambridge University Press 2020.
- 5. **Practical English Usage** by Michael Swan, Oxford University Press 2016.

#### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- $\checkmark$  For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions, Seminars and assignments

Course Title: Waste Management				
Course Code:		BETCK105F/205F	CIE Marks	50
Course Type (Theory/Practical		Theory	SEE Marks	50
/Integrated )			Total Marks	100
Teaching Hours/Week	(L:T:P: S)	3:0:0:0	Exam Hours	3 hrs of Theory
Total Hours of Pedagog	SY	40 hours	Credits	03

#### **Course objectives**

- To learn broader understandings on various aspects of solid waste management practiced in industries.
- To learn recovery of products from solid waste to compost and biogas, incineration and energy recovery,
  - hazardous waste management and treatment, and integrated waste management.

#### **Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective

- 1. Include traditional teaching learning process such as Chalk and Talk using writing boards.
- 2. Construct graphical and pictorial representation of the subject in the form of Chart, hand-outs or PowerPoint presentations.
- 3. Collaborate with students how tools are applied to solve biological problems.
- 4. Integrate real time case studies in various scientific tools used.
- 5. Reflective approaches on analysing how and why the tools are used in self-reflected or published data.
- 6. Incorporate Inquiry based approach using demonstration, field study, experiments and project work

#### Module-1 (08)

#### INTRODUCTION TO SOLID WASTE MANAGEMENT:

Classification of solid wastes (source and type based), solid waste management (SWM), elements of SWM, ESSWM (environmentally sound solid waste management) and EST (environmentally sound technologies), factors affecting SWM, Indian scenario, progress in MSW (municipal solid waste) management in India.Indian and global scenario of e-waste,

#### Module-2 (08)

#### WASTE GENERATION ASPECTS:

Waste stream assessment (WSA), waste generation and composition, waste characteristics (physical and chemical), health and environmental effects (public health and environmental), comparative assessment of waste generation and composition of developing and developed nations, a case study results from an Indian city, handouts on solid waste compositions. E-waste generation.

#### Module-3 (08)

#### COLLECTION, STORAGE, TRANSPORT AND DISPOSAL OF WASTES:

Waste Collection, Storage and Transport: Collection components, storage-containers/collection vehicles, collection operation, transfer station, waste collection system design, record keeping, control, inventory and monitoring, implementing collection and transfer system, a case study. Waste Disposal: key issues in waste disposal, disposal options and selection criteria, sanitary landfill, landfill gas emission, leachate formation, environmental effects of landfill, landfill operation issues, a case study.

#### Module-4 (08)

#### WASTE PROCESSING TECHNIQUES & SOURCE REDUCTION, PRODUCT RECOVERY & RECYCLING:

Purpose of processing, mechanical volume and size reduction, component separation, drying and dewatering. Source Reduction, Product Recovery and Recycling: basics, purpose, implementation monitoring and evaluation of source reduction, significance of recycling, planning of a recycling programme, recycling programme elements, commonly recycled materials and processes, a case study.

#### Module-5 (08)

#### HAZARDOUS WASTE MANAGEMENT AND TREATMENT:

Identification and classification of hazardous waste, hazardous waste treatment, pollution prevention and waste minimization, hazardous wastes management in India. E-waste recycling.

#### Course outcome (Course Skill Set)

At the end of the course the student will be able to:

At the en	u of the course the student will be able to.
C01	Apply the basics of solid waste management towards sustainable development
CO2	Apply technologies to process waste and dispose the same.
CO3	Design working models to convert waste to energy
C04	Identify and classify hazardous waste and manage the hazard

### **Assessment Details (both CIE and SEE)**

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### Continuous Internal Evaluation(CIE):

Three Tests each of 20 Marks;

• 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> tests shall be conducted after completion of the syllabus of 30-35%,

70-75%, and 90-100% of the course/s respectively.

 Assignments/Seminar/quiz/group discussion /field survey & report presentation/ course project/Skill development activities, suitably planned to attain the COs and POs for a total of 40 Marks.

If the nature of the courses requires assignments/Seminars/Quizzes/group discussion two evaluation components shall be conducted. If course project/field survey/skill development activities etc then the evaluation method shall be one.

### Total CIE marks (out of 100 marks) shall be scaled down to 50 marks

#### Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks.
- Students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

#### Suggested Learning Resources:

Books

#### **Text Books:**

1. Tchobaanoglous, G., Theisen, H., and Samuel A Vigil, Integrated Solid Waste Management, McGraw-Hill Publishers, 1993.

2. Bilitewski B., Hard He G., Marek K., Weissbach A., and Boeddicker H., Waste Management, Springer, 1994.

#### **Reference Books:**

1. White, F. R., Franke P. R., & Hindle M., Integrated solid waste management: a life cycle inventory. McDougall, P. John Wiley & Sons. 2001

2. Nicholas, P., & Cheremisinoff, P. D., Handbook of solid waste management and waste minimization

technologies, Imprint of Elsevier Science. 2005

#### Web links and Video Lectures (e-Resources):

- https://nptel.ac.in/courses/105103205
- https://www.youtube.com/watch?v=k0ktJRoRcOA
- https://nptel.ac.in/courses/103/107/103107125/
- https://onlinecourses.nptel.ac.in/noc22\_ce76/preview
- https://onlinecourses.swayam2.ac.in/cec20\_ge13/preview

#### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- AV presentation by students (on specific topics).
- Discussion of case studies based on research findings.
- Model making and Poster presentations

#### COs and POs Mapping (Individual teacher has to fill up) COs POs 1 2 7 9 3 4 5 6 8 10 11 12 C01 3 3 3 3 3 **CO2** 3 **CO3** 3 3 3 **CO4** 3 3 3 Level 3- Highly Mapped, Level 2-Moderately Mapped, Level 1-Low Mapped, Level 0- Not Mapped

Course Title:	Principles of Pro	Principles of Programming using C		
Course Code:	BPOPS103/203	CIE Marks 50		
Course Type	Integrated	SEE Marks 50		
(Theory/Practical /Integrated )		Total Marks100		
Teaching Hours/Week (L:T:P: S)	2:0:2	Exam Hours 3+2		
Total Hours of Pedago	y 40 hours	Credits 03		
Cou	seObjectives:			
	<ol> <li>Elucidate the basic architecture and fund</li> <li>Apply programming constructs of 0 problems</li> <li>Explore user-defined data structures implementing solutions to problems</li> <li>Design and Develop Solutions to problems constructs such as functions and procedure</li> </ol>	C language to solve the real-world like arrays, structures and pointers in blems using structured programming		
Teac	hing-LearningProcess(GeneralInstruction	ns)		
outco	<ul> <li>mes.</li> <li>Lecturer method (L) need not to be only alternative effectiveteachingmethodscoul UseofVideo/Animationtoexplainfunction</li> <li>Encouragecollaborative(GroupLearning)</li> <li>AskatleastthreeHOT(HigherorderThinkin ticalthinking.</li> <li>AdoptProblemBasedLearning(PBL),which pdesignthinking skills such as the ability analyze informationratherthan simplyrec</li> <li>IntroduceTopicsinmanifoldrepresentation</li> <li>Showthedifferentwaystosolve thesameprodup upwiththeirowncreative waystosolve the Discusshoweveryconceptcanbeappliedtor to improve the students'understanding.</li> </ul>	Idbeadoptedtoattaintheoutcomes. hingofvariousconcepts. Learningintheclass. ng)questionsintheclass,whichpromotescri chfostersstudents'Analyticalskills,develo to design, evaluate, generalize, and call it. ns. oblemandencouragethestudentstocome m. therealworld-andwhenthat'spossible,ithelps ml#mode=edit in order to visualize the		
Intu				
prog Com		nput and output devices, designing efficient program, Files used in a C program, cams, variables, constants, Input/output		
	book: Chapter 1.1-1.9, 2.1-2.2, 8.1 - 8.6, 9 Process Chalkandtalkmethod/PowerPointF			
1 caching-1/cai iilli	https://tinyurl.com/4xmrexre	resentation web Content.		

	Module-2 (6 Hours of Pedagogy)	
	Operators in C, Type conversion and typecasting.	
	<b>Decision control and Looping statements:</b> Introduction to decision control, Conditional branching statements, iterative statements, nested loops, break and continue statements goto statement.	
Textbook: Chapter 9.15-9.16, 10.1-10.6		
Teaching-Le	arningProcess Chalkandtalkmethod/PowerPointPresentation	
	Module-3 (8 Hours of Pedagogy)	
atement, pass arrays: Declara rrays, Passing imensional arr	roduction using functions, Function definition, function declaration, function call, returning parameters to functions, scope of variables, storage classes, recursive functions. ation of arrays, accessing the elements of an array, storing values in arrays, Operations on arrays to functions, two dimensional arrays, operations on two-dimensional arrays, two-rays to functions, multidimensional arrays, applications of arrays.	
	pter 11.1-11.10, 12.1-12.10,12.12	
I eaching-Lea	arningProcess Chalkandtalkmethod/PowerPointPresentation	
	Module-4 (6 Hours of Pedagogy)	
sumgs and	Pointers: Introduction, string taxonomy, operations on strings, Miscellaneous string a	
character func pointers, Pass <b>Textbook: C</b> l	ctions, arrays of strings. Pointers: Introduction to pointers, declaring pointer variables, Types ing arguments to functions using pointers <b>hapter 13.1-13.6, 14-14.7</b>	
character func pointers, Pass <b>Textbook: C</b> l	ctions, arrays of strings. Pointers: Introduction to pointers, declaring pointer variables, Types ing arguments to functions using pointers	
character func pointers, Pass <b>Textbook: C</b> l	ctions, arrays of strings. Pointers: Introduction to pointers, declaring pointer variables, Types ing arguments to functions using pointers <b>hapter 13.1-13.6, 14-14.7</b>	
character func pointers, Pass <b>Textbook: Cl</b> <b>Teaching-Les</b> <b>Structure, U</b> inside structur <b>Files:</b> Introdu	ctions, arrays of strings. Pointers: Introduction to pointers, declaring pointer variables, Types ing arguments to functions using pointers         hapter 13.1-13.6, 14-14.7         arningProcess       Chalkandtalkmethod/PowerPointPresentation         Module-5 (6 Hours of Pedagogy)         raion, and Enumerated Data Type: Introduction, structures and functions, Unions, uni res, Enumerated data type.         ction to files, using files in C, reading and writing data files. , Detecting end of file	
character func pointers, Pass <b>Textbook: Cl</b> <b>Teaching-Les</b> <b>Structure, U</b> inside structur <b>Files:</b> Introdu	ctions, arrays of strings. Pointers: Introduction to pointers, declaring pointer variables, Types ing arguments to functions using pointers hapter 13.1-13.6, 14-14.7 arningProcess Chalkandtalkmethod/PowerPointPresentation Module-5 (6 Hours of Pedagogy) Finion, and Enumerated Data Type: Introduction, structures and functions, Unions, uni res, Enumerated data type.	
character func pointers, Pass <b>Textbook: Cl</b> <b>Teaching-Lea</b> <b>Structure, U</b> inside structur <b>Files:</b> Introdu <b>Textbook: C</b> l	ctions, arrays of strings. Pointers: Introduction to pointers, declaring pointer variables, Types ing arguments to functions using pointers         hapter 13.1-13.6, 14-14.7         arningProcess       Chalkandtalkmethod/PowerPointPresentation         Module-5 (6 Hours of Pedagogy)         raion, and Enumerated Data Type: Introduction, structures and functions, Unions, uni res, Enumerated data type.         ction to files, using files in C, reading and writing data files. , Detecting end of file	
character func pointers, Pass <b>Textbook: Cl</b> <b>Teaching-Le:</b> <b>Structure, U</b> inside structur <b>Files:</b> Introdu <b>Textbook: Cl</b> <b>Teaching-Le:</b>	ctions, arrays of strings. Pointers: Introduction to pointers, declaring pointer variables, Types ing arguments to functions using pointers         hapter 13.1-13.6, 14-14.7         arningProcess       Chalkandtalkmethod/PowerPointPresentation         Module-5 (6 Hours of Pedagogy)         Inion, and Enumerated Data Type: Introduction, structures and functions, Unions, uni res, Enumerated data type.         ction to files, using files in C, reading and writing data files. , Detecting end of file         hapter 15.1 – 15.10, 16.1-16.5         arningProcess       Chalkandtalkmethod/PowerPointPresentation	
character func pointers, Pass <b>Textbook: Cl</b> <b>Teaching-Les</b> <b>Structure, U</b> inside structur <b>Files:</b> Introdu <b>Textbook: Cl</b> <b>Teaching-Les</b> <b>CourseOutco</b>	ctions, arrays of strings. Pointers: Introduction to pointers, declaring pointer variables, Types ing arguments to functions using pointers         hapter 13.1-13.6, 14-14.7         arningProcess       Chalkandtalkmethod/PowerPointPresentation         Module-5 (6 Hours of Pedagogy)         Thion, and Enumerated Data Type: Introduction, structures and functions, Unions, uni res, Enumerated data type.         ction to files, using files in C, reading and writing data files. , Detecting end of file         hapter 15.1 – 15.10, 16.1-16.5	
character func pointers, Pass Textbook: Cl Teaching-Les Structure, U inside structur Files: Introdu Textbook: Cl Teaching-Les CourseOutco Attheendofthe	ctions, arrays of strings. Pointers: Introduction to pointers, declaring pointer variables, Types ing arguments to functions using pointers         hapter 13.1-13.6, 14-14.7         arningProcess       Chalkandtalkmethod/PowerPointPresentation         Module-5 (6 Hours of Pedagogy)         Inion, and Enumerated Data Type: Introduction, structures and functions, Unions, uni res, Enumerated data type.         ction to files, using files in C, reading and writing data files. , Detecting end of file         hapter 15.1 – 15.10, 16.1-16.5         arningProcess       Chalkandtalkmethod/PowerPointPresentation         omes(CourseSkillSet)	
character func pointers, Pass Textbook: Cl Teaching-Les Structure, U inside structur Files: Introdu Textbook: Cl Teaching-Les CourseOutco Attheendofthe	tions, arrays of strings. Pointers: Introduction to pointers, declaring pointer variables, Types ing arguments to functions using pointers hapter 13.1-13.6, 14-14.7 arningProcess Chalkandtalkmethod/PowerPointPresentation Module-5 (6 Hours of Pedagogy) Thion, and Enumerated Data Type: Introduction, structures and functions, Unions, uni res, Enumerated data type. ction to files, using files in C, reading and writing data files. , Detecting end of file hapter 15.1 – 15.10, 16.1-16.5 arningProcess Chalkandtalkmethod/PowerPointPresentation omes(CourseSkillSet) ecoursethestudentwillbeableto: late the basic architecture and functionalities of a computer and also recognize	
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character func pointers, Pass Textbook: Cl Teaching-Les Structure, U inside structur Files: Introdu Textbook: Cl Teaching-Les CourseOutco Attheendofthe CO1. Elucid the hardward CO 2. Apply CO 3.Explor	tions, arrays of strings. Pointers: Introduction to pointers, declaring pointer variables, Types ing arguments to functions using pointers hapter 13.1-13.6, 14-14.7 arningProcess Chalkandtalkmethod/PowerPointPresentation Module-5 (6 Hours of Pedagogy) fnion, and Enumerated Data Type: Introduction, structures and functions, Unions, uni res, Enumerated data type. ction to files, using files in C, reading and writing data files. , Detecting end of file hapter 15.1 – 15.10, 16.1-16.5 arningProcess Chalkandtalkmethod/PowerPointPresentation omes(CourseSkillSet) ecoursethestudentwillbeableto: late the basic architecture and functionalities of a computer and also recognize e parts. y programming constructs of C language to solve the real world problem	

CO5.Design and Develop Solutions to problems using modular programming constructs using functions

#### **Programming Assignments**

1 Simulation of a SimpleCalculator.

2 Compute the roots of a quadratic equation by accepting the coefficients. Print appropriate messages.

3 An electricity board charges the following rates for the use of electricity: for the first 200 units 80 paise per unit: for the next 100 units 90 paise per unit: beyond 300 units Rs 1 per unit. All users are charged a minimum of Rs. 100 as meter charge. If the total amount is more than Rs 400, then an additional surcharge of 15% of total amount is charged. Write a program to read the name of the user, number of units consumed and print out the charges.

4. Write a C Program to display the following by reading the number of rows as input,

n<sup>th</sup> row

5 Implement Binary Search on Integers.

6 Implement Matrix multiplication and validate the rules of multiplication.

7 Compute sin(x)/cos(x) using Taylor series approximation. Compare your result with the built-in library function. Print both the results with appropriate inferences.

8 Sort the given set of N numbers using Bubble sort.

9 Write functions to implement string operations such as compare, concatenate, and find string length. Use the parameter passing techniques.

10 Implement structures to read, write and compute average- marks of the students, list the students scoring above and below the average marks for a class of N students.

11 Develop a program using pointers to compute the sum, mean and standard deviation of all elements stored in an array of N real numbers.

12. Write a C program to copy a text file to another, read both the input file name and target file name.

Note:

SEE marks for the practical course is 50 Marks.

SEE shall be conducted jointly by the two examiners of the same institute, examiners are appointed by the University

All laboratory experiments are to be included for practical examination.

(Rubrics) Breakup of marks and the instructions printed on the cover page of the answer script to be strictly adhered to by the examiners. OR based on the course requirement evaluation rubrics shall be decided jointly by examiners.

Students can pick one question (experiment) from the questions lot prepared by the internal /external examiners jointly.

Evaluation of test write-up/ conduction procedure and result/viva will be conducted jointly by examiners.

General rubrics suggested for SEE are mentioned here, writeup-20%, Conduction procedure and result in -60%, Viva-voce 20% of maximum marks. SEE for practical shall be evaluated for 100 marks and scored marks shall be scaled down to 50 marks (however, based on course type, rubrics shall be decided by the examiners)

Students can pick one experiment from the questions lot with equal choice to all the students in a batch. Student should develop an algorithm, program, execute and demonstrate the results with appropriate output for the given problem.

Change of experiment is allowed only once and 15% Marks allotted to the procedure part to be made zero.

#### The duration of SEE is 02 hours

#### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### Continuous Internal Evaluation(CIE):

The CIE marks for the theory component of the IC shall be **30 marks** and for the laboratory component **20 Marks**.

#### CIE for the theory component of the IC

- Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.
- Two Assignments/two quizzes/ seminars/one field survey and report presentation/one-

course project totaling 20 marks.

Total Marks scored (test + assignments) out of 80 shall be scaled down to **30 marks** 

### CIE for the practical component of the IC

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for** the test conducted at the end of the semester.
- The CIE marks awarded in the case of the Practical component shall be based on the

continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.

• The laboratory test **(duration 03 hours)** at the end of the 15<sup>th</sup> week of the semester /after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to **05 marks**.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

• The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

#### Semester End Examination:

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (duration 03 hours)

- 1. The question paper will have ten questions. Each question is set for 20 marks. Marks scored shall be proportionally reduced to 50 marks.
- 2. There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), should have a mix of topics under that module.
- 3. The students have to answer 5 full questions, selecting one full question from each module

#### Suggested Learning Resources:

#### Textbooks

1. Computer fundamentals and programming in c, "Reema Thareja", Oxford University, Second edition, 2017.

#### **Reference Books:**

- 1. E. Balaguruswamy, Programming in ANSI C, 7th Edition, Tata McGraw-Hill.
- 2. Brian W. Kernighan and Dennis M. Ritchie, The 'C' Programming Language, Prentice Hall of India.

#### Web links and Video Lectures (e-Resources):

- 1. elearning.vtu.ac.in/econtent/courses/video/BS/15PCD23.html
- 2. https://nptel.ac.in/courses/106/105/106105171/ MOOC courses can be adopted for more clarity in understanding the topics and verities of problem solving methods.

3. https://tinyurl.com/4xmrexre

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- Quizzes
- Assignments
- Seminars

### I Semester

Learning

INNOVATION and DESIGN THINKING				
Course Code BIDTK158/258 CIE Marks 50				
Teaching Hours/Week (L: T:P: S)1:0:0SEE Marks50				
Total Hours of Pedagogy15Total Marks100				
Credits	01	Exam Hours	01	

## Course Category: Foundation

**Preamble:** This course provides an introduction to the basic concepts and techniques of engineering and reverses engineering, the process of design, analytical thinking and ideas, basics and development of engineering drawing, application of engineering drawing with computer aide. **Course objectives:** 

- To explain the concept of design thinking for product and service development
- To explain the fundamental concept of innovation and design thinking
- To discuss the methods of implementing design thinking in the real world.

## **Teaching-Learning Process (General Instructions)**

These are sample Strategies; which teachers can use to accelerate the attainment of the various course outcomes.

- **1.** Lecturer method (L) does not mean only the traditional lecture method, but a different type of teaching method may be adopted to develop the outcomes.
- 2. Show Video/animation films to explain concepts
- 3. Encourage collaborative (Group Learning) Learning in the class
- **4.** Ask at least three HOTS (Higher-order Thinking) questions in the class, which promotes critical thinking
- **5.** Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develops thinking skills such as the ability to evaluate, generalize, and analyze information rather than simply recall it.
- **6.** Topics will be introduced in multiple representations.
- **7.** Show the different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.
- **8.** Discuss how every concept can be applied to the real world and when that's possible, it helps improve the students' understanding.

Module-1			
PROCESS OF DESIGN			
Understanding Design thinking			
Shared mode	Shared model in team-based design – Theory and practice in Design thinking – Explore presentation		
signers across globe – MVP or Prototyping			
Teaching-	Introduction about the design thinking: Chalk and Talk method		
Learning	Theory and practice through presentation		
Process	MVP and Prototyping through live examples and videos		
Module-2			
Tools for Design Thinking			
Real-Time design interaction capture and analysis – Enabling efficient collaboration in digital space			
– Empathy fo	r design – Collaboration in distributed Design		
Teaching-	Case studies on design thinking for real-time interaction and analysis		

Process	Simulation exercises for collaborated enabled design thinki	nσ
1100035	Live examples on the success of collaborated design thinkin	•
	Module-3	6
Design T	hinking in IT	
-	hinking to Business Process modelling – Agile in Virtual collaborati	on environment – Scenario
_	ototyping	
Teaching	ing- Case studies on design thinking and business acceptance of the design	
Learning	Simulation on the role of virtual eco-system for collaborated p	prototyping
Process		
	Module-4	
	rategic innovations	
	Story telling representation – Strategic Foresight - Change – S	-
	e – Value redefinition - Extreme Competition – experience of	_
Humaniza design.	tion - Creative Culture – Rapid prototyping, Strategy and Orga	anization – Business Mode
Teaching	- Business model examples of successful designs	
Learning	Presentation by the students on the success of design	
Process	Live project on design thinking in a group of 4 students	
	Module-5	
	nking workshop inking Work shop Empathize, Design, Ideate, Prototype and Test	
Teaching	- 8 hours design thinking workshop from the expect and then pro	esentation by the students
Learning		5
Process		
Course O	utcomes:	
Upon the	successful completion of the course, students will be able to:	
CO		Knowledge Level
Nos.	Course Outcomes	(Based on revised
		Bloom's Taxonomy)
CO1	Appreciate various design process procedure	K2
CO2	Generate and develop design ideas through different     K2	
CO3     Identify the significance of reverse Engineering toUnderstand products     K2		K2
C04	Draw technical drawing for design ideas	К3

#### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together. **Continuous Internal Evaluation (CIE)**:

- Two Tests (preferably in MCQ pattern ) each of **30 Marks**; The first test after the completion of the 40 -50% syllabus of the course. A second test after the completion of 90-100% of the syllabus of the course.
- Two Assignments/two quizzes/two seminars/one field survey and report

presentation/one-course project totaling 40 marks

Total Marks scored (test + assignments) out of 100 shall be scaled down to 50 marks

At the beginning of the semester, the instructor/faculty teaching the course has to announce the methods of CIE for the course.

The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

### Semester-End Examination:

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for subject

SEE paper will be set for 50 questions of each of 01 marks. The pattern of the question paper is MCQ. The time allotted for SEE is **01 hour** 

### Suggested Learning Resources:

### **Text Books :**

- 1. John.R.Karsnitz, Stephen O'Brien and John P. Hutchinson, "Engineering Design", Cengage learning (International edition) Second Edition, 2013.
- 2. Roger Martin, "The Design of Business: Why Design Thinking is the Next Competitive Advantage", Harvard Business Press, 2009.
- 3. Hasso Plattner, Christoph Meinel and Larry Leifer (eds), "Design Thinking: Understand Improve Apply", Springer, 2011
- 4. Idris Mootee, "Design Thinking for Strategic Innovation: What They Can't Teach You at Business or Design School", John Wiley & Sons 2013.

**References**:

5. Yousef Haik and Tamer M.Shahin, "Engineering Design Process", CengageLearning, Second
Edition, 2011.
6. Book - Solving Problems with Design Thinking - Ten Stories of What Works (Columbia Business
School Publishing) Hardcover – 20 Sep 2013 by Jeanne Liedtka (Author), Andrew King (Author),
Kevin Bennett (Author).
Web links and Video Lectures (e-Resources):
1. www.tutor2u.net/business/presentations/. /productlifecycle/default.html
2. https://docs.oracle.com/cd/E11108_02/otn/pdf/. /E11087_01.pdf
3. www.bizfilings.com > Home > Marketing > Product Developmen
4. <u>https://www.mindtools.com/brainstm.html</u>
5. https://www.quicksprout.com/. /how-to-reverse-engineer-your-competit
6. <u>www.vertabelo.com/blog/documentation/reverse-engineering</u>
https://support.microsoft.com/en-us/kb/273814
7. <u>https://support.google.com/docs/answer/179740?hl=en</u>
8. <u>https://www.youtube.com/watch?v=2mjSDIBaUlM</u>
thevirtualinstructor.com/foreshortening.html
https://dschool.stanford.edu//designresources//ModeGuideBOOTCAMP2010L.pdf
https://dschool.stanford.edu/use-our-methods/ 6. https://www.interaction-
design.org/literature/article/5-stages-in-the-design-thinking-process 7.
http://www.creativityatwork.com/design-thinking-strategy-for-innovation/ 49 8.
https://www.nngroup.com/articles/design-thinking/ 9.
https://designthinkingforeducators.com/design-thinking/ 10.
www.designthinkingformobility.org/wp-content//10/NapkinPitch_Worksheet.pdf
Activity Based Learning (Suggested Activities in Class)/ Practical Based learning
<ul> <li>http://dschool.stanford.edu/dgift/</li> </ul>

https://onlinecourses.nptel.ac.in/noc19\_mg60/preview

Theory - 01 Credit Course

## ಬಳಕೆ ಕನ್ನಡ - baLake Kannada (Kannada for Usage)

#### ಕನ್ನಡ ಕಲಿಕೆಗಾಗಿ <u>ನಿಗದಿ</u>ಪಡಿಸಿದ ಪಠ್ಯಪುಸ್ತಕ - (Prescribed Textbook to Learn Kannada)

Course Title:	ಬಳಕೆ ಕನ್ನಡ		
Course Code:	BKBKK107-207	CIE Marks	50
Course Type (Theory/Practical /Integrated	Theory	SEE Marks	50
course Type (Theory) Plactical / Integrated		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01

#### Course objectives : ಬಳಕೆ ಕನ್ನಡ ಪಠ್ಯ ಕಲಿಕೆಯ ಉದ್ದೇಶಗಳು:

The course (22KBK17/27) will enable the students,

- 1. To Create the awareness regarding the necessity of learning local language for comfortable and healthy life.
- 2. To enable learners to Listen and understand the Kannada language properly.
- 3. To speak, read and write Kannada language as per requirement.
- 4. To train the learners for correct and polite conservation.
- 5. To know about Karnataka state and its language, literature and General information about this state.

#### ಬೋಧನೆ ಮತ್ತು ಕಲಿಕಾ ವ್ಯವಸ್ಥೆ (Teaching-Learning Process - General Instructions) :

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

- ಬಳಕೆ ಕನ್ನಡವನ್ನು ತರಗತಿಯಲ್ಲಿ ಶಿಕ್ಷಕರು ಬೋಧಿಸಲು ವಿಟಿಯು ಸೂಚಿಸಿರುವ ಪಠ್ಯಪುಸ್ತಕವನ್ನು ಉಪಯೊಗಿಸಬೇಕು.
- ಪ್ರಮುಖ ಅಂಶಗಳ ಚಾರ್ಟ್ ಗಳನ್ನು ತಯಾರಿಸಲು ವಿದ್ಯಾರ್ಥಿಗಳನ್ನು ಉತ್ತೇಜಿಸುವುದು ಮತ್ತು ತರಗತಿಯಲ್ಲಿ ಅವುಗಳನ್ನು ಚರ್ಚಿಸಲು ಅವಕಾಶ ಮಾಡಿಕೊಡುವುದು.
- 3. ಪ್ರತಿ ವಿದ್ಯಾರ್ಥಿ ಪುಸ್ತಕವನ್ನು ತರಗತಿಯಲ್ಲಿ ಬಳಸುವಂತೆ ನೋಡಿಕೊಳ್ಳುವುದು ಮತ್ತು ಪ್ರತಿ ಪಾಠ ಮತ್ತು ಪ್ರವಚನಗಳ ಮೂಲ ಅಂಶಗಳಿಗೆ ಸಂಬಂಧಪಟ್ಟಂತೆ ಪೂರಕ ಚಟುವಟಿಕೆಗಳಿಗೆ ತೊಡಗಿಸತಕ್ಕದ್ದು.
- 4. ಡಿಜಿಟಲ್ ತಂತ್ರಜ್ಞಾನದ ಮುಖಾಂತರ ಇತ್ತೀಚೆಗೆ ಡಿಜಿಟಲೀಕರಣ ಗೊಂಡಿರುವ ಭಾಷೆ ಕಲಿಕೆಯ ವಿಧಾನಗಳನ್ನು ಪಿಪಿಟಿ ಮತ್ತು ದೃಶ್ಯ ಮಾಧ್ಯಮದ ಮುಖಾಂತರ ಚರ್ಚಿಸಲು ಕ್ರಮಕೈಗೊಳ್ಳುವುದು. ಇದರಿಂದ ವಿದ್ಯಾರ್ಥಿಗಳನ್ನು ತರಗತಿಯಲ್ಲಿ ಹೆಚ್ಚು ಏಕಾಗ್ರತೆಯಿಂದ ಪಾಠ ಕೇಳಲು ಮತ್ತು ಅಧ್ಯಯನದಲ್ಲಿ ತೊಡಗಲು ಅನುಕೂಲವಾಗುತ್ತದೆ.
- ಭಾಷಾಕಲಿಕೆಯ ಪ್ರಯೋಗಾಲಯದ ಮುಖಾಂತರ ಬಹುಬೇಗ ಕನ್ನಡ ಭಾಷೆಯನ್ನು ಕಲಿಯಲು ಅನುಕೂಲವಾಗುವಂತೆ ಕಾರ್ಯಚಟುವಟಿಕೆಗಳನ್ನು ಮತ್ತು ಕ್ರಿಯಾ ಯೋಜನೆಗಳನ್ನು ರೂಪಿಸುವುದು.

## Module - 1

#### (03 hours of pedagogy)

- 1. Introduction, Necessity of learning a local language. Methods to learn the Kannada language.
- 2. Easy learning of a Kannada Language: A few tips. Hints for correct and polite conservation, Listening and Speaking Activities, Key to Transcription
- 3. ವೈಯಕ್ತಿಕ, ಸ್ವಾಮ್ಯಸೂಚಕ/ಸಂಬಂಧಿತ ಸಾರ್ವನಾಮಗಳು ಮತ್ತು ಪ್ರಶ್ನಾರ್ಥಕ ಪದಗಳು Personal Pronouns, Possessive Forms, Interrogative words

	Module - 2	(03 hours of pedagogy)
	<ol> <li>ನಾಮಪದಗಳ ಸಂಬಂಧಾರ್ಥಕ ರೂಪಗಳು, ಸಂದೇಹಾಸ್ಪದ ನಾಮಪದಗಳು - Possessive forms of nouns, dubitive</li> <li>ಗುಣ, ಪರಿಮಾಣ ಮತ್ತು ವರ್ಣಬಣ್ಣ ವಿಶೇಷಣಗಳು, ಸಂಖ್ಯಾ</li> </ol>	question and Relative nouns
=	Colour Adjectives, Numerals . ಕಾರಕ ರೂಪಗಳು ಮತ್ತು ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯಗಳು –ಸಪ್ತಮಿ ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯ – (ಆ, ಆ	
	Module - 3	(03 hours of pedagogy)
1. v	ಕತುರ್ಥಿ ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯದ ಬಳಕೆ ಮತ್ತು ಸಂಖ್ಯಾವಾಚಕಗಳು - Dative Cas	ses, and Numerals
2.	ಸಂಖ್ಯಾಗುಣವಾಚಕಗಳು ಮತ್ತು ಬಹುವಚನ ನಾಮರೂಪಗಳು  -Ordinal n	umerals and Plural markers
	ನ್ಯೂನ/ನಿಷೇಧಾರ್ಥಕ ಕ್ರಿಯಾಪದಗಳು & ವರ್ಣ ಗುಣವಾಚಕಗಳು –Defec	
	Module- 4	(03 hours of pedagogy)
1.	ಅಪ್ಪಣೆ / ಒಪ್ಪಿಗೆ, ನಿರ್ದೇಶನ, ಪ್ರೋತ್ಸಾಹ ಮತು ಒತ್ತಾಯ ಆರ್ಥ	ರೂಪ ಪದಗಳು ಮತ್ತು ವಾಕ್ಯಗಳು
	Permission, Commands, encouraging and Urging words (Imp	perative words and sentences)
2. 7	ಸಾಮಾನ್ಯ ಸಂಭಾಷಣೆಗಳಲ್ಲಿ ದ್ವಿತೀಯ ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯಗಳು ಮ	ತ್ತು ಸಂಭವನೀಯ ಪ್ರಕಾರಗಳು
A	Accusative Cases and Potential Forms used in General Commu	unication
3. "	'ಇರು ಮತ್ತು ಇರಲ್ಲ" ಸಹಾಯಕ ಕ್ರಿಯಾಪದಗಳು, ಸಂಭಾವ್ಯಸೂ	ಂಚಕ ಮತ್ತು ನಿಷೇಧಾರ್ಥಕ ಕ್ರಿಯಾ ಪದಗಳು -
	Helping Verbs "iru and iralla", Corresponding Future and Negati	ion Verbs
4.	ಹೋಲಿಕೆ (ತರತಮ) , ಸಂಬಂಧ ಸೂಚಕ, ವಸ್ತು ಸೂಚಕ ಪ್ರತ್ಯಂ	ಯಗಳು ಮತ್ತು ನಿಷೇಧಾರ್ಥಕ ಪದಗಳ ಬಳಕೆ-
	Comparitive, Relationship, Identification and Negation Words	
	Module - 5	(03 hours of pedagogy)
1. च	ಕಾಲ ಮತ್ತು ಸಮಯದ ಹಾಗೂ ಕ್ರಿಯಾಪದಗಳ ವಿವಿಧ ಪ್ರಕಾರಗ	ಳು -Different types of Tense, Time and Verbs
2. <del>c</del>	ನ್, -ತ್, - ತು, - ಇತು, - ಆಗಿ, - ಅಲ್ಲ, - ಗ್, -ಕ್, ಇದೆ, ಕ್ರಿಯಾ ಪ್ರತ್ಯ	್ಯಯಗಳೊಂದಿಗೆ ಭೂತ, ಭವಿಷ್ಯತ್ ಮತ್ತು
_	ರರ್ತಮಾನ ಕಾಲ ವಾಕ್ಯ ರಚನೆ - Formation of Past, Future and	d Present Tense Sentences with Verb Forms

3. Kannada Vocabulary List :ಸಂಭಾಷಣೆಯಲ್ಲಿ ದಿನೋಪಯೋಗಿ ಕನ್ನಡ ಪದಗಳು -Kannada Words in Conversation

## Course outcome (Course Skill Set)

## ಬಳಕೆ ಕನ್ನಡ ಪಠ್ಯ ಕಲಿಕೆಯಿಂದ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಆಗುವ ಅನುಕೂಲಗಳು ಮತ್ತು ಫಲಿತಾಂಶಗಳು:

At the end of the course the student will be able to:

C01	To understand the necessity of learning of local language for comfortable life.
CO2	To speak, read and write Kannada language as per requirement.
CO3	To communicate (converse) in Kannada language in their daily life with kannada speakers.
C04	To Listen and understand the Kannada language properly.
CO5	To speak in polite conservation.

## Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than

35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### Continuous Internal Evaluation(CIE):

Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration

#### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others.. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

# The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks Semester End Examinations (SEE)

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

## **University Prescribed Textbook :**

## ಬಳಕೆ ಕನ್ನಡ

## ಡಾ. ಎಲ್. ತಿಮ್ಮೇಶ

ಪ್ರಕಟಣೆ : ಪ್ರಸಾರಾಂಗ,

### ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ.

ಸೂಚನೆ :

- 1. ಹೆಚ್ಚಿನ ಮಾಹಿತಿ ಮತ್ತು ವಿವರಣೆಗಳಿಗೆ ಡಾ. ಎಲ್. ತಿಮ್ಮೇಶ (9900832331) ಇವರನ್ನು ಸಂಪರ್ಕಿಸಿ.
- ಮಾದರಿ ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆ, ಕೋರ್ಸ್ ಆಯ್ಕೆ ಮಾಹಿತಿ, ಅಧ್ಯಯನ ಸಾಮಗ್ರಿ & ಬಹು ಆಯ್ಕೆ ಮಾದರಿಯ ಪ್ರಶ್ನೆಗಳ ಕೈಪಿಡಿಗಾಗಿ ವಿಶ್ವವಿದ್ಯಾಲಯದ ವೆಬ್ ಸೈಟ್ ನೋಡುವುದು.

#### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- $\checkmark$  For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions,
- ✓ Seminars and assignments

## Theory - 01 Credit Course

	e Title:	ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ				
Course Code:			CIE Marks	50		
Course Type (Theory/Practical /Integrated		BKSKK107-207	SEE Marks	50		
			Total Marks	100		
Teaching Hours/Week (L:T:P: S)		1:0:0:0	Exam Hours	01 Theory		
Total Hours of Pedagogy		15 hours	Credits	01		
Course	e objectives : ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ :	ಪಠ್ಯ ಕಲಿಕೆಯ ಉದ್ದೇಶ	ಗಳು:			
	urse (22KSK17/27) will enable the stu					
1.	ವೃತ್ತಿಪರ ಪದವಿ ವಿದ್ಯಾರ್ಥಿಗಳಾಗಿರ ಮಾಡಿಕೊಡುವುದು.	ುವುದರಿಂದ ಕನ್ನಡ ಭಾಷ 	, ಸಾಹಿತ್ಯ ಮತ್ತು ಕನ	ನ್ನಡದ ಸಂಸ್ಕೃತಿಯ ಪರಿಚಯ		
2.	ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಪ್ರಧಾನ ಭಾಗ ಪರಿಚಯಿಸಿವುದು.	ವಾದ ಆಧುನಿಕ ಪೂರ್ವ	ಮತ್ತು ಆಧುನಿಕ ಕ	ಾವ್ಯಗಳನ್ನು ಸಾಂಕೇತಿಕವಾಗಿ		
3.	ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ ಸಾಹಿತ್ಯ ಮತ್ತು ಸಂ	ಂಸ್ಕೃತಿಯ ಬಗ್ಗೆ ಅರಿವು ಹಾ	ಾಗೂ ಆಸಕ್ತಿಯನ್ನು ಪ	ಯೂಡಿಸುವುದು.		
	ತಾಂತ್ರಿಕ ವ್ಯಕ್ತಿಗಳ ಪರಿಚಯವನ್ನು					
	ಸಾಂಸ್ಕೃತಿಕ, ಜನಪದ ಹಾಗೂ ಪ್ರವಾ	-		<b>0</b>		
	ಧನೆ ಮತ್ತು ಕಲಿಕಾ ವ್ಯವಸ್ಥೆ (Teach	-		uctions) :		
		•				
	are sample Strategies, which teach					
1.	ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡವನ್ನು ಬೋಧಿ					
	ವಿಧಾನವನ್ನು ಅನುಸರಿಸುವುದು. ಪ್ರಮುಖ ಅಂಶಗಳ ಚಾರ್ಟ್ ಗಳನ್ನು ತಯಾರಿಸಲು ವಿದ್ಯಾರ್ಥಿಗಳನ್ನು ಪ್ರೇರೇಪಿಸುವುದು ಮತ್ತು ತರಗತಿಯಲ್ಲಿ ಅವುಗಳನ್ನು ಚರ್ಚಿಸಲು ಅವಕಾಶ ಮಾಡಿಕೊಡುವುದು.					
2.	ಇತ್ತೀಚಿನ ತಂತ್ರಜ್ಞಾನದ ಅನುಕೂ			-		
			-			
	ಚಿತ್ರಣ ಮತ್ತು ಲೇಖನಗಳು ಮತ್ತು ಕಥೆ ಕಾವ್ಯಗಳ ಮೂಲ ಅಂಶಗಳಿಗೆ ಸಂಬಂಧಪಟ್ಟ ಧ್ವನಿ ಚಿತ್ರಗಳು					
	ಸಂಭಾಷಣೆಗಳು ಈಧಾಗಣೀ ಇತರ					
	ಸಂಭಾಷಣೆಗಳು, ಈಗಾಗಲೇ ಇತರ	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ				
3	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು.	ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ		
3.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ನನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧ	ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ		
3.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ನನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧ ಗವಡಿಸಿಕೊಳ್ಳಬಹುದು.	ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ ನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ		
	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ನನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧ ಗವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ	ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ ನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ		
1.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗಂ	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ನನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧ ಸವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ನಾಜಯ್ಯ	ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ ನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ		
1. 2.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗರ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ನನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧ ಸವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ಸಾಜಯ್ಯ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ	ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ ಾನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟೆಸುಬ್ಬಯ್ಯ	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagogy		
1. 2.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗಂ	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ನನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧ ಸವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ಸಾಜಯ್ಯ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ	ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ ಾನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟೆಸುಬ್ಬಯ್ಯ	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagog		
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1. 2. 3. 1. 2.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗದ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಘಟಕ - 2 ಪೇಟರ - 2 ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸು	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ನನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧ ಗವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ಸಾಜಯ್ಯ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪ್ರೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆರ ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂ ತಾಳು ಮನವೇ - ಕನಕದಾ	ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ ಎನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ (. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ಬ್ದಕ್ಕಿ ಮಾರಯ್ಯ, ದರದಾಸರು ಸರು	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagog		
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1. 2. 3. 1. 2. 3. 1. 2.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗದ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಘಟಕ - 2 ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸು ಘಟಕ - 3	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ನನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧ ಗವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ಸಾಜಯ್ಯ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ವೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಯ ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂ ತಾಳು ಮನವೇ - ಕನಕದಾ ಎಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ	ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ ಎನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ (. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ಬ್ದಕ್ಕಿ ಮಾರಯ್ಯ, ದರದಾಸರು ಸರು	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagogy		
1. 2. 3. 1. 2. 3. 1. 2.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗದ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಘಟಕ - 2 ಪಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸು ಘಟಕ - 3 ಡಿವಿಜಿ ರವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗದಿಂ ಕುರುಡು ಕಾಂಚಾಣ : ದಾ.ರಾ. ಬೇಂ ಹೊಸಬಾಳಿನ ಗೀತೆ : ಕುವೆಂಪು	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ನನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧ ಸವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ಸಾಜಯ್ಯ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಇದರಿಂದೇನು ಫಲ – ಪುರಂ ತಾಳು ಮನವೇ - ಕನಕದಾ ಎಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ ಎದ ಅಯ್ದ ಕೆಲವು ಭಾಗಗಳ ದ್ರೆ	ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ ನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ (. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ಸ್ತುಕ್ಕಿ ಮಾರಯ್ಯ, ದರದಾಸರು ಸರು (03	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagogy hours of pedagogy)		
1. 2. 3. 1. 2. 3. 1. 2. 3.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗದ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಘಟಕ - 2 ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸು ಘಟಕ - 3 ಡಿವಿಜಿ ರವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗದಿಂ ಕುರುಡು ಕಾಂಚಾಣ : ದಾ.ರಾ. ಬೇಂ ಹೊಸಬಾಳಿನ ಗೀತೆ : ಕುವೆಂಪು	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ನನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧ ಗವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ಸಾಜಯ್ಯ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಬದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಯ ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂ ತಾಳು ಮನವೇ - ಕನಕದಾ ಎಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ ಎದ ಅಯ್ದ ಕೆಲವು ಭಾಗಗಳ ದ್ರೆ	ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ ನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ (. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ಸ್ತುಕ್ಕಿ ಮಾರಯ್ಯ, ದರದಾಸರು ಸರು (03 ಸು	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagogy		
1. 2. 3. 1. 2. 3. 1. 2. 3. 1.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗದ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಥ ಘಟಕ - 2 ಥ ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸು ಘಟಕ - 3 ಡಿವಿಜಿ ರವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗದಿಂ ಕುರುಡು ಕಾಂಚಾಣ : ದಾ.ರಾ. ಬೇಂ ಹೊಸಬಾಳಿನ ಗೀತೆ : ಕುವೆಂಪು ಘಟಕ - 4 ತ ಡಾ. ಸರ್. ಎಂ. ವಿಶ್ವೇಶ್ವರಯ್ಯ : ವ್ಯಕ್ತಿ	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ನನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧ ಸವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ಸಾಜಯ್ಯ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಎದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಯ ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂ ತಾಳು ಮನವೇ - ಕನಕದಾ ಎಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ ಎದ ಅಯ್ದ ಕೆಲವು ಭಾಗಗಳ ದ್ರೆ	ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ ನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ (. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ರುದರಾಸರು ಸರು (03 ನು (03 ಮೂರ್ತಿರಾವ್	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagogy hours of pedagogy)		
1. 2. 3. 1. 2. 3. 1. 2. 3.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗದ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಘಟಕ - 2 ಹ ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸು ಘಟಕ - 3 ಡಿವಿಜಿ ರವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗದಿಂ ಕುರುಡು ಕಾಂಚಾಣ : ದಾ.ರಾ. ಬೇಂ ಹೊಸಬಾಳಿನ ಗೀತೆ : ಕುವೆಂಪು ಘಟಕ - 4 ತ ಡಾ. ಸರ್. ಎಂ. ವಿಶ್ಯೇಶ್ವರಯ್ಯ : ವ್ಯಕ್ತಿ	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ನನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧ ಶವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ಸಾಜಯ್ಯ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪ್ರೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂ ತಾಳು ಮನವೇ - ಕನಕದಾ ಎಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ ಂದ ಅಯ್ದ ಕೆಲವು ಭಾಗಗಳ ದ್ರೆ	ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ ನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ (. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ಸ್ತುಕ್ಕಿ ಮಾರಯ್ಯ, ದರದಾಸರು ಸರು (03 ನು (03 ಮೂರ್ತಿರಾವ್ ನೀಚನಹಳ್ಳಿ	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagogy hours of pedagogy)		
1. 2. 3. 1. 2. 3. 1. 2. 3. 1.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗದ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಘಟಕ - 2 ಹ ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸು ಘಟಕ - 3 ಡಿವಿಜಿ ರವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗದಿಂ ಕುರುಡು ಕಾಂಚಾಣ : ದಾ.ರಾ. ಬೇಂ ಹೊಸಬಾಳಿನ ಗೀತೆ : ಕುವೆಂಪು ಘಟಕ - 4 ತ ಡಾ. ಸರ್. ಎಂ. ವಿಶ್ಯೇಶ್ವರಯ್ಯ : ವ್ಯಕ್ತಿ	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ನನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧ ಸವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ಸಾಜಯ್ಯ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಎದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಯ ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂ ತಾಳು ಮನವೇ - ಕನಕದಾ ಎಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ ಎದ ಅಯ್ದ ಕೆಲವು ಭಾಗಗಳ ದ್ರೆ	ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ ನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ (. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ಸ್ತುಕ್ಕಿ ಮಾರಯ್ಯ, ದರದಾಸರು ಸರು (03 ನು (03 ಮೂರ್ತಿರಾವ್ ನೀಚನಹಳ್ಳಿ	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagogy hours of pedagogy)		

## 26.10.2022

### Course outcome (Course Skill Set)

ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ (22KSK17/27) ಪಠ್ಯ ಕಲಿಕೆಯ ನಂತರ ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ :

At the end of the course the student will be able to:

	C01	ಕನ್ನಡ ಭಾಷೆ, ಸಾಹಿತ್ಯ ಮತ್ತು ಕನ್ನಡದ ಸಂಸ್ಕೃತಿಯ ಕುರಿತು ಅರಿವು ಮೂಡಿರುತ್ತದೆ.
	CO2	ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಪ್ರಧಾನ ಭಾಗವಾದ ಆಧುನಿಕ ಪೂರ್ವ ಮತ್ತು ಆಧುನಿಕ ಕಾವ್ಯಗಳನ್ನು ಸಾಂಕೇತಿಕವಾಗಿ
		ಕಲಿತು ಹೆಚ್ಚಿನ ಓದಿಗೆ ಮತ್ತು ಜ್ಞಾನಕ್ಕೆ ಸ್ಪೂರ್ತಿ ಮೂಡುತ್ತದೆ.
	CO3	ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ ಸಾಹಿತ್ಯ ಮತ್ತು ಸಂಸ್ಕೃತಿಯ ಬಗ್ಗೆ ಅರಿವು ಹಾಗೂ ಆಸಕ್ತಿಯನ್ನು ಹೆಚ್ಚಾಗುತ್ತದೆ.
	CO4	ತಾಂತ್ರಿಕ ವ್ಯಕ್ತಿಗಳ ಪರಿಚಯ ಹಾಗೂ ಅವರುಗಳ ಸಾಧಿಸಿದ ವಿಷಯಗಳನ್ನು ತಿಳಿದುಕೊಂಡು ನಾಡಿನ ಇನ್ನಿತರ
		ವ್ಯಕ್ತಿಗಳ ಬಗ್ಗೆ ತಿಳಿದುಕೊಳ್ಳಲು ಕೌತುಕತೆ ಹೆಚ್ಚಾಗುತ್ತದೆ.
	CO5	ಸಾಂಸ್ಕೃತಿಕ, ಜನಪದ ಹಾಗೂ ಪ್ರವಾಸ ಕಥನಗಳ ಪರಿಚಯ ಮಾಡಿಕೊಡುವುದು.
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## Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

### **Continuous Internal Evaluation(CIE):**

Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration

### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

### The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks Semester End Examinations (SEE)

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

## **University Prescribed Textbook :**

## ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ

ಡಾ. ಹಿ.ಚಿ.ಬೋರಲಿಂಗಯ್ಯ ಮತ್ತು ಡಾ. ಎಲ್. ತಿಮ್ಮೇಶ,

ಪ್ರಕಟಣೆ : ಪ್ರಸಾರಾಂಗ,

ವಿಶ್ಯೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ.

## ಸೂಚನೆ :

- 1. ಹೆಚ್ಚಿನ ಮಾಹಿತಿ ಮತ್ತು ವಿವರಣೆಗಳಿಗೆ ಡಾ. ಎಲ್. ತಿಮ್ಮೇಶ (9900832331) ಇವರನ್ನು ಸಂಪರ್ಕಿಸಿ.
- ಮಾದರಿ ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆ, ಕೋರ್ಸ್ ಆಯ್ಕೆ ಮಾಹಿತಿ, ಅಧ್ಯಯನ ಸಾಮಗ್ರಿ & ಬಹು ಆಯ್ಕೆ ಮಾದರಿಯ ಪ್ರಶ್ನೆಗಳ ಕೈಪಿಡಿಗಾಗಿ ವಿಶ್ವವಿದ್ಯಾಲಯದ ವೆಬ್ ಸೈಟ್ ನೋಡುವುದು.

### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

✓ Contents related activities (Activity-based discussions)

- ✓ For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions, Seminars and assignments.

Sem	ester (Mecha	inical Engine	(Effective from )	(For Physics	s Group	)							
	94 	10		6.		Teac Hours	hing /Week			Examin	sation	y	2 
SL. No		irse rseCode	CourseTitle	8S4/01	Theary Lecture	Tutorial	Practical/ Drawing	VQS	Duration In hours	CIE Marks	SEE Marks	Total Marks	Condise
				6	L	т	P	5	•	-	)		<u>.</u>
1	*ASC(IC)	BMATM101	Mathematics I for Mechanical Engg Stream	Maths	2	2	2	0	03	50	50	100	04
2	#ASC(IC)	BPHYM102	Applied Physics for ME Stream	РНҮ	2	2	2	0	03	50	50	100	04
3	ESC	BEMEM103	Elements of Mechanical Engineering	Mechanical	2	2	0	0	03	50	50	100	03
4	ESC-1	BESCK104x	Engineering Science Course-I	Respective Engg Dept.	3	Ø	0	0	03	50	50	100	03
	ETC-I	BETCK105x	Emerging Technology Course-I		3	0	0	0	03	3	e		:\$
5	ļ	x	OR	Any Dept				i i		50	50	100	03
	PLC-1	BPLCK105x	Programming language Course-I	Dept	2	0	2	0	03				
		BENGK106	Communicative English		8	2	2	2 2		<:	e 0		÷
6	AEC		OR	Humanities	1	0	0	0	01	50	50	100	01
		BPWSK106	Professional Writing Skills in English	• 200494 BAD GARD ST.	· · · ·								
7	HSMC	BKSKK107/ BKBKK107	Samskrutika Kannada/ Balake Kannada	Humanities	1	0	0	0	01	50	50	100	01
		BICOK107	OR Indian Constitution		*		~		(Exercise	200	12-72 63.1	1000	20727
	÷	BIDTK158	Innovation and Design Thinking		1	0	0	0	01	39	3 - 5		8
8	AEC/SDC		OR OR	Any			1	1997	2.38	50	50	100	01
30	CONSIGNATION OF	BSFHK158	Scientific Foundations of Health	Dept	1	0	0	0	01				
				TOTAL						400	400	800	20

	(ESC-I) Engineering Science Courses-I	1000				(ETC-1) Emerging Technology Courses-1			
Code	Title	L	Т	P	Code	Title	L	T	I
BESCK104A	Introduction to Civil Engineering	3	0	0	BETCK105A	Smart Materials and Systems	3	0	(
BESCK104B	Introduction to Electrical Engineering	3	0	0	BETCK105B	Green Buildings	3	0	(
BESCK104C	Introduction to Electronics Communication	3	0	0	BETCK105C	Introduction to Nano Technology	3	0	(
BESCK104D	Introduction to Mechanical Engineering	3	0	0	BETCK105D	Introduction to Sustainable Engineering	3	0	(
BSC1K104E	Introduction to C Programming	2	0	2	BETCK105E	Renewable Energy Sources	3	0	(
	2 2016 DC	Qi -	8-3	8-3	BETCK105F	Waste Management	3	0	(
	2		~		BETCK105G	Emerging Applications of Biosensors	3	0	(
		10			BETCK105H	Introduction to Internet of Things (IOT)	3	0	(
i		Q.	$(\overline{2})$	8-3	BETCK105I	Introduction to Cyber Security	3	0	(
(PLC-I) Prog	ramming Language Courses-I	14			BETCK105J	Introduction to Embedded System	3	0	(
Code	Title	L	Τ	P					
BPLCK105A	Introduction to Web Programming	2	0	2					1
BPLCK105B	Introduction to Python Programming	2	0	2					Ĩ.
BPLCK105C	Basics to JAVA programming	2	0	2			3 3		18
BPLCK105D	Introduction to C++ Programming	2	0	2					

• The student has to select one course from the ESC-I group.

 MES stream Students shall opt for any one of the courses from the ESC-I group except, 22ESC144-Introduction to Mechanical Engineering

- The students have to opt for the courses from ESC group without repeating the course in either 1= or 2= semester
- The students must select one course from either ETC-I or PLC-I group.
- If students study the subject from ETC-I in 1ª semester he/she has to select the course from PLC-II in the 2<sup>nd</sup> semester and vice-versa

Course Title:	ELEMENTS OF MECHANICA	L ENGINEERING	
Course Code:	BEMEM103/203	CIE Marks	50
Course Type	Theory	SEE Marks	50
(Theory/Practical/Integrated)		Total Marks	100
Teaching Hours/Week (L:T:P: S)	2:2:0:0	Exam Hours	03
Total Hours of Pedagogy	40 hours	Credits	03

### **Course Learning Objectives**

- **CLO 1.** Acquire a basic understanding about scope of mechanical engineering, fundamentals about steam and nonconventional energy sources.
- **CLO 2**. Acquire a basic knowledge about conventional and advanced manufacturing processes.
- **CLO 3.** Acquiring a basic understanding about IC engines, propulsive devices and air-conditioner.
- **CLO 4.** Acquiring a basic knowledge about power transmission and joining processes.
- CLO 5. Acquiring a basic insight into future mobility and mechatronics and robotics.

### **Teaching-Learning Process**

- Adopt different types of teaching methods to develop the outcomes through PowerPoint presentations and Video demonstrations or Simulations.
- Arrange visits to show the live working models other than laboratory topics.
- Adopt collaborative (Group Learning) Learning in the class.
- Adopt Problem Based Learning (PBL), which foster students' Analytical skills and develops thinking skills such as evaluating, generalizing, and analyzing information.

## Module-1 (8 hours)

## Introduction to Mechanical Engineering (Overview only):

Role of Mechanical Engineering in Industries and Society- Emerging Trends and Technologies in different sectors such as Energy, Manufacturing, Automotive, Aerospace, and Marine sectors. **Steam Formation and Application:** 

Modes of heat transfer, Steam formation, Types of steam, Steam properties and applications of steam (simple numerical problems).

## **Energy Sources and Power Plants:**

Basic working principles of Hydel power plant, Thermal power plant, nuclear power plant, Solar power plant, Tidal power plant and Wind power plant.

## Module-2 (8 hours)

## Machine Tool Operations:

**Lathe**: Principle of working of a center lathe, lathe operations: Turning, facing, knurling, thread cutting, taper turning by swivelling the compound rest,

**Drilling Machine**: Working of simple drilling machine, drilling operations: drilling, boring, reaming, tapping, counter sinking, counter boring,

**Milling Machine**: Working and types of milling machine, milling operations: plane milling, end milling and slot milling.

(No sketches of machine tools, sketches to be used only for explaining the operations).

**Introduction to Advanced Manufacturing Systems:** Introduction, components of CNC, advantages and applications of CNC, 3D printing.

40

### Module-3 (8 hours)

**Introduction to IC Engines**: Components and working principles, 4-Stroke Petrol and Diesel engines, Application of IC Engines, performance of IC engines (Simple numerical).

**Introduction to Refrigeration and Air Conditioning**: Principle of refrigeration, Refrigerants and their desirable properties. Working principle of VCR refrigeration system, working principle of room air conditioner & Applications of air Conditioners

### Module-4 (8 hours)

### Mechanical Power Transmission:

**Gear Drives**: Types - spur, helical, bevel, worm and rack and pinion, velocity ratio, simple and compound gear trains (simple numerical problems)

**Belt Drives**: Introduction, Types of belt drives (Flat and V-Belt Drive), length of the belt and tensions ratio (simple numerical problems)

**Joining Processes**: Soldering, Brazing and Welding, Definitions, classification of welding process, Arc welding, Gas welding, (types of flames), TIG welding, MIG welding and Fusion welding.

#### Module-5 (8 hours)

**Insight into future mobility technology;** Electric and Hybrid Vehicles, Components of Electric and Hybrid Vehicles. Advantages and disadvantages of Electric Vehicles (EVs) and Hybrid vehicles.

**Introduction to Mechatronics and Robotics:** open-loop and closed-loop mechatronic systems. Joints & links, Robot anatomy, Applications of Robots in material handling, processing and assembly and inspection.

### Course outcome (Indicative)

At the end of the course the student will be able to:

C01	Explain the role of mechanical engineering in industry and society, fundamentals of steam
	and non-conventional energy sources
CO2	Describe different conventional and advanced machining processes, IC engines, propulsive
	devices, air-conditioning, refrigeration.
CO3	Explain different gear drives, gear trains, aspects of future mobility and fundamentals of
	robotics
CO4	Determine the condition of steam and its energy, performance parameters of IC engines,
	velocity ratio and power transmitted through power transmission systems.

## Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination (SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

# Continuous Internal Evaluation (CIE):

Three Tests each of **20 Marks**;

• 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> tests shall be conducted after completion of the syllabus of 30-35%,

70-75%, and 90-100% of the course/s respectively.

• Assignments/Seminar/quiz/group discussion /field survey & report presentation/ course project/Skill development activities, suitably planned to attain the COs and POs for a total of

40 Marks.

If the nature of the courses requires assignments/Seminars/Quizzes/group discussion two evaluation components shall be conducted. If course project/field survey/skill development activities etc then the evaluation method shall be one.

Total CIE marks (out of 100 marks) shall be scaled down to **50 marks** 

## Semester End Examination (SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.
- The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.

## Suggested Learning Resources:

Test Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year)

- 1. Elements of Mechanical Engineering, K R Gopala Krishna, Subhash Publications, 2008
- 2. Elements of Workshop Technology (Vol. 1 and 2), Hazra Choudhry and Nirzar Roy, MediaPromoters and Publishers Pvt. Ltd., 2010.

## **Reference Books**

1. An Introduction to Mechanical Engineering, Jonathan Wickert and Kemper Lewis, Third Edition,

## 2012

16-2-2023

2.Manufacturing Technology- Foundry, Forming and Welding, P.N.Rao Tata McGraw Hill 3rdEd., 2003.

3. Robotics, Appu Kuttan KK K. International Pvt Ltd, volume 1

## Web links and Video Lectures (e-Resources):

- . <u>https://www.tlv.com/global/TI/steam-theory/principal-applications-for-steam.html</u>
- <u>https://www.forbesmarshall.com/Knowledge/SteamPedia/About-Steam/Fundamental-Applications-of-Steam</u>
- https://rakhoh.com/en/applications-and-advantages-of-steam-in-manufacturing- andprocess-industry/)
- <u>Videos | Makino (For Machine Tool Operation)</u>

### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- 1. Visit to any manufacturing/aero/auto industry or any power plant
- 2. Demonstration of lathe/milling/drilling/CNC operations
- 3. Demonstration of working of IC engine/refrigerator
- 4. Demonstration of metal joining process
- 5. Video demonstration of latest trends in mobility/robotics

COs						Р	Os					
	1	2	3	4	5	6	7	8	9	10	11	12
CO1	3	2				1	1			1		1
CO2	3	2				1	1			1		1
CO3	3	2				1	1			1		1
CO4	3	3				1	1					1
CO5												

Course Title:	Applied Physics for ME Stream		
Course Code:	BPHYM102/202	CIE Marks	50
Course Type	Integrated	SEE Marks	50
(Theory/Practical/Integrated)	Integrated	Total Marks	100
Teaching Hours/Week (L:T:P: S)	2:2:2:0	Exam Hours	03
Total Hours of Pedagogy	40 hours Theory + 10-12 Lab slots	Credits	04

#### **Course objectives**

- To understand the types of oscillation, shock waves & its generation, and applications.
- To Study the elastic properties of materials and failures of engineering materials
- To understand the fundamentals of thermoelectric materials and devices and their application.
- To understand the Concepts in Low temperature phenomena and generation of low temperature.
- To study the various relevant material characterization techniques.

#### **Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective

- 1. Flipped Class
- 2. Chalk and Talk
- 3. Blended Mode of Learning
- 4. Simulations, Interactive Simulations and Animations
- 5. NPTEL and Other Videos for theory topics
- 6. Smart Class Room
- 7. Lab Experiment Videos

#### Module-1 (8 Hours )

#### Module -I: Oscillations and Shock waves:

**Oscillations:** Simple Harmonic motion (SHM), Differential equation for SHM (No derivation), Sprigs: Stiffness Factor and its Physical Significance, Series and Parallel combination of springs (Derivation), Types of Springs and their applications. Theory of Damped oscillations (Qualitative), Types of Damping (Graphical Approach). Engineering applications of Damped oscillations, Theory of Forced oscillations (Qualitative), Resonance, Sharpness of resonance. Numerical Problems.

**Shock waves:** Mach number and Mach Angle, Mach Regimes, Definition and Characteristics of Shock waves, Construction and working of Reddy Shock tube, Applications of Shock Waves, Numerical problems.

#### **Pre-requisites: Basics of Oscillations**

#### Self-learning: Simple Harmonic motion, Differential equation for SHM

Module-2 (8 Hours)

#### Elasticity

Stress-Strain Curve, Stress hardening and softening. Elastic Moduli, Poisson's ratio, Relation between Y, n and  $\sigma$  (with derivation), mention relation between K, Y and  $\sigma$ , limiting values of Poisson's ratio. Beams, Bending moment and derivation of expression, Cantilever and I section girder and their Engineering Applications, Elastic materials (qualitative). Failures of engineering materials - Ductile fracture, Brittle fracture, Stress concentration, Fatigue and factors affecting fatigue (only qualitative explanation), Numerical problems.

#### Pre requisites: Elasticity,Stress & Strain Self-learning: Stress-Strain Curve

#### Module-3 (8 Hours)

#### Thermoelectric materials and devices:

Thermo emf and thermo current, Seeback effect, Peltier effect, Seeback and Peltier coefficients, figure of merit (Mention Expression), laws of thermoelectricity. Expression for thermo emf in terms of  $T_1$  and  $T_2$ , Thermo couples, thermopile, Construction and Working of Thermoelectric generators (TEG) and Thermoelectric coolers (TEC), low, mid and high temperature thermoelectric materials, Applications: Exhaust of Automobiles, Refrigerator, Space Program (RTG), Numerical Problems

Pre requisites: Basics of Electrical conductivity Self-learning: Thermo emf and thermo current

### Module-4 (8 Hours)

#### **Cryogenics:**

Production of low temperature - Joule Thomson effect (Derivation with 3 cases), Porous plug experiment with theory, Thermodynamical analysis of Joule Thomson effect, Liquefaction of Oxygen by cascade process, Lindey's air liquefier, Liquefaction of Helium and its properties, Platinum Resistance Thermometer, Applications of Cryogenics, in Aerospace, Tribology and Food processing(qualitative), Numerical Problems

#### Pre requisites: Basics of Heat and Thermodynamics Self-learning: Application of Cryogenics in Food Processing

Module-5 (8 Hours)

### Material Characterization and Instrumentation Techniques:

Introduction to nano materials: Nanomaterial and nanocomposites. Principle, construction and working of X-ray Diffractometer, Crystallite size determination by Scherrer equation, Atomic Force Microscopy (AFM): Principle, construction, working and applications, X-ray photoelectron spectroscopy(XPS), Scanning electron microscopy (SEM), Transmission electron microscopy (TEM), Numerical Problems.

### Pre requisites: Quantum Mechanics

Self-learning: Crystallites

## Course outcome (Course Skill Set)

At the end of the course the student will be able to:

CO1	Elucidate the concepts in oscillations, waves, elasticity and material failures
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- CO2 **Discuss** the fundamentals of Thermoelectric materials and their application
- CO3 **Summarize** the low temperature phenomena and generation of low temperature
- CO4 **Explain** the various material characterization techniques

CO5 **Practice** working in groups to conduct experiments in physics and **perform** precise and honest measurements.

### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

### **Continuous Internal Evaluation(CIE):**

The CIE marks for the theory component of the IC shall be 30 marks and for the laboratory component 20 Marks.

### CIE for the theory component of the IC

- Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.
- Two Assignments/two quizzes/ seminars/one field survey and report presentation/one-course project totalling 20 marks.

Total Marks scored (test + assignments) out of 80 shall be scaled down to 30 marks

### CIE for the practical component of the IC

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted at the end of the semester.
- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.
- The laboratory test (duration 03 hours) at the end of the 15<sup>th</sup> week of the semester /after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to 05 marks.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

• The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the

IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

### Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English/Kannada). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.

There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 subquestions), **should have a mix of topics** under that module.

### Suggested Learning Resources:

#### Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year)

- 1. Vibrations and Waves (MIT introductory Physics Series), A P French, CBS, 2003 Edition
- 2. Timoshenko, S. and Goodier J.N. "Theory of Elasticity", 2nd Edition, McGraw Hill Book Co, 2001.
- 3. Sadhu Singh, "Theory of Elasticity", Khanna Publishers, 1997
- 4. Mechanical Properties of Engineered Materials by Wole Soboyejo, CRC Press; 1st edition, 2002
- 5. Heat & Thermodynamics and Statistical Physics(XVIII-Edition) Singhal, Agarwal & Satyaprakash Pragati Prakashan, Meerut, 2006. 4
- 6. Heat and Thermodynamics (I-Edition) D.S.Mathur S. Chand & Company Ltd., New-Delhi, 1991
- 7. Heat and Thermodynamics, Brijlal & Subramanyam, S. Chand & Company Ltd., New-Delhi.
- 8. Physics of Cryogenics by Bahman Zohuri, Elsevier, 2018
- 9. Materials Characterization Techniques-Sam Zhang, Lin Li, Ashok Kumar, CRC Press, First Edition, 2008.
- 10. Characterization of Materials- Mitra P.K . Prentice Hall India Learning Private Limited.
- 11. Nanoscience and Nanotechnology: Fundamentals to Frontiers M.S.Ramachandra Rao & Shubra Singh, Wiley India Pvt Ltd.
- 12. Nano Composite Materials-Synthesis, Properties and Applications, J. Parameswaranpillai, N.Hameed, T.Kurian, Y. Yu, CRC Press.
- 13. Shock waves made simple by Chintoo S Kumar, K Takayama and K P J Reddy: Willey India Pvt. Ltd, Delhi,2014

#### Web links and Video Lectures (e-Resources):

Simple Harmonic motion:<u>https://www.youtube.com/watch?v=k2FvSzWeVxQ</u> Shock waves:<u>https://physics.info/shock/</u> Shock waves and its applications:<u>https://www.youtube.com/watch?v=tz\_3M3v3kxk</u> Stress- strain curves:<u>https://web.mit.edu/course/3/3.11/www/modules/ss.pdf</u>

Stress curves: https://www.youtube.com/watch?v=f08Y39UiC-o

Fracture in materials: https://www.youtube.com/watch?v=x47nky4MbK8

**Thermoelecticity:**<u>https://www.youtube.com/watch?v=2w7NBuu5w9c&list=PLtkeUZItwHK5y6qy1GFxa4Z4RcmzUaaz6</u>

Thermoelectric generator and coolers: https://www.youtube.com/watch?v=NruYdb31xk8

Cryogenics: https://cevgroup.org/cryogenics-basics-applications/

Liquefaction of gases: https://www.youtube.com/watch?v=aMelwOsGpIs

Virtual lab: https://www.vlab.co.in/participating-institute-amrita-vishwa-vidyapeetham

Material characterization : https://onlinecourses.nptel.ac.in/noc20\_mm14/preview

https://www.encyclopedia.com/science-and-technology/physics/physics/cryogenics

https://www.usna.edu/NAOE/\_files/documents/Courses/EN380/Course\_Notes/Ch10\_Deformation.pdf

## 16-2-2023

#### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

http://nptel.ac.in https://swayam.gov.in https://virtuallabs.merlot.org/vl\_physics.html https://phet.colorado.edu https://www.myphysicslab.com

### Laboratory Component:

Any Ten Experiments have to be completed from the list of experiments

Note: The experiments have to be classified into

a) Exercise

b) Demonstration

c) Structured Inquiry

d) Open Ended

Based on the convenience classify the following experiments into above categories. Select at least one simulation /spreadsheet activity.

### List of Experiments

- 1. Determination of Young's modulus of the material of the given bar Uniform Bending.
- 2. Determination of Rigidity modulus of the Material of the wire using Torsional Pendulum.
- 3. Study of Forced Mechanical Oscillations and Resonance.
- 4. Study of the frequency response of Series & Parallel LCR circuits.
- 5. Determination of Fermi Energy of the given Conductor.
- 6. Determination of Resistivity by Four Probe Method.
- 7. Determination of effective spring constant of the given springs in series and parallel combinations.
- 8. Determination of Young's modulus of the material of the given bar Single Cantilever.
- 9. Determination of the Moment of Inertia of the given irregular body using torsional pendulum.
- 10. Determination of Wavelength of Laser using Diffraction Grating.
- 11. Determination of Acceptance angle and Numerical Aperture of the given Optical Fiber.
- 12. Determination of the Radius of Curvature of the given Plano Convex Lens by setting Newton's Rings.
- 13. Step Interactive Physical Simulations.
- 14. Study of motion using spread Sheets
- 15. Application of Statistics using Spread Sheets.
- 16. PHET Interactive Simulations :(https://phet.colorado.edu/en/simulations/filter?subjects=physics&type=html,prototype)

COs and	POs Ma	apping (Ir	ndividual	teacher	has to fill	up)										
COs		POs														
COS	1	2	3	4	5	6	7	8	9	10	11	12				
CO1	3	2	-	-	2	-	-	-	-	-	-	2				
CO2	3	2	-	-	-	-	-	-	-	-	-	2				
CO3	3	2	-	-	-	-	-	-	-	-	-	2				
CO4	3	2	-	-	-	-	-	-	-	-	-	2				
CO5	3	2	1	-	2	-	-	3	3	-	-	2				
	Ι	Level 3- H	ighly Ma	pped,	Level 2-N	Moderat	ely Mapp	ed, L	evel 1-Lo	w Mappe	ed,					

**Note :** The CO-PO mapping values are indicative. The course coordinator can alter the mapping using **Competency and Performance Indicators** mentioned in the **AICTE Exam reforms** 

Course Title:	Introduction to Civil Engir	neering	
Course Code:	BESCK104A/204	CIE Marks	50
Course Type (Theory/Practical	Theory	SEE Marks	50
/Integrated )		Total Marks	100
Teaching Hours/Week (L:T:P: S)	2:2:0:0	Exam Hours	03
Total Hours of Pedagogy	25 hrs Lecture+25 hrs Tutorial = 50 hrs	Credits	03

## **Course objectives**

- To make students learn the scope of various specializations of civil engineering.
- To make students learn the concepts of sustainable infrastructure
- To develop students' ability to analyse the problems involving forces, moments with their applications.
- To develop the student's ability to find out the center of gravity and moment of inertia and their applications.
- To make the students learn about kinematics

## **Teaching-Learning Process**

These are sample Strategies; which teachers can use to accelerate the attainment of the various course outcomes.

- 1. Lecture method (L) does not mean only the traditional lecture method, but a different type of teaching method may be adopted to develop the outcomes.
- 2. Arrange visits to nearby sites to give brief information about the Civil Engineering structures.
- 3. Show Video/animation films to explain the infrastructures and the mechanism involved in the principle.
- 4. Encourage collaborative (Group) Learning in the class.
- 5. Ask at least three HOT (Higher-order Thinking) questions in the class, which promotes critical thinking.
- 6. Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develop thinking skills such as the ability to evaluate, generalize, and analyze information rather than simply recall it.
- 7. Topics will be introduced in multiple representations.
- 8. Show the different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.
- 9. Discuss how every concept can be applied to the real world and when that's possible, it helps improve the students' understanding.
- 10. Individual teachers can device innovative pedagogy to improve teaching-learning.

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Module-1 (10)
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## **Civil Engineering Disciplines and Building Science**

**Introduction to Civil Engineering:** Surveying, StructuralEngineering, Geotechnical Engineering, Hydraulics & Water Resources, TransportationEngineering, Environmental Engineering, Construction planning & Project management.

**Basic Materials of Construction**: Bricks, Cement & mortars, Plain, Reinforced & Pre-stressed Concrete, Structural steel, Construction Chemicals.

Structural elements of a building: foundation, plinth, lintel, chejja, Masonry wall, column, beam, slab and staircase

Module-2 (10)

## Societal and Global Impact of Infrastructure

Infrastructure: Introduction to sustainable development goals, Smart city concept, clean city concept,

Safe city concept

**Environment**: Water Supply and Sanitary systems, urban air pollution management, Solid waste management, identification of Landfill sites, urban flood control

**Built-environment:** Energy efficient buildings, recycling, Temperature andSound control in buildings, Security systems; Smart buildings.

### Module-3(10)

**Analysis of force systems:** Concept of idealization, system of forces, principles of superposition and transmissibility, Resolution and composition of forces, Law of Parallelogram of forces, Resultant of concurrent and non-concurrent coplanar force systems, moment of forces, couple, Varignon's theorem, free body diagram, equations of equilibrium, equilibrium of concurrent and non-concurrent coplanar force systems

## Module-4(10)

**Centroid:**Importance of centroid and centre of gravity, methods of determining the centroid, locating the centroid of plane laminae from first principles, centroid of built-up sections. Numerical examples

## Module-5 (10)

**Moment of inertia:**Importance of Moment of Inertia, method of determining the second moment of area (moment of inertia) of plane sections from first principles, parallel axis theorem and perpendicular axis theorem, section modulus, radius of gyration, moment of inertia of built-up sections, Numerical Examples.

Course outcome (Course Skill Set)

At the end of the course the student will be able to:

C01	Understand the various disciplines of civil engineering
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CO2 Understand the infrastructure requirement for sustainable development

CO3 Compute the resultant and equilibrium of force systems.

CO4 Locate the centroid of plane and built-up sections

CO5 Compute the moment of inertia of plane and built-up sections.

## Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

## Continuous Internal Evaluation(CIE):

Three Tests each of 20 Marks;

- 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> tests shall be conducted after completion of the syllabus of 30-35%, 70-75%, and 90-100% of the course/s respectively.
- Assignments/Seminar/quiz/group discussion /field survey & report presentation/ course project/Skill development activities, suitably planned to attain the COs and POs for a total of 40 Marks.

If the nature of the courses requires assignments/Seminars/Quizzes/group discussion two evaluation components shall be conducted. If course project/field survey/skill development activities etc then the evaluation method shall be one.

Total CIE marks (out of 100 marks) shall be scaled down to 50 marks

### Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

## Suggested Learning Resources:

- Text Books
- 1. Bansal R. K., Rakesh Ranjan Beohar and Ahmad Ali Khan, Basic Civil Engineering and Engineering Mechanics, 2015,Laxmi Publications.

2. Kolhapure B K, Elements of Civil Engineering and Engineering Mechanics, 2014, EBPB

## **Reference Books:**

1. Beer F.P. and Johnston E. R., Mechanics for Engineers, Statics and Dynamics, 1987, McGraw Hill.

2. Irving H. Shames, Engineering Mechanics, 2019, Prentice-Hall.

- 3. Hibbler R. C., Engineering Mechanics: Principles of Statics and Dynamics, 2017, Pearson Press.
- 4. Timoshenko S, Young D. H., Rao J. V., Engineering Mechanics, 5th Edition, 2017, Pearson Press.

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nd POs	Mappin	g (Indiv	idual t	eacher b	nas to fi	ll un)						
COs		B (					Os					
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201	4					1	1					
	1	1								1		
C <b>O</b> 2	2	3										
CO1 CO2 CO3 CO4		3 3										

**Note:** Depending on the asses concerned course instructor.

## I Semester

Course Title: Mathematics-I for Mechanical Engineering stream						
Course Code:	BMATM101	CIE Marks	50			
Course Type	Integrated	SEE Marks	50			
(Theory/Practical/Integrated)		Total Marks	100			
Teaching Hours/Week (L:T:P: S)	2:2:2:0	Exam Hours	03			
Total Hours of Pedagogy	40 hours Theory + 10 to 12 Lab slots	Credits	04			

Course objectives: The goal of the course Mathematics-I for Mechanical Engineering stream(22MATM11) is to

- **Familiarize** the importance of calculus associated with one variable and two variables for Mechanical engineering.
- Analyze Mechanical engineering problems applying Ordinary Differential Equations.
- **Develop** the knowledge of Linear Algebra referring to matrices.

# Teaching-Learning Process

## Pedagogy (General Instructions):

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

- 1. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted so that the delivered lessons shall develop students' theoretical and applied mathematical skills.
- 2. State the need for Mathematics with Engineering Studies and Provide real-life examples.
- 3. Support and guide the students for self-study.
- 4. You will also be responsible for assigning homework, grading assignments and quizzes, and documenting students' progress.
- 5. Encourage the students to group learning to improve their creative and analytical skills.
- 6. Show short related video lectures in the following ways:
  - As an introduction to new topics (pre-lecture activity).
  - As a revision of topics (post-lecture activity).
  - As additional examples (post-lecture activity).
  - As an additional material of challenging topics (pre-and post-lecture activity).
  - As a model solution of some exercises (post-lecture activity).

## Module-1:Calculus (8 hours)

## Introduction to polar coordinates and curvature relating toMechanical engineering.

Polar coordinates, Polar curves, angle between the radius vector and the tangent, angle between two curves. Pedal equations. Curvature and Radius of curvature - Cartesian, Parametric, Polar and Pedal forms. Problems.

Self-study: Center and circle of curvature, evolutes and involutes.

Applications: Applied Mechanics, Strength of Materials, Elasticity.

(RBT Levels: L1, L2 and L3)

Module-2:Series Expansion and Multivariable Calculus (8 hours)

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Introduction to series expansion and partial differentiation in the field of Mechanical engineering applications.

Taylor's and Maclaurin's series expansion for one variable (Statement only) – problems. Indeterminate forms - L'Hospital's rule, Problems.

Partial differentiation, total derivative - differentiation of composite functions. Jacobian and problems. Maxima and minima for a function of two variables-Problems.

**Self-study:**Euler's theorem and problems. Method of Lagrange's undetermined multipliers with a single constraint.

**Applications:** Computation of stress and strain, Errors and approximations in manufacturing process, Estimating the critical points and extreme values, vector calculus.

(RBT Levels: L1, L2 and L3)

Module-3: Ordinary Differential Equations (ODEs) of First Order (8 hours)

Introduction to first-order ordinary differential equations pertaining to the applications for Mechanical engineering.

Linear and Bernoulli's differential equations. Exact and reducible to exact differential equations-Integrating factors on  $\frac{1}{N} \left( \frac{\partial M}{\partial y} - \frac{\partial N}{\partial x} \right)$  and  $\frac{1}{M} \left( \frac{\partial N}{\partial x} - \frac{\partial M}{\partial y} \right)$ . Orthogonal trajectories, Newton's law of cooling.

**Nonlinear differential equations:** Introduction to general and singular solutions, solvable for p only, Clairaut's equations, reducible to Clairaut's equations - Problems.

**Self-Study:** Applications of ODEs: L-R circuits. Solvable for x and y.

Applications: Rate of Growth or Decay, Conduction of heat.

(RBT Levels: L1, L2 and L3)

Module-4:Ordinary Differential Equations of Higher Order(8 hours)

Importance of higher-order ordinary differential equations in Mechanical engineering applications.

Higher-order linear ODEs with constant coefficients - Inverse differential operator, method of variation of parameters, Cauchy's and Legendre homogeneous differential equations - Problems.

**Self-Study:** Formulation and solution of oscillations of a spring. Finding the solution by the method of undetermined coefficients.

**Applications:** Applications to oscillations of a spring, Mechanical systems and Transmission lines. **(RBT Levels: L1, L2 and L3)** 

Module-5: Linear Algebra (8 hours)

Introduction of linear algebra related to Mechanical engineering applications.

Elementary row transformationofa matrix, Rank of a matrix. Consistency and solution of a system of linear equations - Gauss-elimination method, Gauss-Jordan method and approximate solution by Gauss-Seidel method. Eigenvalues and Eigenvectors, Rayleigh's power method to find the dominant Eigenvalue and Eigenvector.

**Self-Study:** Solution of a system of equations by Gauss-Jacobi iterative method. Inverse of a square matrix by Cayley- Hamilton theorem.

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Applications of Linear Algebra: Network Analysis, Balancing equations.	
(RBT Levels: L1, L2 and L3)	

List of Laboratory experiments (2 hours/week per batch/ batch strength 15)
10 lab sessions + 1 repetition class + 1 Lab Assessment

- 1 2D plots for Cartesian and polar curves
- 2 Finding angle between polar curves, curvature and radius of curvature of a given curve
- **3** Finding partial derivatives and Jacobian
- 4 Applications to Maxima and Minima of two variables
- 5 Solution of first-order ordinary differential equation and plotting the solution curves
- 6 Solutions of Second-order ordinary differential equations with initial/ boundary conditions
- 7 Solution of differential equation of oscillations of spring with various load
- 8 Numerical solution of system of linear equations, test for consistency and graphical representation
- 9 Solution of system of linear equations using Gauss-Seidel iteration
- **10** Compute eigenvalues and eigenvectors and find the largest and smallest eigenvalue by Rayleigh power method.

Suggested software's: Mathematica/MatLab/Python/Scilab

## Course outcome (Course Skill Set)

At the end of the course the student will be able to:

110 010 0		
CO1	Apply the knowledge of calculus to solve problems related to polar curves.	
CO2	Learn the notion of partial differentiation to compute rate of change of multivariate	
	functions.	
CO3	Analyze the solution of linear and non-linear ordinary differential equations.	
CO4	make use of matrix theory for solving the system of linear equations and compute	
	eigenvalues and eigenvectors.	
CO5	familiarize with modern mathematical tools namely	
	MATHEMATICA/ MATLAB/ PYTHON/SCILAB	

## Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

## **Continuous Internal Evaluation(CIE):**

The CIE marks for the theory component of the IC shall be **30 marks** and for the laboratory component **20 Marks**.

## CIE for the theory component of the IC

- Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.
- Two Assignments/two quizzes/ seminars/one field survey and report presentation/one-course project totalling 20 marks.

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Total Marks scored (test + assignments) out of 80 shall be scaled down to **30 marks CIE for the practical component of the IC** 

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted at the end of the semester.
- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.
- The laboratory test (duration 03 hours) at the end of the 15<sup>th</sup> week of the semester/after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to 05 marks.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

• The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

## Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English/Kannada). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

## Suggested Learning Resources:

Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year) Text Books

- 1. **B. S. Grewal**: "Higher Engineering Mathematics", Khanna Publishers, 44<sup>th</sup>Ed., 2021.
- 2. E. Kreyszig: "Advanced Engineering Mathematics", John Wiley & Sons, 10<sup>th</sup>Ed., 2018.

## **Reference Books**

- 1. **V. Ramana:** "Higher Engineering Mathematics" McGraw-Hill Education, 11<sup>th</sup> Ed., 2017
- 2. Srimanta Pal & Subodh C.Bhunia: "Engineering Mathematics" Oxford University Press, 3<sup>rd</sup> Ed., 2016.

- 3. **N.P Bali and Manish Goyal**: "A Textbook of Engineering Mathematics" Laxmi Publications, 10<sup>th</sup> Ed., 2022.
- 4. **C. Ray Wylie, Louis C. Barrett:** "Advanced Engineering Mathematics" McGraw Hill Book Co., New York, 6<sup>th</sup> Ed., 2017.
- 5. **Gupta C.B, Sing S.R and Mukesh Kumar:** "Engineering Mathematic for Semester I and II", Mc-Graw Hill Education(India) Pvt. Ltd 2015.
- 6. **H. K. Dass and Er. Rajnish Verma:** "Higher Engineering Mathematics" S. Chand Publication, 3<sup>rd</sup> Ed., 2014.
- 7. James Stewart: "Calculus" Cengage Publications, 7<sup>th</sup>Ed., 2019.
- 8. David C Lay: "Linear Algebra and its Applications", Pearson Publishers, 4<sup>th</sup> Ed., 2018.
- 9. **Gareth Williams:** "Linear Algebra with Applications", Jones Bartlett Publishers Inc., 6<sup>th</sup> Ed., 2017.
- 10. Gilbert Strang: "Linear Algebra and its Applications", Cengage Publications, 4<sup>th</sup> Ed., 2022.

## Web links and Video Lectures (e-Resources):

- <u>http://nptel.ac.in/courses.php?disciplineID=111</u>
- <u>http://www.class-central.com/subject/math(MOOCs)</u>
- http://academicearth.org/
- VTU e-Shikshana Program
- VTU EDUSAT Program

## Activity-Based Learning (Suggested Activities in Class)/Practical-Based Learning

- Quizzes
- Assignments
- Seminar

## COs and POs Mapping (Individual teacher has to fill up)

COs	POs						
	1	2	3	4	5	6	7
CO1							
CO2							
CO3							
CO4							
CO5							
Level 3- Hi	ghly Mapped,	Level 2-Mo	derately Mappe	d, Level	1-Low Mapped	, Level 0- No	ot Mapped

Communicative English Course Title:	Communicative Eng	glish	
Course Code:	_BENGK106-206_	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy Course objectives: The course Communicati	15 hours	Credits	01
1. To know about Fundamentals of Com			n general.
<ol> <li>To train to identify the nuances of photon</li> </ol>	e		e
3. To impart basic English grammar and			
4. To enhance with English vocabulary			on skills.
5. To learn about Techniques of Information			
Teaching-Learning Process :	0 1		
These are sample Strategies, which teacher can u	se to accelerate the attain	ment of the various cours	se outcomes and make
Teaching –Learning more effective:			
Teachers shall adopt suitable pedagogy for effective			
methodologies which suit modern technological too (i) Direct instructional method ( Low/O			
Blended learning (Combination of both			ed reemological tools), (m)
(v) Personalized learning, (vi) Problems			e method of expeditionary
learning Tools and techniques, (viii) Us		· · ·	
Apart from conventional lecture methods, various ty			
adapted so that the delivered lesson can progress the	e students In theoretical appl	ied and practical skills in t	eaching of communicative
skills in general.			1' 337 '.' 1
Language Lab : To augment LSRW, gramma Grammar, Vocabulary) through tests, activities			
can be referred as per the AICTE / VTU guide		ensive web-based learning	
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## 26.10.2022

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	Course outcome (Course Skill Set)				
	At the end of the course Communicative English (22ENG16) the student will be able to:				
	C01	CO1 Understand and apply the Fundamentals of Communication Skills in their communication skills.			
	CO2 Identify the nuances of phonetics, intonation and enhance pronunciation skills.				
	CO3	To impart basic English grammar and essentials of language skills as per present requirement.			
	C04	Understand and use all types of English vocabulary and language proficiency.			
	CO4	Understand and use all types of English vocabulary and language proficiency.			

CO5 Adopt the Techniques of Information Transfer through presentation.

## Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### **Continuous Internal Evaluation(CIE):**

#### Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration

#### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others.. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks

### **Semester End Examinations (SEE)**

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

### **Suggested Learning Resources:**

### **Textbook:**

- 1) Communication Skills by Sanjay Kumar & Pushp Lata, Oxford University Press India Pvt Ltd 2019.
- 2) A Textbook of English Language Communication Skills, (ISBN-978-81-955465-2-7), Published by Infinite Learning Solutions, Bengaluru 2022.

### **Reference Books:**

- 1. **Technical Communication** by Gajendra Singh Chauhan and Et al, (ISBN-978-93-5350-050-4), Cengage learning India Pvt Limited [Latest Revised Edition] 2019.
- 2. English for Engineers by N.P.Sudharshana and C.Savitha, Cambridge University Press 2018.
- English Language Communication Skills Lab Manual cum Workbook, Cengage learning India Pvt Limited [Latest Revised Edition] – (ISBN-978-93-86668-45-5), 2019.
- 4. A Course in Technical English D Praveen Sam, KN Shoba, Cambridge University Press 2020.
- 5. Practical English Usage by Michael Swan, Oxford University Press 2016.

#### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- ✓ For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions, Seminars and assignments

Course Title:	Course Title: Waste Management					
Course Code:		BETCK105F/205F	CIE Marks	50		
Course Type (Theory/Practical		Theory	SEE Marks 50			
/Integrated )			Total Marks	100		
Teaching Hours/Week (L:T:P: S)		3:0:0:0	Exam Hours	3 hrs of Theory		
Total Hours of Pedagogy		40 hours	Credits	03		

### **Course objectives**

- To learn broader understandings on various aspects of solid waste management practiced in industries.
- To learn recovery of products from solid waste to compost and biogas, incineration and energy recovery,
  - hazardous waste management and treatment, and integrated waste management.

#### **Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective

- 1. Include traditional teaching learning process such as Chalk and Talk using writing boards.
- 2. Construct graphical and pictorial representation of the subject in the form of Chart, hand-outs or PowerPoint presentations.
- 3. Collaborate with students how tools are applied to solve biological problems.
- 4. Integrate real time case studies in various scientific tools used.
- 5. Reflective approaches on analysing how and why the tools are used in self-reflected or published data.
- 6. Incorporate Inquiry based approach using demonstration, field study, experiments and project work

### Module-1 (08)

### INTRODUCTION TO SOLID WASTE MANAGEMENT:

Classification of solid wastes (source and type based), solid waste management (SWM), elements of SWM, ESSWM (environmentally sound solid waste management) and EST (environmentally sound technologies), factors affecting SWM, Indian scenario, progress in MSW (municipal solid waste) management in India.Indian and global scenario of e-waste,

### Module-2 (08)

### WASTE GENERATION ASPECTS:

Waste stream assessment (WSA), waste generation and composition, waste characteristics (physical and chemical), health and environmental effects (public health and environmental), comparative assessment of waste generation and composition of developing and developed nations, a case study results from an Indian city, handouts on solid waste compositions. E-waste generation.

#### Module-3 (08)

### COLLECTION, STORAGE, TRANSPORT AND DISPOSAL OF WASTES:

Waste Collection, Storage and Transport: Collection components, storage-containers/collection vehicles, collection operation, transfer station, waste collection system design, record keeping, control, inventory and monitoring, implementing collection and transfer system, a case study. Waste Disposal: key issues in waste disposal, disposal options and selection criteria, sanitary landfill, landfill gas emission, leachate formation, environmental effects of landfill, landfill operation issues, a case study.

#### Module-4 (08)

### WASTE PROCESSING TECHNIQUES & SOURCE REDUCTION, PRODUCT RECOVERY & RECYCLING:

Purpose of processing, mechanical volume and size reduction, component separation, drying and dewatering. Source Reduction, Product Recovery and Recycling: basics, purpose, implementation monitoring and evaluation of source reduction, significance of recycling, planning of a recycling programme, recycling programme elements, commonly recycled materials and processes, a case study.

#### Module-5 (08)

### HAZARDOUS WASTE MANAGEMENT AND TREATMENT:

Identification and classification of hazardous waste, hazardous waste treatment, pollution prevention and waste minimization, hazardous wastes management in India. E-waste recycling.

### Course outcome (Course Skill Set)

At the end of the course the student will be able to:

At the en	d of the course the student will be able to.
C01	Apply the basics of solid waste management towards sustainable development
CO2	Apply technologies to process waste and dispose the same.
CO3	Design working models to convert waste to energy
C04	Identify and classify hazardous waste and manage the hazard

## **Assessment Details (both CIE and SEE)**

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

## Continuous Internal Evaluation(CIE):

Three Tests each of 20 Marks;

• 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> tests shall be conducted after completion of the syllabus of 30-35%,

70-75%, and 90-100% of the course/s respectively.

 Assignments/Seminar/quiz/group discussion /field survey & report presentation/ course project/Skill development activities, suitably planned to attain the COs and POs for a total of 40 Marks.

If the nature of the courses requires assignments/Seminars/Quizzes/group discussion two evaluation components shall be conducted. If course project/field survey/skill development activities etc then the evaluation method shall be one.

## Total CIE marks (out of 100 marks) shall be scaled down to 50 marks

### Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks.
- Students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

### Suggested Learning Resources:

Books

### **Text Books:**

1. Tchobaanoglous, G., Theisen, H., and Samuel A Vigil, Integrated Solid Waste Management, McGraw-Hill Publishers, 1993.

2. Bilitewski B., Hard He G., Marek K., Weissbach A., and Boeddicker H., Waste Management, Springer, 1994.

## 16-2-2023

### **Reference Books:**

1. White, F. R., Franke P. R., & Hindle M., Integrated solid waste management: a life cycle inventory. McDougall, P. John Wiley & Sons. 2001

2. Nicholas, P., & Cheremisinoff, P. D., Handbook of solid waste management and waste minimization

technologies, Imprint of Elsevier Science. 2005

## Web links and Video Lectures (e-Resources):

- https://nptel.ac.in/courses/105103205
- https://www.youtube.com/watch?v=k0ktJRoRcOA
- https://nptel.ac.in/courses/103/107/103107125/
- https://onlinecourses.nptel.ac.in/noc22\_ce76/preview
- https://onlinecourses.swayam2.ac.in/cec20\_ge13/preview

### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- AV presentation by students (on specific topics).
- Discussion of case studies based on research findings.
- Model making and Poster presentations

#### COs and POs Mapping (Individual teacher has to fill up) COs POs 1 7 9 2 3 4 5 6 8 10 11 12 C01 3 3 3 3 3 **CO2** 3 **CO3** 3 3 3 **CO4** 3 3 3 Level 3- Highly Mapped, Level 2-Moderately Mapped, Level 1-Low Mapped, Level 0- Not Mapped

## I Semester

Learning

INNOVATION and DESIGN THINKING					
Course Code BIDTK158/258 CIE Marks 50					
Teaching Hours/Week (L: T:P: S)	1:0:0	SEE Marks	50		
Total Hours of Pedagogy	15	Total Marks	100		
Credits	01	Exam Hours	01		

## Course Category: Foundation

**Preamble:** This course provides an introduction to the basic concepts and techniques of engineering and reverses engineering, the process of design, analytical thinking and ideas, basics and development of engineering drawing, application of engineering drawing with computer aide. **Course objectives:** 

- To explain the concept of design thinking for product and service development
- To explain the fundamental concept of innovation and design thinking
- To discuss the methods of implementing design thinking in the real world.

## **Teaching-Learning Process (General Instructions)**

These are sample Strategies; which teachers can use to accelerate the attainment of the various course outcomes.

- **1.** Lecturer method (L) does not mean only the traditional lecture method, but a different type of teaching method may be adopted to develop the outcomes.
- 2. Show Video/animation films to explain concepts
- 3. Encourage collaborative (Group Learning) Learning in the class
- **4.** Ask at least three HOTS (Higher-order Thinking) questions in the class, which promotes critical thinking
- **5.** Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develops thinking skills such as the ability to evaluate, generalize, and analyze information rather than simply recall it.
- **6.** Topics will be introduced in multiple representations.
- **7.** Show the different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.
- **8.** Discuss how every concept can be applied to the real world and when that's possible, it helps improve the students' understanding.

Module-1				
PROCESS OF DESIGN				
Understanding Design thinking				
Shared model in team-based design – Theory and practice in Design thinking – Explore presentation				
signers across globe – MVP or Prototyping				
Teaching-	g- Introduction about the design thinking: Chalk and Talk method			
Learning	Theory and practice through presentation			
Process	Process MVP and Prototyping through live examples and videos			
Module-2				
Tools for Design Thinking				
Real-Time design interaction capture and analysis – Enabling efficient collaboration in digital space				
– Empathy for design – Collaboration in distributed Design				
<b>Teaching-</b> Case studies on design thinking for real-time interaction and analysis				

Process	Simulation exercises for collaborated enabled design thinki	ng				
	Live examples on the success of collaborated design thinking					
	Module-3					
Design 7	'hinking in IT					
Design T	hinking to Business Process modelling – Agile in Virtual collaborati	on environment – Scenario				
based Pr	ototyping					
Teaching	ing- Case studies on design thinking and business acceptance of the design					
Learning	Simulation on the role of virtual eco-system for collaborated prototyping					
Process						
	Module-4					
DT For st	rategic innovations					
	Story telling representation – Strategic Foresight - Change – S	_				
	e – Value redefinition - Extreme Competition – experience of	-				
Humaniza design.	ation - Creative Culture – Rapid prototyping, Strategy and Orga	anization – Business Model				
Teaching	- Business model examples of successful designs					
Learning Presentation by the students on the success of design						
Process	Live project on design thinking in a group of 4 students					
Decian th	Module-5					
•	inking workshop .inking Work shop Empathize, Design, Ideate, Prototype and Test					
Teaching	8 hours design thinking workshop from the expect and then pre-	esentation by the students				
Learning	on the learning from the workshop					
Process						
Course O						
opon the	successful completion of the course, students will be able to:	Knowledge Level				
CO	Course Outcomes	•				
Nos.		(Based on revised Bloom's Taxonomy)				
C01	Appreciate various design process procedure	K2				
CO1Appreciate various design process procedureK2CO2Generate and develop design ideas through differentK2						
CO2	technique	К2				
CO3	Identify the significance of reverse Engineering toUnderstand products	К2				
CO4	Draw technical drawing for design ideas	КЗ				

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## Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together. **Continuous Internal Evaluation (CIE)**:

- Two Tests (preferably in MCQ pattern ) each of **30 Marks**; The first test after the completion of the 40 -50% syllabus of the course. A second test after the completion of 90-100% of the syllabus of the course.
- Two Assignments/two quizzes/two seminars/one field survey and report

presentation/one-course project totaling 40 marks

Total Marks scored (test + assignments) out of 100 shall be scaled down to 50 marks

At the beginning of the semester, the instructor/faculty teaching the course has to announce the methods of CIE for the course.

The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

## Semester-End Examination:

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for subject

SEE paper will be set for 50 questions of each of 01 marks. The pattern of the question paper is MCQ. The time allotted for SEE is **01 hour** 

## Suggested Learning Resources:

## **Text Books :**

- 1. John.R.Karsnitz, Stephen O'Brien and John P. Hutchinson, "Engineering Design", Cengage learning (International edition) Second Edition, 2013.
- 2. Roger Martin, "The Design of Business: Why Design Thinking is the Next Competitive Advantage", Harvard Business Press, 2009.
- 3. Hasso Plattner, Christoph Meinel and Larry Leifer (eds), "Design Thinking: Understand Improve Apply", Springer, 2011
- 4. Idris Mootee, "Design Thinking for Strategic Innovation: What They Can't Teach You at Business or Design School", John Wiley & Sons 2013.

**References**:

16-2-2023

5.	Yousef Haik and Tamer M.Shahin, "Engineering Design Process", CengageLearning, Second
	Edition, 2011.
6.	Book - Solving Problems with Design Thinking - Ten Stories of What Works (Columbia Business
	School Publishing) Hardcover – 20 Sep 2013 by Jeanne Liedtka (Author), Andrew King (Author),
	Kevin Bennett (Author).
Web li	nks and Video Lectures (e-Resources):
1.	www.tutor2u.net/business/presentations/. / <b>productlifecycle</b> /default.html
2.	https://docs.oracle.com/cd/E11108_02/otn/pdf/. /E11087_01.pdf
3.	www.bizfilings.com > Home > Marketing > Product Developmen
4.	https://www.mindtools.com/brainstm.html
5.	https://www.quicksprout.com/. /how-to- <b>reverse-engineer</b> -your-competit
6.	www.vertabelo.com/blog/documentation/reverse-engineering
	https://support.microsoft.com/en-us/kb/273814
7.	https://support.google.com/docs/answer/179740?hl=en
8.	https://www.youtube.com/watch?v=2mjSDIBaUlM
	thevirtualinstructor.com/foreshortening.html
	https://dschool.stanford.edu//designresources//ModeGuideBOOTCAMP2010L.pdf
	https://dschool.stanford.edu/use-our-methods/ 6. https://www.interaction-
	design.org/literature/article/5-stages-in-the-design-thinking-process 7.
	http://www.creativityatwork.com/design-thinking-strategy-for-innovation/ 49 8.
	https://www.nngroup.com/articles/design-thinking/ 9.
	https://designthinkingforeducators.com/design-thinking/ 10.
	www.designthinkingformobility.org/wp-content//10/NapkinPitch_Worksheet.pdf
Activit	ty Based Learning (Suggested Activities in Class)/ Practical Based learning
•	http://dschool.stanford.edu/dgift/

https://onlinecourses.nptel.ac.in/noc19\_mg60/preview

Theory - 01 Credit Course

## ಬಳಕೆ ಕನ್ನಡ - baLake Kannada (Kannada for Usage)

## ಕನ್ನಡ ಕಲಿಕೆಗಾಗಿ <u>ನಿಗದಿ</u>ಪಡಿಸಿದ ಪಠ್ಯಪುಸ್ತಕ - (Prescribed Textbook to Learn Kannada)

Course Title:	ಬಳಕೆ ಕನ್ನಡ						
Course Code:	BKBKK107-207	CIE Marks	50				
Course Type (Theory/Practical /Integrated	Theory	SEE Marks	50				
course Type (Theory) Flactical / Integrated		Total Marks	100				
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory				
Total Hours of Pedagogy	15 hours	Credits	01				

### Course objectives : ಬಳಕೆ ಕನ್ನಡ ಪಠ್ಯ ಕಲಿಕೆಯ ಉದ್ದೇಶಗಳು:

The course (22KBK17/27) will enable the students,

- 1. To Create the awareness regarding the necessity of learning local language for comfortable and healthy life.
- 2. To enable learners to Listen and understand the Kannada language properly.
- 3. To speak, read and write Kannada language as per requirement.
- 4. To train the learners for correct and polite conservation.
- 5. To know about Karnataka state and its language, literature and General information about this state.

## ಬೋಧನೆ ಮತ್ತು ಕಲಿಕಾ ವ್ಯವಸ್ಥೆ (Teaching-Learning Process - General Instructions) :

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

- ಬಳಕೆ ಕನ್ನಡವನ್ನು ತರಗತಿಯಲ್ಲಿ ಶಿಕ್ಷಕರು ಬೋಧಿಸಲು ವಿಟಿಯು ಸೂಚಿಸಿರುವ ಪಠ್ಯಪುಸ್ತಕವನ್ನು ಉಪಯೊಗಿಸಬೇಕು.
- ಪ್ರಮುಖ ಅಂಶಗಳ ಚಾರ್ಟ್ ಗಳನ್ನು ತಯಾರಿಸಲು ವಿದ್ಯಾರ್ಥಿಗಳನ್ನು ಉತ್ತೇಜಿಸುವುದು ಮತ್ತು ತರಗತಿಯಲ್ಲಿ ಅವುಗಳನ್ನು ಚರ್ಚಿಸಲು ಅವಕಾಶ ಮಾಡಿಕೊಡುವುದು.
- 3. ಪ್ರತಿ ವಿದ್ಯಾರ್ಥಿ ಪುಸ್ತಕವನ್ನು ತರಗತಿಯಲ್ಲಿ ಬಳಸುವಂತೆ ನೋಡಿಕೊಳ್ಳುವುದು ಮತ್ತು ಪ್ರತಿ ಪಾಠ ಮತ್ತು ಪ್ರವಚನಗಳ ಮೂಲ ಅಂಶಗಳಿಗೆ ಸಂಬಂಧಪಟ್ಟಂತೆ ಪೂರಕ ಚಟುವಟಿಕೆಗಳಿಗೆ ತೊಡಗಿಸತಕ್ಕದ್ದು.
- 4. ಡಿಜಿಟಲ್ ತಂತ್ರಜ್ಞಾನದ ಮುಖಾಂತರ ಇತ್ತೀಚೆಗೆ ಡಿಜಿಟಲೀಕರಣ ಗೊಂಡಿರುವ ಭಾಷೆ ಕಲಿಕೆಯ ವಿಧಾನಗಳನ್ನು ಪಿಪಿಟಿ ಮತ್ತು ದೃಶ್ಯ ಮಾಧ್ಯಮದ ಮುಖಾಂತರ ಚರ್ಚಿಸಲು ಕ್ರಮಕೈಗೊಳ್ಳುವುದು. ಇದರಿಂದ ವಿದ್ಯಾರ್ಥಿಗಳನ್ನು ತರಗತಿಯಲ್ಲಿ ಹೆಚ್ಚು ಏಕಾಗ್ರತೆಯಿಂದ ಪಾಠ ಕೇಳಲು ಮತ್ತು ಅಧ್ಯಯನದಲ್ಲಿ ತೊಡಗಲು ಅನುಕೂಲವಾಗುತ್ತದೆ.
- ಭಾಷಾಕಲಿಕೆಯ ಪ್ರಯೋಗಾಲಯದ ಮುಖಾಂತರ ಬಹುಬೇಗ ಕನ್ನಡ ಭಾಷೆಯನ್ನು ಕಲಿಯಲು ಅನುಕೂಲವಾಗುವಂತೆ ಕಾರ್ಯಚಟುವಟಿಕೆಗಳನ್ನು ಮತ್ತು ಕ್ರಿಯಾ ಯೋಜನೆಗಳನ್ನು ರೂಪಿಸುವುದು.

## Module - 1

### (03 hours of pedagogy)

- 1. Introduction, Necessity of learning a local language. Methods to learn the Kannada language.
- 2. Easy learning of a Kannada Language: A few tips. Hints for correct and polite conservation, Listening and Speaking Activities, Key to Transcription
- 3. ವೈಯಕ್ತಿಕ, ಸ್ವಾಮ್ಯಸೂಚಕ/ಸಂಬಂಧಿತ ಸಾರ್ವನಾಮಗಳು ಮತ್ತು ಪ್ರಶ್ನಾರ್ಥಕ ಪದಗಳು Personal Pronouns, Possessive Forms, Interrogative words

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Module - 2	(03 hours of pedagogy)
<ol> <li>ನಾಮಪದಗಳ ಸಂಬಂಧಾರ್ಥಕ ರೂಪಗಳು, ಸಂದೇಹಾಸ್ಪ ನಾಮಪದಗಳು - Possessive forms of nouns, dubitiv</li> <li>ಗುಣ, ಪರಿಮಾಣ ಮತ್ತು ವರ್ಣಬಣ್ಣ ವಿಶೇಷಣಗಳು, ಸಂಖ Colour Adjectives, Numerals</li> </ol>	e question and Relative nouns
	, ಅದು, ಅವು, ಅಲ್ಲಿ) –Predictive Forms, Locative Case
Module - 3	(03 hours of pedagogy)
1. ಚತುರ್ಥಿ ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯದ ಬಳಕೆ ಮತ್ತು ಸಂಖ್ಯಾವಾಚಕಗಳು - Dative Ca	ases, and Numerals
2. ಸಂಖ್ಯಾಗುಣವಾಚಕಗಳು ಮತ್ತು ಬಹುವಚನ ನಾಮರೂಪಗಳು -Ordinal	numerals and Plural markers
3. ನ್ಯೂನ/ನಿಷೇಧಾರ್ಥಕ ಕ್ರಿಯಾಪದಗಳು & ವರ್ಣ ಗುಣವಾಚಕಗಳು – Defe	
Module- 4	(03 hours of pedagogy)
1. ಅಪ್ಪಣೆ / ಒಪ್ಪಿಗೆ, ನಿರ್ದೇಶನ, ಪ್ರೋತ್ಸಾಹ ಮತು ಒತ್ತಾಯ ಆಥ	೯ರೂಪ ಪದಗಳು ಮತ್ತು ವಾಕ್ಯಗಳು
Permission, Commands, encouraging and Urging words (In	perative words and sentences)
2. ಸಾಮಾನ್ಯ ಸಂಭಾಷಣೆಗಳಲ್ಲಿ ದ್ವಿತೀಯ ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯಗಳು ಕ	ಮತ್ತು ಸಂಭವನೀಯ ಪ್ರಕಾರಗಳು
Accusative Cases and Potential Forms used in General Comn	nunication
3. "ಇರು ಮತ್ತು ಇರಲ್ಲ" ಸಹಾಯಕ ಕ್ರಿಯಾಪದಗಳು, ಸಂಭಾವ್ಯಸ	ೂಚಕ ಮತ್ತು ನಿಷೇಧಾರ್ಥಕ ಕ್ರಿಯಾ ಪದಗಳು -
Helping Verbs "iru and iralla", Corresponding Future and Nega	ation Verbs
4. ಹೋಲಿಕೆ (ತರತಮ) , ಸಂಬಂಧ ಸೂಚಕ, ವಸ್ತು ಸೂಚಕ ಪ್ರತ್ಯ	್ಯಯಗಳು ಮತ್ತು ನಿಷೇಧಾರ್ಥಕ ಪದಗಳ ಬಳಕೆ-
Comparitive, Relationship, Identification and Negation Words	
Module - 5	(03 hours of pedagogy)
1. ಕಾಲ ಮತ್ತು ಸಮಯದ ಹಾಗೂ ಕ್ರಿಯಾಪದಗಳ ವಿವಿಧ ಪ್ರಕಾರಣ	ಗಳು -Different types of Tense, Time and Verbs
2. ದ್, -ತ್, - ತು, - ಇತು, - ಆಗಿ, - ಅಲ್ಲ, - ಗ್, -ಕ್, ಇದೆ, ಕ್ರಿಯಾ ಪ್ರ	ತ್ಯಯಗಳೊಂದಿಗೆ ಭೂತ, ಭವಿಷ್ಯತ್ ಮತ್ತು
ವರ್ತಮಾನ ಕಾಲ ವಾಕ್ಯ ರಚನೆ - Formation of Past, Future a	nd Present Tense Sentences with Verb Forms

3. Kannada Vocabulary List :ಸಂಭಾಷಣೆಯಲ್ಲಿ ದಿನೋಪಯೋಗಿ ಕನ್ನಡ ಪದಗಳು -Kannada Words in Conversation

## Course outcome (Course Skill Set)

## ಬಳಕೆ ಕನ್ನಡ ಪಠ್ಯ ಕಲಿಕೆಯಿಂದ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಆಗುವ ಅನುಕೂಲಗಳು ಮತ್ತು ಫಲಿತಾಂಶಗಳು:

At the end of the course the student will be able to:

C01	To understand the necessity of learning of local language for comfortable life.
CO2	To speak, read and write Kannada language as per requirement.
CO3	To communicate (converse) in Kannada language in their daily life with kannada speakers.
C04	To Listen and understand the Kannada language properly.
CO5	To speak in polite conservation.

## Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than

35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

## Continuous Internal Evaluation(CIE):

Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration

### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others.. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

# The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks Semester End Examinations (SEE)

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

## **University Prescribed Textbook :**

ಬಳಕೆ ಕನ್ನಡ

ಡಾ. ಎಲ್. ತಿಮ್ಮೇಶ

ಪ್ರಕಟಣೆ : ಪ್ರಸಾರಾಂಗ,

## ವಿಶ್ಯೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ.

ಸೂಚನೆ :

- 1. ಹೆಚ್ಚಿನ ಮಾಹಿತಿ ಮತ್ತು ವಿವರಣೆಗಳಿಗೆ ಡಾ. ಎಲ್. ತಿಮ್ಮೇಶ (9900832331) ಇವರನ್ನು ಸಂಪರ್ಕಿಸಿ.
- ಮಾದರಿ ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆ, ಕೋರ್ಸ್ ಆಯ್ಕೆ ಮಾಹಿತಿ, ಅಧ್ಯಯನ ಸಾಮಗ್ರಿ & ಬಹು ಆಯ್ಕೆ ಮಾದರಿಯ ಪ್ರಶ್ನೆಗಳ ಕೈಪಿಡಿಗಾಗಿ ವಿಶ್ವವಿದ್ಯಾಲಯದ ವೆಬ್ ಸೈಟ್ ನೋಡುವುದು.

### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- ✓ For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions,
- Seminars and assignments

1

## Theory - 01 Credit Course

	e Title:	ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ		
Course	e Code:	-	CIE Marks	50
Course Type (Theory (Dractical (Integrat		BKSKK107-207	SEE Marks	50
Course	e Type (Theory/Practical /Integrate	u	Total Marks	100
Teachi	ing Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total H	Hours of Pedagogy	15 hours	Credits	01
Cours	e objectives : ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ	ಪಠ್ಯ ಕಲಿಕೆಯ ಉದ್ದೇಶ	ಗಳು:	
The co	ourse (22KSK17/27) will enable the stu	idents,		
1.	ವೃತ್ತಿಪರ ಪದವಿ ವಿದ್ಯಾರ್ಥಿಗಳಾಗಿರ ಮಾಡಿಕೊಡುವುದು.	ರುವುದರಿಂದ ಕನ್ನಡ ಭಾಷ	, ಸಾಹಿತ್ಯ ಮತ್ತು ಕ <u>ನ</u>	ರ್ನಡದ ಸಂಸ್ಕೃತಿಯ ಪರಿಚ <b>ಯ</b>
2.	ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಪ್ರಧಾನ ಭಾಗ ಪರಿಚಯಿಸಿವುದು.	ವಾದ ಆಧುನಿಕ ಪೂರ್ವ	ಮತ್ತು ಆಧುನಿಕ ಕ	ಾವ್ಯಗಳನ್ನು ಸಾಂಕೇತಿಕವಾ
3.	ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ ಸಾಹಿತ್ಯ ಮತ್ತು ಸಂ	ಂಸ್ಕೃತಿಯ ಬಗ್ಗೆ ಅರಿವು ಹ	ಾಗೂ ಆಸಕ್ತಿಯನ್ನು ವ	ುೂಡಿಸುವುದು.
	ತಾಂತ್ರಿಕ ವ್ಯಕ್ತಿಗಳ ಪರಿಚಯವನ್ನು			
	ಸಾಂಸ್ಕೃತಿಕೆ, ಜನಪದ ಹಾಗೂ ಪ್ರವಾ			U U
	ಧನೆ ಮತ್ತು ಕಲಿಕಾ ವ್ಯವಸ್ಥೆ (Teacl	-	-	ictions) ·
		• •		
1.	are sample Strategies, which teach ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡವನ್ನು ಬೋಧಿ			
1.	ವಿಧಾನವನ್ನು ಅನುಸರಿಸುವುದು.			
2	ಪ್ರೇರೇಪಿಸುವುದು ಮತ್ತು ತರಗತಿಯ ಇತ್ತೀಚಿನ ತಂತ್ರಜ್ಞಾನದ ಅನುಕೂ			-
۷.	ಚಿತ್ರಣ ಮತ್ತು ಲೇಖನಗಳು ಮತ		-	
	ಸಂಭಾಷಣೆಗಳು, ಈಗಾಗಲೇ ಇತರ			
	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ		0 000005 3 <sup>6</sup> 0 000	ಯಗಳನ್ನು ಐಐಐ, ಡಜವರ
		ざいざんてい		
3		•	ಾವಗಳನ್ನು ಶಿಕಕಗು	ರಿದ್ರಾರ್ಥಿಗಳಿಗೆ
3.	ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋದ	ಧನೆಗ <sup>°</sup> ಸಂಬಂಧಪಟ್ಟ ವಿಧ	ಾನಗಳನ್ನು ಶಿಕ್ಷಕರು .	<b>ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ</b>
3.	ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋರ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ	ಧನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧ ಗವಡಿಸಿಕೊಳ್ಳಬಹುದು.		
	ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಡ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ	ಧನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧ ಸವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ		
1.	ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋದ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಇ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗದ	ಧನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧ ಗವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ರಾಜಯ್ಯ	ಷೆ ಕುರಿತಾದ ಲೇಖನಗ	
1. 2.	ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಗ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗಗ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ	ಧನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧ ಸವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ರಾಜಯ್ಯ ಸಾರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ	ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ	
1. 2.	ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋದ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಇ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗದ	ಧನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧ ಸವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ರಾಜಯ್ಯ ಸಾರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ	ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ	
1. 2.	ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಡ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗಡ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ.	ಧನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧ ಸವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ರಾಜಯ್ಯ ಸಾರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ	ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ ್ರೀ. ವಿ. ಕೇಶವಮೂರ್ತಿ	
1. 2.	ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಡ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗದ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಘಟಕ - 2	ಧನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧ ಗವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ರಾಜಯ್ಯ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ	ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ ್ರೀ. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03	ಗಳು (03 hours of pedagog
1. 2. 3.	ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಡ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗದ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಘಟಕ - 2	ಧನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧ ಗವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ರಾಜಯ್ಯ ಲ್ಯಾರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಂದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಂ	ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ ್ರೀ. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03	ಗಳು (03 hours of pedagogy
1. 2. 3.	ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಡ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗಡ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಘಟಕ - 2 ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ,	ಧನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧ ಗವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ರಾಜಯ್ಯ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಅದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆರ ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ.	ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ ್ರೀ. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ಕ್ದುಕ್ಕಿ ಮಾರಯ್ಯ,	ಗಳು (03 hours of pedagog
1. 2. 3.	ನವೀನೆ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಡ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗದ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಘಟಕ - 2 ರ ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ	ಧನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧ ಗವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ರಾಜಯ್ಯ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಅದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆರ ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ.	ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ ್ರೀ. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ಕ್ದುಕ್ಕಿ ಮಾರಯ್ಯ, ದರದಾಸರು	ಗಳು (03 hours of pedagog
1. 2. 3.	ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಗ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗದ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಘಟಕ - 2 ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ	ಧನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧ ಶವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ರಾಜಯ್ಯ ಲಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಆದ್ದುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಆಯ್ದೆಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂ ತಾಳು ಮನವೇ - ಕನಕದಾ	ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ ್ರೀ. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ಕ್ದುಕ್ಕಿ ಮಾರಯ್ಯ, ದರದಾಸರು	ಗಳು (03 hours of pedagog
1. 2. 3. 1. 2.	ನವೀನೆ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಡ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗಡ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಆ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಘಟಕ - 2 ಥ ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸ	ಧನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧ ಶವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ರಾಜಯ್ಯ ಲಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಆದ್ದುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಆಯ್ದೆಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂ ತಾಳು ಮನವೇ - ಕನಕದಾ	ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ ್ರೀ. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ಸ್ದುಕ್ಕಿ ಮಾರಯ್ಯ, ದರದಾಸರು ಸರು	ಗಳು (03 hours of pedagog
1. 2. 3. 1. 2.	ನವೀನೆ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಡ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗಡ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಘಟಕ - 2 ಥ ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸ ಘಟಕ - 3	ಧನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧ ಸವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ರಾಜಯ್ಯ ಶೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಧ ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂ ತಾಳು ಮನವೇ - ಕನಕದಾ ಎಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ	ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ ್ರೇ. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ಕ್ದುಕ್ಕಿ ಮಾರಯ್ಯ, ದರದಾಸರು ಸರು	ిళు (03 hours of pedagogy hours of pedagogy)
1. 2. 3. 1. 2. 3.	ನವೀನೆ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಡ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗಡ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಆ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಘಟಕ - 2 ಥ ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸ ಘಟಕ -3 ಡಿವಿಜಿ ರವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗದಿಂ	ಧನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧ ಗವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ರಾಜಯ್ಯ ಶಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಡದೆಂದೇನು ಫಲ – ಪುರಂ ತಾಳು ಮನವೇ - ಕನಕದಾ ಎಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ ಂದ ಅಯ್ದ ಕೆಲವು ಭಾಗಗಳ	ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ ್ರೇ. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ಕ್ದುಕ್ಕಿ ಮಾರಯ್ಯ, ದರದಾಸರು ಸರು	ిళు (03 hours of pedagogy hours of pedagogy)
1. 2. 3. 1. 2. 3.	ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಡ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗಡ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಆ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಘಟಕ - 2 ಹ ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸ ಘಟಕ -3 ಡಿವಿಜಿ ರವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗದಿಂ	ಧನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧ ಗವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ರಾಜಯ್ಯ ಶಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಡದೆಂದೇನು ಫಲ – ಪುರಂ ತಾಳು ಮನವೇ - ಕನಕದಾ ಎಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ ಂದ ಅಯ್ದ ಕೆಲವು ಭಾಗಗಳ	ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ ್ರೇ. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ಕ್ದುಕ್ಕಿ ಮಾರಯ್ಯ, ದರದಾಸರು ಸರು	ిళు (03 hours of pedagogy hours of pedagogy)
1. 2. 3. 1. 2. 3.	ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಡ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗದ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಆ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಘಟಕ - 2 ಥ ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸ ಘಟಕ -3 ಡಿವಿಜಿ ರವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗದಿಂ ಕುರುಡು ಕಾಂಚಾಣ : ದಾ.ರಾ. ಬೇಂ ಹೊಸಬಾಳಿನ ಗೀತೆ : ಕುವೆಂಪು	ಧನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧ ಶವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ರಾಜಯ್ಯ ಶಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಇದರಿಂದೇನು ಫಲ – ಪುರಂ ತಾಳು ಮನವೇ - ಕನಕದಾ ಎಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ ಂದ ಅಯ್ದ ಕೆಲವು ಭಾಗಗಳ ಂದ್ರೆ	ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ ್ರೀ. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ಸ್ತುಕ್ಕಿ ಮಾರಯ್ಯ, ದರದಾಸರು ಸರು (03 )	గళు (03 hours of pedagogy hours of pedagogy) hours of pedagogy)
1. 2. 3. 1. 2. 3. 1. 2. 3.	ನವೀನೆ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಡ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗದ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಘಟಕ - 2 ಡ ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸ ಘಟಕ - 3 ಡಿವಿಜಿ ರವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗದಿಂ ಕುರುಡು ಕಾಂಚಾಣ : ದಾ.ರಾ. ಬೇಂ ಹೊಸಬಾಳಿನ ಗೀತೆ : ಕುವೆಂಪು	ಧನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧ ಶವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ರಾಜಯ್ಯ ಶಾವ್ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆದ ಆದ್ದುಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂ ತಾಳು ಮನವೇ - ಕನಕದಾ ಎಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ ಂದ ಅಯ್ದ ಕೆಲವು ಭಾಗಗಳ ದ್ರೆ	ಷ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ ್ರೀ. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ಶ್ದುಕ್ಕಿ ಮಾರಯ್ಯ, ದರದಾಸರು ಸರು (03 1 ಳು	ిళు (03 hours of pedagogy hours of pedagogy)
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## 26.10.2022

### Course outcome (Course Skill Set)

ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ (22KSK17/27) ಪಠ್ಯ ಕಲಿಕೆಯ ನಂತರ ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ :

At the end of the course the student will be able to:

C01	ಕನ್ನಡ ಭಾಷೆ, ಸಾಹಿತ್ಯ ಮತ್ತು ಕನ್ನಡದ ಸಂಸ್ಕೃತಿಯ ಕುರಿತು ಅರಿವು ಮೂಡಿರುತ್ತದೆ.
CO2	ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಪ್ರಧಾನ ಭಾಗವಾದ ಆಧುನಿಕ ಪೂರ್ವ ಮತ್ತು ಆಧುನಿಕ ಕಾವ್ಯಗಳನ್ನು ಸಾಂಕೇತಿಕವಾಗಿ
	ಕಲಿತು ಹೆಚ್ಚಿನ ಓದಿಗೆ ಮತ್ತು ಜ್ಞಾನಕ್ಕೆ ಸ್ಪೂರ್ತಿ ಮೂಡುತ್ತದೆ.
CO3	ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ ಸಾಹಿತ್ಯ ಮತ್ತು ಸಂಸ್ಕೃತಿಯ ಬಗ್ಗೆ ಅರಿವು ಹಾಗೂ ಆಸಕ್ತಿಯನ್ನು ಹೆಚ್ಚಾಗುತ್ತದೆ.
CO4	ತಾಂತ್ರಿಕ ವ್ಯಕ್ತಿಗಳ ಪರಿಚಯ ಹಾಗೂ ಅವರುಗಳ ಸಾಧಿಸಿದ ವಿಷಯಗಳನ್ನು ತಿಳಿದುಕೊಂಡು ನಾಡಿನ ಇನ್ನಿತರ
	ವ್ಯಕ್ತಿಗಳ ಬಗ್ಗೆ ತಿಳಿದುಕೊಳ್ಳಲು ಕೌತುಕತೆ ಹೆಚ್ಚಾಗುತ್ತದೆ.
CO5	ಸಾಂಸ್ಕೃತಿಕ, ಜನಪದ ಹಾಗೂ ಪ್ರವಾಸ ಕಥನಗಳ ಪರಿಚಯ ಮಾಡಿಕೊಡುವುದು.

## Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

### **Continuous Internal Evaluation(CIE):**

Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration

### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

### The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks Semester End Examinations (SEE)

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

## **University Prescribed Textbook :**

## ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ

ಡಾ. ಹಿ.ಚಿ.ಬೋರಲಿಂಗಯ್ಯ ಮತ್ತು ಡಾ. ಎಲ್. ತಿಮ್ಮೇಶ,

ಪ್ರಕಟಣೆ : ಪ್ರಸಾರಾಂಗ,

ವಿಶ್ಯೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ.

## ಸೂಚನೆ :

- 1. ಹೆಚ್ಚಿನ ಮಾಹಿತಿ ಮತ್ತು ವಿವರಣೆಗಳಿಗೆ ಡಾ. ಎಲ್. ತಿಮ್ಮೇಶ (9900832331) ಇವರನ್ನು ಸಂಪರ್ಕಿಸಿ.
- ಮಾದರಿ ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆ, ಕೋರ್ಸ್ ಆಯ್ಕೆ ಮಾಹಿತಿ, ಅಧ್ಯಯನ ಸಾಮಗ್ರಿ & ಬಹು ಆಯ್ಕೆ ಮಾದರಿಯ ಪ್ರಶ್ನೆಗಳ ಕೈಪಿಡಿಗಾಗಿ ವಿಶ್ವವಿದ್ಯಾಲಯದ ವೆಬ್ ಸೈಟ್ ನೋಡುವುದು.

### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

✓ Contents related activities (Activity-based discussions)

- ✓ For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions, Seminars and assignments.

I Semester (Civil Engineering Stream) (Chemistry Group )							hing		6	Examinat	011	8	
						Hours/Week				Examination			
SI. No	Course and Course Code		Course Title	854/01	Theory	r Lecture	Pradical/ Drawing	VOS	Duration in bours	CIE Marks	SBR Marbs	Tettal Marks	Eredits
					L		P	S	0				
1	*ASC(IC)	BMATC101	Mathematics-I for Civil Engg Stream	Maths	2	2	2	0	03	50	50	100	04
2	#ASC(IC)	BCHEC102	Applied Chemistry for Civil Engg Stream	Chemistry	2	2	2	0	03	50	50	100	04
3	ESC	BCEDK103	Computer-aided engineering Drawing	Civil/Mech Engg dept	2	0	2	0	03	50	50	100	03
4	ESC-I	BESCK104x	Engineering Science Course-I	Respective Dept	3	0	0	0	03	50	50	100	03
304	ETC-1	BETCK105x	Emerging Technology Course-I	20. 10.0000	3	0	0	0	03	a news	22.545	6	
5	OR		Any Dept						50	50	100	03	
	PLC-I BPLCK105x Programming Language Course-I			2	0	2	0	03					
		BPWSK106 Professional Writing Skills in English											
6	AEC		OR	Humanities	1	1 0	0	0	01	50	50	100	01
		BENGK106	Communicative English										
	HSMS OR			1					50	50	100	01	
7			nama: Table		0	0	0	01					
		BKSK107/ BKBK107	Samskrutika Kannada/ Balake Kannada								10000	x	
	HSMS	BSFHK158	Scientific Foundations of Health	AnyDept	1	0	0	0	01				
8	OR								50	50	100	01	
	HSMS	BITDK158	Innovation and Design Thinking	Any Dept	1	0	0	0	01				
		ettente-Giblioo	e zasko z oparaturo (z 1930) na zasko in zavy (z oba obanice) (z e	TOTAL	15	06	10	00	27	400	400	800	20

	(ESC-I) Engineering Science Courses-I					(ETC-I ) Emerging Technology Courses-I			
Code	Title	L	Т	P	Code	Title	L	T	P
BESCK104A	Introduction to Civil Engineering	3	0	0	BETCK105A	Smart Materials and Systems	3	0	0
BESCK104B	Introduction to Electrical Engineering	3	0	0	BETCK105B	Green Buildings		0	0
BESCK104C	Introduction to Electronics Communication	3	0	0	BETCK105C	C Introduction to Nano Technology		0	0
BESCK104D	Introduction to Mechanical Engineering	3	0	0	BETCK105D	Introduction to Sustainable Engineering	3	0	0
BESCK104E	Introduction to C Programming	2	0	2	BETCK105E	Renewable Energy Sources	3	0	0
		3 8			BETCK105F	Waste Management	3	0	0
					BETCK105G	Emerging Applications of Biosensors	3	0	0
	5	34.—3			BETCK105H	Introduction to Internet of Things (IOT)	3	0	0
		3. 8			BETCK105I	Introduction to Cyber Security	3	0	0
					BETCK105]	Introduction to Embedded System	3	0	0
(PLC-I) Progr	ramming Language Courses-1			- 21	1990 C. 1949 C. C. A. A. B. B. S				959 G.S
Code	Title	L	Т	P			12		
BPLCK105A	Introduction to Web Programming	2	0	2					
BPLCK105B	Introduction to Python Programming	2	0	2		4			
BPLCK105C	Basics of JAVA programming	2	0	2					Î.
BPLCK105D	Introduction to C++ Programming	2	0	2	ŝ		10		

- The student has to select one course from the ESC-I group.
- Civil Engineering Students shall opt for any one of the courses from the ESC-1 group except, BESCK104A –Introduction to Civil Engineering
- The students have to opt for the courses from ESC group without repeating the course in either 1st or 2nd semester
- The students must select one course from either ETC-I or PLC-I group.
- If students study the subject from ETC-I in 1<sup>st</sup> semester he/she has to select the course from PLC-II in the 2<sup>st</sup> semester and vice-versa

<b>Civil Engineering and Allied branches(Chemistry</b>	group)
	8FJ

Course Title:	Applied Chemistry for Civil	Engineering st	ream
Course Code:	<b>BCHEC202 /202</b>	CIE Marks	50
Courses		SEE Marks	50
Course	Integrated	Total	100
Type(Theory/Practical/Integrated		Marks	100
)		Exam	
TeachingHours/Week(L:T	2:2:2:0	Hours	03
:P:S) <sup>1</sup>			
TotalHoursofPedagogy	40hoursTheory+10to12L abslots	Credits	04
Course objectives	absiots		
Toenablestudentstoacquirekno	wledgeonprinciplesofchemist	rvforengineerir	ogannlica
ions.	wieugeonprincipiesoreneinise	i yioi engineerin	iguppiicu
Todevelopanintuitiveunderstar	ndingofchemistrybyemphasizi	ngtherelatedbra	anchesofe
ngineering.		5	
<ul> <li>Toprovidestudentswithasolidfo</li> </ul>	oundationinanalyticalreasonin	grequiredtosol	vesocieta
problems.			
Teaching-LearningProcess	_		
Thesearesamplestrategies, which teac		inmentoftheva	riouscour
eoutcomesandmakeTeaching-Learni	-		
Tutorial&remedialclassesforne			
ConductingMakeupclasses/Brid			
Demonstrationofconceptseithe		-	
Experimentsinlaboratoriesshal	ibeexecutedinbiendedmode(c	onventionalorn	on-
<ul><li>conventionalmethods)</li><li>UseofICT–Onlinevideos,onlinection</li></ul>			
<ul> <li>Useofonlineplatformsforassign</li> </ul>		gleclassroom)	
	L:StructuralMaterials(8hr)	gicciassi oomj	
MetalsandAlloys:Introduction,Prop		diteallove Alumi	iniumand
tsalloys	ertiesandappneationomonan	arcsanoys, munn	innunnanu
<b>Cement:</b> Introduction,composition,pr	roportios classification manuf	octuringprocoss	ofcomon
	-		
, process of setting and hardening of		-	
<b>Refractories:</b> Introduction, classif		composition,	propertie
andapplicationofrefractorymaterials			
Glass: Introduction, Composition,	Types, Preparation of Sod	a-lime glass, j	propertie
andapplicationsofglass.			
Self-learning: Chemistry of reinforced	lconcretefromvarioussources	ofwater(seawat	ær,
groundwater,treatedwater).			
Module-2:EnergyCo	onversionandStorage,Corros	sion(8hr)	
Energyconversion:Introduction,con	struction,working,andapplica	tionsofPhotovo	ltaiccells
methanol-oxygenfuelcell.			

**Corrosion:** Introduction, electrochemical corrosion of steel in concrete, types (differentialmetalandaeration),Stresscorrosionincivilstructures,corrosioncontrol(designan dselectionofmaterials,galvanization, anodizationandsacrificialanodemethod).

Self-learning:Corrosioninhibitors

# Module-3:WaterTechnologyandNanotechnology(8hr)

Water technology:Introduction, water parameters, hardness of water, determinationoftemporary, permanent and total hardness by EDTA method, numerical problems,softeningof water by ion exchange method, desalination of water by electrodialysis,determinationofCOD,numericalproblems.Forwardosmosis:Introduction,Processandapplications.

**Nanotechnology:** Introduction, size dependent properties of nanomaterial (surface areaandcatalytic),Synthesisofnanomaterialbysol-gelmethodandco-precipitationmethod.

Nanomaterials:Introduction,propertiesandengineeringapplicationsofcarbonnanotubes,

graphene and nanomaterials for water treatment (Metaloxide).

Self-learning:Sewagetreatment(Primary,secondaryandtertiary)

# Module-4:PolymerandComposites(8hr)

**Polymer:**Introduction,methodsofpolymerization,molecularweightofpolymers,numerical problems. Synthesis, properties and engineering applications of polyethylene(PE)and Chloropolyvinylchloride(CPVC).

Fibers: Synthesis, properties and applications of nylon fibers.

**Polymercomposites**:Introduction,propertiesandapplicationsoffiberreinforcedpolymersco mposites(FRPC),

**Geopolymerconcrete**:Introduction,synthesis,constituents,propertiesandapplications.

Adhesives: Introduction, properties and applications of epoxyres in.

**Biodegradablepolymers**:Synthesisofpolylacticacid(PLA)andtheirapplications. **Self-**

**learning:Biopolymer**:Introduction,structuralproperties,andapplicationsofcelluloseandligni n.

# Module-5:PhaseRuleandAnalyticalTechniques(8hr)

**Phase rule:** Introduction, Definition of terms: phase, components, degree of freedom, phaseruleequation.Phase diagram:Twocomponent-lead-silversystem.

**Analytical techniques:** Introduction, principle, instrumentation of potentiometric sensors and its application in the estimation of iron, conductometric sensors and its application in the estimation of acid mixture, pH-sensors and its application in the determination of soils apple.

**Self-learning:**Chromatographictechnique,applicationofchromatography(columnand thin-layeredchromatography)intheseparationofcomponents.

# PRACTICALMODULE

# <u>A-Demonstration(anytwo)offline/virtual:</u>

A1.Synthesisofpolyurethane

A2. Quantitative estimation of Aluminium by precipitation

method A3. Synthesis of iron oxiden an oparticles

A4. Determination of chloride content in the given waters ample by Argentometric method

# <u>B-Exercise(compulsorilyany4tobe conducted):</u>

B1. Conductometric estimation of acid mixture

 $B2. Potentiometric estimation of FAS using K_2 Cr_2 O_7 \\$ 

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6-2-2023
B3.DeterminationofpKaofvinegarusingpHsensor(Glasselectrode)
B4. Determination of rate of corrosion of milds teel by weight loss method B5. Estimation
oftotalhardnessofwaterbyEDTAmethod
<u>C-StructuredEnguiry (compulsorilyany4tobeconducted):</u>
C1. Estimation of Copper present in electroplating effluent by optical sensor
(colorimetry)C2.DeterminationofViscositycoefficientoflubricant(Ostwald'sviscometer)
C3. Estimation of iron in TMT bar by diphenyl amine/external indicator
methodC4.EstimationofSodiumpresentinsoil/effluentsampleusingflamephotometr
у
C5.DeterminationofChemicalOxygenDemand(COD)ofindustrialwastewatersample
<u>D-OpenEndedExperiments(anytwo):</u>
D1. Gravimetric estimation of gypsum in Portland
cementD2.Electroplatingofdesiredmetalonsubstrate
D3.Estimationofmanganesedioxideinpyrolusite
D4.Analysisofcementforits components
Courseoutcome(CourseSkillSet)
Attheendofthecourse thestudentwillbeableto:
<b>CO1.</b> Identify the terms processes involved in scientific and engineerin
andapplications
<b>CO2.</b> Explainthephenomenaofchemistrytodescribethemethodsofengineeringprocesses
<b>CO3.</b> Solvefortheproblemsinchemistrythatarepertinentinengineeringapplications
<b>CO4.</b> Applythebasicconceptsofchemistrytoexplainthechemicalpropertiesandprocesses
<b>C05.</b> Analyze processes associated withchemical substances i
propertiesandmu
Itidisciplinarysituations
AssessmentDetails(bothClEandSEE)
The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of
50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50).
Astudentshallbedeemedtohavesatisfiedtheacademicrequirementsandearnedthecreditsallotted to
each subject/ course if the student secures not less than 35% (18 Marks out of 50) in these mester-

each subject/ course if the student secures not less than 35% (18 Marks out of 50) in these mesterend examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total oftheCIE(ContinuousInternalEvaluation)andSEE(SemesterEndExamination)takentogether.

# **ContinuousInternalEvaluation(CIE)**:

The CIE marks for the theory component of the IC shall be **30 marks** and for the laboratory component 20 Marks.

# **CIE for the theory component of the IC**

- Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.
- Two Assignments/two quizzes/ seminars/one field survey and report presentation/one-course project totalling 20 marks.

Total Marks scored (test + assignments) out of 80 shall be scaled down to **30 marks** 

# CIE for the practical component of the IC

On completion of every experiment/program in the laboratory, the students shall be ٠ evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for** the test conducted at the end of the semester.

- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.
- The laboratory test (duration 03 hours) at the end of the 15<sup>th</sup> week of the semester/after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to **05 marks**.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

• The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

## Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English/Kannada). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.

There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

## SuggestedLearningResources:

# Books(TitleoftheBook/Nameoftheauthor/Nameofthepublisher/EditionandYear)

- $1. Wiley Engineering Chemistry, Wiley India Pvt. Ltd. New Delhi, 2013-2^{nd} Edition.$
- $2. \ Engineering Chemistry, Satyaprakash \& Manisha Agrawal, Khanna Book Publishing, Delhi$
- 3. ATextBookofEngg.Chemistry,ShashiChawla,DhanpatRai&Co.(P)Ltd.
- 4. EssentialsofPhysicalChemistry,Bahl&Tuli,S.ChandPublishing
- 5. AppliedChemistry,SunitaRattan,Kataria5.EngineeringChemistry,Baskar,Wiley
- 6. EngineeringChemistry–I,D.GrourKrishana,VikasPublishing
- 7. ATextbookofEngineeringChemistry,SSDara&Dr.SSUmare,SChand&CompanyLtd.,12<sup>th</sup>Edition,201 1.
- $8. \ ATextBook of Engineering Chemistry, R.V. Gadagand Nityan and a Shetty, I.K. International Publishinghouse. 2^{nd} Edition, 2016.$
- 9. TextBookofPolymerScience,F.W.Billmeyer,JohnWiley&Sons,4thEdition,1999.
- 10. NanotechnologyAChemicalApproachtoNanomaterials,G.A.Ozin&A.C.Arsenault,RSCPublishing,2 005.
- 11. CorrosionEngineering,M.G.Fontana,N.D.Greene,McGrawHillPublications,NewYork,3<sup>rd</sup>Edition, 1996.
- 12. Linden'sHandbookofBatteries,KirbyW.Beard,FifthEdition,McGrawHill,2019.
- 13. OLEDDisplayFundamentalsandApplications,Takatoshi Tsujimura,Wiley–Blackwell,2012
- 14. Supercapacitors: Materials, Systems, and Applications, MaxLu, Francois Beguin, Elzbieta Frackowiak, Wiley-VCH; 1st edition, 2013.
- 15. "HandbookonElectroplatingwithManufactureofElectrochemicals",ASIAPACIFICBUSINESSPRE SS Inc.,2017.Dr. H.Panda.
- 16. Expanding the Vision of Sensor Materials. National Research Council 1995, Washington, DC: The National Academies Press. doi:10.17226/4782.
- 17. EngineeringChemistry,EditedbyDr.MaheshBandDr.RoopashreeB,SunstarPublisher,Bengaluru,

ISBN978-93-85155-70-3, 2022.

- 18. HighPerformanceMetallicMaterialsforCostSensitiveApplications,F.H.Froes,etal.JohnWiley&Sons, 2010.
- 19. InstrumentalMethodsofAnalysis,Dr. K.R.Mahadik andDr.L.Sathiyanarayanan,NiraliPrakashan,2020.
- 20. PrinciplesofInstrumentalAnalysis,DouglasA.Skoog,F.JamesHoller,StanleyR.CrouchSeventhEdit ion,CengageLearning, 2020.
- 21. PolymerScience,VRGowariker,NVViswanathan,Jayadev,Sreedhar,NewageInt.Publishers,4thEd ition, 2021
- 22. EngineeringChemistry,PCJain&MonicaJain,DhanpatRaiPublication,2015-16<sup>th</sup>Edition.
- 23. Nanostructuredmaterialsandnanotechnology,Hari Singh, Nalwa,academicpress, 1<sup>st</sup>Edition,2002.
- $24. Nanote chnology Principles and Practices, Sulabha KKulkarni, Capital Publishing Company, 3^{rd} Edition 2014$
- 25. Principlesofnanotechnology, Phanikumar, Scitechpublications, 2<sup>nd</sup>Edition, 2010.
- 26. Chemistryfor EngineeringStudents,B.S.JaiPrakash,R.Venugopal, Sivakumaraiah&PushpaIyengar.,SubashPublications,5<sup>th</sup>Edition, 2014
- 27. "EngineeringChemistry", O.G.Palanna, TataMcGrawHillEducationPvt.Ltd.NewDelhi, FourthReprint, 2015.
- $28. \ Chemistry of Engineering materials, MaliniS, KSAn antha Raju, CBS publishers PvtLtd.,$
- 29. LaboratoryManualEngg.Chemistry,AnupmaRajput,DhanpatRai&Co.

# WeblinksandVideoLectures(e-Resources):

- <u>http://libgen.rs/</u>
- <u>https://nptel.ac.in/downloads/122101001/</u>
- <u>https://nptel.ac.in/courses/104/103/104103019/</u>
- <u>https://ndl.iitkgp.ac.in/</u>
- <u>https://www.youtube.com/watch?v=faESCxAWR9k</u>
- <u>https://www.youtube.com/watch?v=TBqXMWaxZYM&list=PLyhmwFtznRhuz8L1bb3X-9IbHrDMjHWWh</u>
- <u>https://www.youtube.com/watch?v=j5Hml6KN4TI</u>
- <u>https://www.youtube.com/watch?v=X9GHBdyYcyo</u>
- <u>https://www.youtube.com/watch?v=1xWBPZnEJk8</u>
- <u>https://www.youtube.com/watch?v=wRAo-M8xBHM</u>

# ActivityBasedLearning(SuggestedActivitiesinClass)/PracticalBasedlearning

- <u>https://www.vlab.co.in/broad-area-chemical-sciences</u>
- <u>https://demonstrations.wolfram.com/topics.php</u>
- <u>https://interestingengineering.com/science</u>

# COsandPOsMapping(Individualteacherhastofillup)

						Р	0					
	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012
CO1	3	1	1				1					
CO2	3	1	1				1					
CO3	3	1	1				1					
<b>CO4</b>	3	1	1				1					
CO5	3	1	1				1					

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Course Code		BCEDK203/203	CIE Marks	50
Teaching Hour/Wee	$\frac{1}{1}$	2:0:2:0	SEE Marks	50
Total Hours of Teac		40	Total Marks	100
Credits	ning - Learning	03	Exam Hours	03
Course Learning Ob	inativos	03		03
0	•	basic principles and convention	ons of engineering drawing	
		a communication mode	sits of engineering drawing	
	-	rial views using CAD software		
	- ·	development of surfaces		
	5: To visualize engin	-		
Teaching-Learning (				
• Students should	d be made aware of p	owerful engineering communi	cation tool –Drawing.	
		selected by the teacher for ha		eel of
fruitfulness of	earning.		-	
Appropriate M     hands onpractic	-	resentation, Charts, Videos, sh	all be used to enhance visualiz	ation before
-		generally available actual objec	ts (Example: For rectangular	prism / object·
**	1 , 2	can be used. Similarly for other	· · · ·	prisin', object,
		ng orthographic and pictorial	-	
•	-	h sheets for manual / preparato		
		Module-1	<u> </u>	
Introduction: for Cl	E only			
drawing, Scales. Intro RPP & LPP of 2D/3	oduction to Compute D environment. Sel ces, polylines, squar	S Conventions of Engineering r Aided Drafting software, Co- ection of drawing sheet size re, rectangle, polygons, spline r fillet and curves	ordinate system and reference and scale. Commands and cre	planes HP, VP eation of Lines
Orthographic Proje				
81 9	/	Orthographic projections of po	bints in 1 <sup>st</sup> and 3 <sup>rd</sup> quadrants.	
		in First quadrant only).	1	
		angle, square, rectangle, pentag	on, hexagon, and circular lam	inae (Placed in
First quadrant only us	sing change of positi	on method).	-	
Application on proje	ctions of Lines & Pl	anes (For CIE only)		
		Module-2		
	ion of right regular	solids ( <b>Solids Resting on H</b> Cones, Cubes & Tetrahedron.	P only): Prisms & Pyramids	(triangle, squar

#### Module-3

#### **Isometric Projections:**

Isometric scale, Isometric projection of hexahedron (cube), right regular prisms, pyramids, cylinders, cones and spheres. Isometric projection of combination of two simple solids.

#### Conversion of simple isometric drawings into orthographic views.

Problems on applications of Isometric projections of simple objects / engineering components.

Introduction to drawing views using 3D environment (For CIE only).

#### Module-4

#### **Development of Lateral Surfaces of Solids:**

Development of lateral surfaces of right regular prisms, cylinders, pyramids and cones resting with base on HP only. Development of lateral surfaces of their frustums and truncations.

Problems on applications of development of lateral surfaces like funnels and trays.

Problems on applications of development of lateral surfaces of transition pieces connecting circular duct and rectangular duct (For CIE Only)

#### Module-5

#### Multidisciplinary Applications & Practice (For CIE Only):

**Free hand Sketching;** True free hand, Guided Free hand, Roads, Buildings, Utensils, Hand tools & Furniture's etc **Drawing Simple Mechanisms;** Bicycles, Tricycles, Gear trains, Ratchets, two-wheeler cart & Four-wheeler carts to dimensions etc

**Electric Wiring and lighting diagrams;** Like, Automatic fire alarm, Call bell system, UPS system, Basic power distribution system using suitable software

**Basic Building Drawing;** Like, Architectural floor plan, basic foundation drawing, steel structures- Frames, bridges, trusses using Auto CAD or suitable software,

**Electronics Engineering Drawings**- Like, Simple Electronics Circuit Drawings, practice on layers concept. **Graphs & Charts**: Like, Column chart, Pie chart, Line charts, Gantt charts, etc. using Microsoft Excel or any suitable software.

#### **Course Outcomes**

At the end of the course the student will be able to:

- CO 1. Drawand communicate the objects with definite shape and dimensions
- CO 2. Recognize and Draw the shape and size of objects through different views
- **CO 3.** Develop the lateral surfaces of the object
- CO 4. Create a Drawing views using CAD software.
- CO 5. Identify the interdisciplinary engineering components or systems through its graphical representation.

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# Assessment Details (both CIE and SEE):

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks) and that for SEE minimum passing marks is 35% of the maximum marks (18 marks). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination (SEE), and a minimum of 40% (40 marks out of 100) in the sum of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) takentogether.

#### **Continuous Internal Evaluation (CIE)**

- CIE shall be evaluated for max. marks of 100 and later the same shall be scaled-down to 50 marks as detailed below:
- CIE component should comprise of Continuous evaluation of Drawing work of students as and when the Modules are covered based onbelow detailed weightage.

Module	Max. Marks	Evaluation Weightag	ge in marks
	Weightage	Computer display and print out	Sketching
		(a)	(b)
Module 1	15	10	05
Module 2	20	15	05
Module 3	20	20	00
Module 4	20	20	00
Module 5	25	15	10
Total	100	80	20
Consideration	on of Class work	Total of [(a) + (b)] = 100 Scaled down to 30 Marks	

- At least one **Test** covering all the modules is to be conducted for 100 marks and evaluation to be based SEE pattern, and the same is to be scaled down to **20Marks**.
- The final CIE = Class work marks + Test marks

#### Semester End Examination (SEE)

- SEE shall be conducted and evaluated for maximum marks 100. Marks obtained shall be accounted for SEE final marks, reducing it by50%
- Question paper shall be set jointly by both Internal and External Examiner and made available for each batch as per schedule. *Questions are to be set preferably from TextBooks*.
- Related to Module-1: One full question can be set either from "points & lines" or "planes".
- Evaluation shall be carried jointly by both theexaminers.
- Scheme of Evaluation: *To be defined by the examiners jointly and the same shall be submitted to the university along with questionpaper.*
- One full question shall be set from each of the Module from Modules 1,2,3 and 4 as per the below tabled weightage details. *However, the student may be awarded full marks, if he/she completes solution on computer display withoutsketch.*

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Module	Max. Marks	Evaluation Weight	tage in marks
	Weightage	Computer display and print out	Preparatory sketching
		(a)	(b)
Module 1	20	15	05
Module 2	30	25	05
Module 3	25	20	05
Module 4	25	20	05
Total	100	80	20
Considerat	tion of SEE Marks	Total of (a) + (b) $\div$ 2 = Final SEE	marks

#### Suggested Learning Resources:

#### **Text Books**

- S.N. Lal, & T Madhusudhan:, Engineering Visulisation, 1st Edition, Cengage, Publication
- Parthasarathy N. S., Vela Murali, Engineering Drawing, Oxford University Press, 2015.

#### **Reference Books**

- *Bhattacharya S. K.*, Electrical Engineering Drawing, New Age International publishers, second edition 1998, reprint2005.
- Chris Schroder, Printed Circuit Board Design using AutoCAD, Newnes, 1997.
- *K S Sai Ram* Design of steel structures, , Third Edition byPearson
- Nainan p kurian Design of foundation systems, Narosapublications
- A S Pabla, Electrical power distribution, 6th edition, Tata Mcgrawhill
- *Bhatt, N.D., Engineering Drawing: Plane and Solid Geometry*, 53<sup>rd</sup> edition, Charotar Publishing House Pvt. Limited, 2019.
- *K. R. Gopalakrishna, & Sudhir Gopalakrishna*: Textbook Of Computer Aided Engineering Drawing, 39<sup>th</sup>Edition, Subash Stores, Bangalore,2017

#### **COs and POs Mapping (**CO-PO mappings are only **Indicative)**

COs						P	Os					
	1	2	3	4	5	6	7	8	9	10	11	12
CO1	3	2			3	1		1	1	3		2
CO2	3	2			3	1		1	1	3		2
CO3	3	2			3	1		1	1	3		2
CO4	3	3			3	1	1		1	3		1
CO5	3	2			3				1	3		2

Level 3- Highly Mapped, Level 2-Moderately Mapped, Level 1-Low Mapped, Level 0- Not Mapped

Course Title:	INTRODUCTION 7	TO MECHANICAL ENGINEERING		
Course Code:		<b>BESCK104D/204D</b>	CIE Marks	50
Course Type		Theory	SEE Marks	50
(Theory/Practica	al/Integrated )		Total Marks	100
Teaching Hours/	Week (L:T:P: S)	2:2:0:0	Exam Hours	03
Total Hours of Pe	edagogy	40 hours	Credits	03

#### **Course Learning Objectives**

- To develop basic Knowledge on Mechanical Engineering, Fundamentals and Energy Sources.
- Understand the concept of different types of Machine tool operations and Modern Manufacturing Processes like CNC, 3D printing.
- To know the concept of IC engines and Future Mobility vehicles.
- To give exposure in the field of Engineering Materials and Manufacturing Processes Technology and its applications
- To acquire a basic understanding role of Mechanical Engineering in the Robotics and Automation in industry.

#### **Teaching-Learning Process**

- Adopt different types of teaching methods to develop the outcomes through PowerPoint presentations and Video demonstrations or Simulations.
- Arrange visits to show the live working models other than laboratory topics.
- Adopt collaborative (Group Learning) Learning in the class.
- Adopt Problem Based Learning (PBL), which fosters students Analytical skills and develops thinking skills such as evaluating, generalizing, and analyzing information.

#### Module-1 (8 hours)

**Introduction:** Role of Mechanical Engineering in Industries and Society- Emerging Trends and Technologies in different sectors such as Energy, Manufacturing, Automotive, Aerospace, and Marine sectors.

**Energy**: Introduction and applications of Energy sources like Fossil fuels, Nuclear fuels, Hydel, Solar, wind, and bio-fuels, Environmental issues like Global warming and Ozone depletion

#### Module-2 (8 hours)

## Machine Tool Operations:

Working Principle of lathe, Lathe operations: Turning, facing, knurling. Working principles of Drilling Machine, drilling operations: drilling, boring, reaming. Working of Milling Machine, Milling operations: plane milling and slot milling.

(No sketches of machine tools, sketches to be used only for explaining the operations).

**Introduction to Advanced Manufacturing Systems:** Introduction, components of CNC, advantages and applications of CNC, 3D printing.

#### Module-3 (8 hours)

**Introduction to IC Engines**: Components and Working Principles, 4-Strokes Petrol and Diesel Engines, Application of IC Engines.

**Insight into Future Mobility;** Electric and Hybrid Vehicles, Components of Electric and Hybrid Vehicles. Advantages and disadvantages of EVs and Hybrid vehicles.

#### Module-4 (8 hours)

**Engineering Materials**: Types and applications of Ferrous & Nonferrous Metals, silica, ceramics, glass, graphite, diamond and polymer. Shape Memory Alloys. **Joining Processes**: Soldering, Brazing and Welding, Definitions, classification of welding process, Arc welding, Gas welding and types of flames.

Module-5 (8 hours)

**Introduction to Mechatronics and Robotics:** open-loop and closed-loop mechatronic systems. Classification based on robotics configuration: polar cylindrical, Cartesian coordinate and spherical. Application, Advantages and disadvantages.

Automation in industry: Definition, types – Fixed, programmable and flexible automation, basic elements with block diagrams, advantages.

**Introduction to IOT**: Definition and Characteristics, Physical design, protocols, Logical design of IoT, Functional blocks, and communication models.

Course (	Dutcome (Course Skill Set)
At the en	d of the course the student will be able to:
C01	Explain the concepts of Role of Mechanical Engineering and Energy sources.
CO2	Describe the Machine Tool Operations and advanced Manufacturing process.
CO3	Explain the Working Principle of IC engines and EV vehicles.
CO4	Discuss the Properties of Common Engineering Materials and various Metal Joining
	Processes.
CO5	Explain the Concepts of Mechatronics, Robotics and Automation in IoT

# Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination (SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

# Continuous Internal Evaluation(CIE):

Three Tests each of 20 Marks;

• 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> tests shall be conducted after completion of the syllabus of 30-35%,

70-75%, and 90-100% of the course/s respectively.

 Assignments/Seminar/quiz/group discussion /field survey & report presentation/ course project/Skill development activities, suitably planned to attain the COs and POs for a total of 40 Marks.

If the nature of the courses requires assignments/Seminars/Quizzes/group discussion two evaluation components shall be conducted. If course project/field survey/skill development activities etc then the evaluation method shall be one.

# Total CIE marks (out of 100 marks) shall be scaled down to 50 marks

# Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English/Kannada). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

## Suggested Learning Resources:

## Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year) Text Books:

- 1. Elements of Mechanical Engineering, K R Gopala Krishna, Subhash Publications, 2008
- 2. An Introduction to Mechanical Engineering, Jonathan Wickert and Kemper Lewis, Third Edition, 2012

# **Reference Books:**

1. Elements of Workshop Technology (Vol. 1 and 2), Hazra Choudhry and Nirzar Roy, Media

Promoters and Publishers Pvt. Ltd., 2010.

- 2. Manufacturing Technology- Foundry, Forming and Welding, P.N.Rao Tata McGraw Hill 3rdEd., 2003.
- 3. Internal Combustion Engines, V. Ganesan, Tata McGraw Hill Education; 4th edition, 2017
- 4. Robotics, Appu Kuttan KK K. International Pvt Ltd, volume 1
- 5. Dr SRN Reddy, Rachit Thukral and Manasi Mishra, "Introduction to Internet of Things: A Practical Approach", ETI Labs
- 6. Raj kamal, "Internet of Things: Architecture and Design", McGraw hill.

# Web links and Video Lectures (e-Resources):

- <u>https://rakhoh.com/en/applications-and-advantages-of-steam-in-manufacturing- and-process-industry/</u>)
- <u>Videos | Makino (For Machine Tool Operation)</u>

# Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- Demonstration of lathe/milling/drilling operations
- Demonstration of working of IC Engine.
- Study arc welding, oxy-acetylene gas flame structure.
- Video demonstration of latest trends in mobility robotics and Automation
- Demonstration of developing models on machine tools

COs						P	Os					
	1	2	3	4	5	6	7	8	9	10	11	12
CO1	3					1	2			1		1
CO2	3					1	1			1		1
CO3	3					1	1			1		1
<b>CO4</b>	3					1	1			1		1
CO5	3					1	1			1		1

# Theory - 01 Credit Course Indian Constitution

Course 7	Title:	Indian Constitution		
Course (	Code:		CIE Marks	50
Course	Type (Theory/Practical /Integrated)	BIGOK107-207	SEE Marks	50
			Total Marks	100
	g Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
	ours of Pedagogy • <b>objectives :</b>	15 hours	Credits	01
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(ii)	Apart from conventional lecture met animation films may be adapted so t practical skills.	hods, various types of inno	• •	•
	practical skins.			
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## Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### Continuous Internal Evaluation(CIE):

## Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration

#### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others.. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks

#### Semester End Examinations (SEE)

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

## **Suggested Learning Resources:**

#### **Textbook:**

- 1. "Constitution of India" (for Competitive Exams) Published by Naidhruva Edutech Learning Solutions, Bengaluru. 2022.
- 2. "Introduction to the Constitution of India", (Students Edition.) by Durga Das Basu (DD Basu): Prentice –Hall, 2008.

#### **Reference Books:**

- 1. "Constitution of India, Professional Ethics and Human Rights" by Shubham Singles, Charles E. Haries, and et al: published by Cengage Learning India, Latest Edition 2019.
- 2. **"The Constitution of India"** by Merunandan K B: published by Merugu Publication, Second Edition, Bengaluru.
- 3. "Samvidhana Odu" for Students & Youths by Justice HN Nagamohan Dhas, Sahayana, kerekon.
- 4. M.Govindarajan, S.Natarajan, V.S.Senthilkumar, "Engineering Ethics", Prentice -Hall, 2004.

#### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- $\checkmark$  For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions
- ✓ Seminars and assignments

## I Semester

16-2-2023

Course Title: Mathematics-I for	Civil Engineering stream		
Course Code:	BMATC101	CIE Marks	50
Course Type	Integrated	SEE Marks	50
(Theory/Practical/Integrated)		Total Marks	100
Teaching Hours/Week (L:T:P: S)	2:2:2:0	Exam Hours	03
Total Hours of Pedagogy	40 hours Theory + 10 to12 Lab slots	Credits	04

Course objectives: The goal of the course Mathematics-I for Civil Engineering stream(22MATC11) is to

- **Familiarize** the importance of calculus associated with onevariable and two variables for Civil engineering.
- Analyze Civil engineering problems applying Ordinary Differential Equations.
- **Develop** the knowledge of Linear Algebra referring to matrices.

# **Teaching-Learning Process**

# **Pedagogy** (General Instructions):

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

- 1. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted so that the delivered lessons shall develop students' theoretical and applied mathematical skills.
- 2. State the need for Mathematics with Engineering Studies and Provide real-life examples.
- 3. Support and guide the students for self–study.
- 4. You will also be responsible for assigning homework, grading assignments and quizzes, and documenting students' progress.
- 5. Encourage the students to group learning to improve their creative and analytical skills.
- 6. Show short related video lectures in the following ways:
  - As an introduction to new topics (pre-lecture activity).
  - As a revision of topics (post-lecture activity).
  - As additional examples (post-lecture activity).
  - As an additional material of challenging topics (pre-and post-lecture activity).
  - As a model solution of some exercises (post-lecture activity).

# Module-1:Calculus (8 hours)

# Introduction to polar coordinates and curvature relating to Civil engineering.

Polar coordinates, Polar curves, angle between the radius vector and the tangent, and angle between two curves. Pedal equations. Curvature and Radius of curvature - Cartesian, Parametric, Polar and Pedal forms. Problems.

Self-study: Center and circle of curvature, evolutes and involutes.

Applications: Structural design and paths, Strength of materials, Elasticity.

# (RBT Levels: L1, L2 and L3)

# Module-2:Series Expansion and Multivariable Calculus (8 hours)

Introduction to series expansion and partial differentiation in the field of Civil engineering applications.

Taylor's and Maclaurin's series expansion for one variable (Statement only) – problems. Indeterminate forms - L'Hospital's rule, problems.

Partial differentiation, total derivative - differentiation of composite functions. Jacobian and problems. Maxima and minima for a function of two variables - Problems.

**Self-study:** Euler's theorem and problems. Method of Lagrange's undetermined multipliers with single constraint.

**Applications:** Computation of stress and strain, Errors and approximations, Estimating the critical points and extreme values.

(RBT Levels: L1, L2 and L3)

## Module-3: Ordinary Differential Equations (ODEs) of First Order (8 hours)

Introduction to first-order ordinary differential equations pertaining to the applications for Civil engineering.

Linear and Bernoulli's differential equations. Exact and reducible to exact differential equations -Integrating factors on  $\frac{1}{N} \left( \frac{\partial M}{\partial y} - \frac{\partial N}{\partial x} \right)$  and  $\frac{1}{M} \left( \frac{\partial N}{\partial x} - \frac{\partial M}{\partial y} \right)$ . Orthogonal trajectories and Newton's law of cooling.

**Nonlinear differential equations:** Introduction to general and singular solutions, Solvable for p only, Clairaut's equations, reducible to Clairaut's equations - Problems.

**Self-Study:** Applications of ODEs in Civil Engineering problems like bending of the beam, whirling of shaft, solution of non-linear ODE by the method of solvable for x and y.

Applications: Rate of Growth or Decay, Conduction of heat.

(RBT Levels: L1, L2 and L3)

Module-4:Ordinary Differential Equations of Higher Order(8 hours)

Importance of higher-order ordinary differential equations in Civil engineering applications.

Higher-order linear ODEs with constant coefficients - Inverse differential operator, method of variation of parameters, Cauchy's and Legendre's homogeneous differential equations -Problems.

**Self-Study:** Formulation and solution of Cantilever beam. Finding the solution by the method of undetermined coefficients.

Applications: Oscillations of a spring, Transmission lines, Highway engineering.

(RBT Levels: L1, L2 and L3)

Module-5: Linear Algebra (8 hours)

Introduction of linear algebra related to Civil engineering applications.

Elementary row transformationofa matrix, Rank of a matrix. Consistency and solution of a system of linear equations - Gauss-elimination method, Gauss-Jordan method and approximate solution by Gauss-Seidel method. Eigenvalues and Eigenvectors, Rayleigh's power method to find the dominant Eigenvalue and Eigenvector.

**Self-Study:** Solution of a system of linear equations by Gauss-Jacobi iterative method. Inverse of a square matrix by Cayley- Hamilton theorem.

Applications: Structural Analysis, Balancing equations.

(RBT Levels: L1, L2 and L3)

90

List of	f Laboratory experiments (2 hours/week per batch/ batch strength 15)
	sessions + 1 repetition class + 1 Lab Assessment
1	2D plots for Cartesian and polar curves
2	Finding angle between polar curves, curvature and radius of curvature of a given curve
3	Finding partial derivatives and Jacobian
4	Applications to Maxima and Minima of two variables
5	Solution of first-order ordinary differential equation and plotting the solution curves
6	Solutions of Second-order ordinary differential equations with initial/boundary conditions
7	Solution of a differential equation of oscillations of a spring/deflection of a beam with different loads
8	Numerical solution of system of linear equations, test for consistency and graphical representation
9	Solution of system of linear equations using Gauss-Seidel iteration
10	Compute eigenvalues and eigenvectors and find the largest and smallest eigenvalue by
	the Rayleigh power method.
Sugges	ted software: Mathematica/MatLab/Python/Scilab
	e outcome (Course Skill Set)
	end of the course the student will be able to:
CO1	apply the knowledge of calculus to solve problems related to polar curves.
CO2	learn the notion of partial differentiation to compute rate of change of multivariate functions.
CO3	analyze the solution of linear and nonlinear ordinary differential equations.
CO4	make use of matrix theory for solving the system of linear equations and compute
	eigenvalues and eigenvectors.
CO5	familiarize with modern mathematical tools namely MATHEMATICA/ MATLAB/
	PYTHON/SCILAB
	ment Datails (both CIE and SEE)

#### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

## **Continuous Internal Evaluation(CIE):**

The CIE marks for the theory component of the IC shall be **30 marks** and for the laboratory component **20 Marks**.

## CIE for the theory component of the IC

- Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.
- Two Assignments/two quizzes/ seminars/one field survey and report presentation/one-course project totalling 20 marks.

Total Marks scored (test + assignments) out of 80 shall be scaled down to 30 marks.

# CIE for the practical component of the IC

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted at the end of the semester.
- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.
- The laboratory test (duration 03 hours) at the end of the 15<sup>th</sup> week of the semester/after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to 05 marks.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

• The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

# Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English/Kannada). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

# Suggested Learning Resources:

Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year) Text Books

- 1. **B. S. Grewal**: "Higher Engineering Mathematics", Khanna Publishers, 44<sup>th</sup>Ed., 2021.
- 2. E. Kreyszig: "Advanced Engineering Mathematics", John Wiley & Sons, 10<sup>th</sup>Ed., 2018.

## **Reference Books**

- 1. V. Ramana: "Higher Engineering Mathematics" McGraw-Hill Education, 11<sup>th</sup> Ed., 2017
- 2. Srimanta Pal & Subodh C.Bhunia: "Engineering Mathematics" Oxford University Press, 3<sup>rd</sup> Ed., 2016.
- 3. **N.P Bali and Manish Goyal**: "A Textbook of Engineering Mathematics" Laxmi Publications, 10<sup>th</sup> Ed., 2022.
- 4. **C. Ray Wylie, Louis C. Barrett:** "Advanced Engineering Mathematics" McGraw Hill Book Co., New York, 6<sup>th</sup> Ed., 2017.
- 5. **Gupta C.B, Sing S.R and Mukesh Kumar:** "Engineering Mathematic for Semester I and II", Mc-Graw Hill Education(India) Pvt. Ltd 2015.
- 6. **H. K. Dass and Er. Rajnish Verma:** "Higher Engineering Mathematics" S. Chand Publication, 3<sup>rd</sup> Ed., 2014.
- 7. James Stewart: "Calculus" Cengage Publications, 7<sup>th</sup>Ed., 2019.
- 8. **David C Lay:** "Linear Algebra and its Applications", Pearson Publishers, 4<sup>th</sup> Ed., 2018.
- 9. **Gareth Williams:** "Linear Algebra with Applications", Jones Bartlett Publishers Inc., 6<sup>th</sup> Ed., 2017.
- 10. Gilbert Strang: "Linear Algebra and its Applications", Cengage Publications, 4<sup>th</sup> Ed., 2022.

## Web links and Video Lectures (e-Resources):

- <u>http://nptel.ac.in/courses.php?disciplineID=111</u>
- <u>http://www.class-central.com/subject/math(MOOCs)</u>
- http://academicearth.org/
- VTU e-Shikshana Program
- VTU EDUSAT Program

## Activity-Based Learning (Suggested Activities in Class)/Practical-Based Learning

- Quizzes
- Assignments
- Seminar

## COs and POs Mapping (Individual teacher has to fill up)

COs				POs			
	1	2	3	4	5	6	7
CO1							
CO2							
CO3							
CO4							
CO5							
Level 3- Hi	ghly Mapped,	Level 2-Mo	derately Map	ped, Level 1	-Low Mapped	, Level 0- N	ot Mapped

Course Title:	Introduction to	C++ Programming		
Course Code:		BPLCK105D/BPLCK205D	CIE Marks	50
Course Type (Theor	ry/Practical	Integrated	SEE Marks	50
/Integrated )			Total Marks	100
Teaching Hours/We	eek (L:T:P: S)	2:0:2	Exam Hours	03
Total Hours of Peda	gogy	40 hours	Credits	03

#### **Course objectives**

- Understanding about object oriented programming and Gain knowledge about the capability to store information together in an object.
- Understand the capability of a class to rely upon another class and functions.
- Understand about constructors which are special type of functions.
- Create and process data in files using file I/O functions
- Use the generic programming features of C++ including Exception handling

#### **Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective

- 1. Chalk and talk
- 2. Onine demonstration
- **3.** Hands on problem solving

#### Module-1 (8 hours)

Introduction to Object Oriented Programming: Computer programming background- C++ overview. First C++ Program -Basic C++ syntax, Object Oriented Programming: What is an object, Classes, methods and messages, abstraction and encapsulation, inheritance, abstract classes, polymorphism.

## **Textbook 1: Chapter 1(1.1 to 1.8)**

Module-2 (8 hours)

Functions in C++: Tokens – Keywords – Identifiers and constants – Operators in C++ – Scope resolution operator – Expressions and their types – Special assignment expressions – Function prototyping – Call by reference – Return by reference – Inline functions -Default arguments – Function overloading.

#### Textbook 2: Chapter 3(3.2,3.3,3.4,3.13,3.14,3.19, 3.20) , chapter 4(4.3,4.4,4.5,4.6,4.7,4.9) Module-3 (8 hours)

Inheritance & Polymorphism: Derived class Constructors, destructors-Types of Inheritance-Defining Derived classes, Single Inheritance, Multiple, Hierarchical Inheritance, Hybrid Inheritance.

## Textbook 2: Chapter 6 (6.2,6.11) chapter 8 (8.1 to,8.8)

Module-4 (8 hours)

I/O Streams: C++ Class Hierarchy- File Stream-Text File Handling- Binary File Handling during file operations.

Textbook 1: Chapter 12(12.5), Chapter 13 (13.6,13.7)

#### Module-5 (8 hours)

Exception Handling: Introduction to Exception - Benefits of Exception handling- Try and catch blockThrow statement- Pre-defined exceptions in C++

# Textbook 2: Chapter 13 (13.2 to13.6)

	-	
Cours	e outcome	(Course Skill Set)
At the	end of the o	course the student will be able to:
	C01	Able to understand and design the solution to a problem using object-oriented
		programming concepts.
	CO2	
		Able to reuse the code with extensible Class types, User-defined operators and
		function Overloading.
	CO3	
		Achieve code reusability and extensibility by means of Inheritance and
		Polymorphism
	CO4	
		Implement the features of C++ including templates, exceptions and file handling for providing programmed solutions to complex problems.

Programming Assignments:

1. Write a C++ program to sort the elements in ascending and descending order.

2. Write a C++ program to find the sum of all the natural numbers from 1 to n.

3. Write a C++ program to swap 2 values by writing a function that uses call by reference technique.

4. Write a C++ program to demonstrate function overloading for the following prototypes.

*add(int a, int b) add(double a, double b)* 

5. Create a class named Shape with a function that prints "This is a shape". Create another class named Polygon inheriting the Shape class with the same function that prints "Polygon is a shape". Create two other classes named Rectangle and Triangle having the same function which prints "Rectangle is a polygon" and "Triangle is a polygon" respectively. Again, make another class named Square having the same function which prints "Square is a rectangle".Now, try calling the function by the object of each of these classes.

6.Suppose we have three classes Vehicle, FourWheeler, and Car. The class Vehicle is the base class, the class FourWheeler is derived from it and the class Car is derived from the class FourWheeler. Class Vehicle has a method 'vehicle' that prints 'I am a vehicle', class FourWheeler has a method 'fourWheeler' that prints 'I have four wheels', and class Car has a method 'car' that prints 'I am a car'. So, as this is a multi-level inheritance; we can have access to all the other classes methods from the object of the class Car. We invoke all the methods from a Car object and print the corresponding outputs of the methods.

So, if we invoke the methods in this order, car(), fourWheeler(), and vehicle(), then the output will be

I am a car

I have four wheels

I am a vehicle

Write a C++ program to demonstrate multilevel inheritance using this.

7. Write a C++ program to create a text file, check file created or not, if created it will write some text into the file and then read the text from the file.

8.Write aC++ program to write and read time in/from binary file using fstream

9. Write a function which throws a division by zero exception and catch it in catch block. Write a C++ program to demonstrate usage of try, catch and throw to handle exception.

10. Write a C++ program function which handles array of bounds exception using C++.

## Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

## **Continuous Internal Evaluation(CIE):**

The CIE marks for the theory component of the IC shall be **30 marks** and for the laboratory component **20 Marks**.

# CIE for the theory component of the IC

- Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.
- Two Assignments/two quizzes/ seminars/one field survey and report presentation/onecourse project totaling20 marks.

Total Marks scored (test + assignments) out of 80 shall be scaled down to 30 marks

# CIE for the practical component of the IC

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted at the end of the semester.
- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.

• The laboratory test **(duration 03 hours)** at the end of the 15<sup>th</sup> week of the semester /after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to **05 marks**.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

## Semester End Examination (SEE): SEE for IC

Theory SEE will be conducted by University as per the scheduled time table, with common question papers for the course (duration 03 hours)

- 1. The question paper will have ten questions. Each question is set for 20 marks.
- 2. There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.
- 3. The students have to answer 5 full questions, selecting one full question from each module.

The theory portion of the Integrated Course shall be for both CIE and SEE, whereas the practical

# portion will have a CIE component only. Questions mentioned in the SEE paper shall include

# questions from the practical component).

# Passing standard:

- The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks-30) in the theory component and 08 (40% of maximum marks -20) in the practical component. The laboratory component of the IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 04/05 questions to be set from the practical component of IPCC, the total marks of all questions should not be more than 30 marks.
- SEE will be conducted for 100 marks and students shall secure 35% of the maximum marks to qualify for the SEE. Marks secured will be scaled down to 50.

# Suggested Learning Resources:

**Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year)** Textbooks

1. Bhushan Trivedi, "Programming with ANSI C++", Oxford Press, Second Edition, 2012.

2. Balagurusamy E, Object Oriented Programming with C++, Tata McGraw Hill Education Pvt.Ltd , Fourth Edition 2010.

Web links and Video Lectures (e-Resources):

Weblinks and Video Lectures (e-Resources):

- 1. Basics of C++ https://www.youtube.com/watch?v=BClS40yzssA
- 2. Functions of C++ <u>https://www.youtube.com/watch?v=p8ehAjZWjPw</u>

Tutorial Link:

- 1. https://www.w3schools.com/cpp/cpp\_intro.asp
- 2. https://www.edx.org/course/introduction-to-c-3

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

• Assign small tasks to Develop and demonstrate using C++

COs				POs			
-	1	2	3	4	5	6	7
CO1							
CO2							
CO3							
CO4							

# Theory - 01 Credit Course

# **Professional Writing Skills in English**

Course Title:	Professional Writing	Skills in English	
Course Code:	BPWSK206-106	CIE Marks	50
	Theory	SEE Marks	50
Course Type (Theory/Practical /Integrated)		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01
<ul> <li>Course objectives:</li> <li>The course Professional Writing Skills in Eng</li> <li>1. To Identify the Common Errors in W</li> <li>2. To Achieve better Technical writing</li> <li>3. To read Technical proposals properl</li> <li>4. To Acquire Employment and Workp</li> <li>5. To learn about Techniques of Inform</li> <li>Teaching-Learning Process</li> <li>These are sample Strategies, which teacher can</li> <li>Teaching -Learning more effective: Teachers shall involve the combination of different methodor</li> <li>requirements of the Global employment market.</li> <li>(i) Direct instructional method ( Low/Old Te learning (Combination of both), (iv) Enquiry (v) Personalized learning, (vii) Use of audio vist</li> <li>Apart from conventional lecture methods, various adapted so that the delivered lesson can progress the skills in general.</li> </ul>	glish (22PWS26) will enably vriting and Speaking of En and Presentation skills for y and make them to write g place communication skills nation Transfer through pre- use to accelerate the attainn all adopt suitable pedagogy fo plogies which suit modern tecl chnology), (ii) Flipped classro y and evaluation based learning through discussion ual methods through language types of innovative teaching the students In theoretical appl	le the students, glish. employment. good technical reports. esentation in different le nent of the various cours r effective teaching - learn hnological tools and softwa boms (High/advanced Tecl g, l, (vii) Following the meth- Labs in teaching of of LS echniques through videos, ied and practical skills in t	vel. e outcomes and make ing process. The pedagogy are's to meet the present mological tools), (iii) Blended od of expeditionary learning RW skills. animation films may be eaching of communicative
Language Lab: To augment LSRW, gramm Grammar, Vocabulary) through tests, activitie can be referred as per the AICTE / VTU guid Module-1	es, exercises etc., comprehe elines.	ensive web-based learni	
Identifying Common Errors in Writing		urs of pedagogy)	pation in narts of sneech
Use of verbs and phrasal verbs, Auxiliary ver in Subject-verb agreement, Sequence of Tens	bs and their forms, Subject	t Verb Agreement (Con	cord Rules), Common errors
Module-2	(03 ho	urs of pedagogy)	
Nature and Style of sensible writing: OrConclusion, Importance of Proper Punctuatiand Corrections activities. Misplaced modifieModule-3Technical Reading and Writing PraceSignificance of Reports, Types of Reports.Characteristics of Technical Proposals. Scier& Sentence Improvement, Cloze Test and Th	on, Precise writing and Terrs, Contractions, Collocation (03 ho etices: Technical writing Introduction to Technical atific Writing Process. Gra	echniques in Essay wri s, Word Order, Errors due <b>urs of pedagogy)</b> process, Introduction to l Proposals Writing, T	ting, Sentence arrangements to the Confusion of words. o Technical Reports writing ypes of Technical Proposals
Module-4	(03 ho	urs of pedagogy)	
<b>Professional Communication for Employ</b> Improving Listening Skills. Reading Co official/employment/business Letters, Resum Blog Writing and Memos.	omprehension, Tips for e vs. Bio Data, Profile, CV	effective reading. Jo 7. Writing effective resu	b Applications, Types of
Module-5		ours of pedagogy)	at
<b>Professional Communication at Workplace</b> of a GD and PI's, Intra and Interpersonal Co- importance in GD and Interview. Presentation	ommunication Skills at wo	orkplace, Non-Verbal C	communication Skills and its

# 26.10.2022

#### Course outcome (Course Skill Set)

At the en	d of the course the student will be able to:
C01	To understand and identify the Common Errors in Writing and Speaking.
C02	To Achieve better Technical writing and Presentation skills.
CO3	To read Technical proposals properly and make them to Write good technical reports.
C04	Acquire Employment and Workplace communication skills.
C05	To learn about Techniques of Information Transfer through presentation in different level.

#### **Assessment Details (both CIE and SEE)**

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### **Continuous Internal Evaluation(CIE):**

#### Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration

#### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (To have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

#### The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks

#### **Semester End Examinations (SEE)**

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

#### **Suggested Learning Resources:**

#### Textbook:

- 1) "Professional Writing Skills in English" published by Fillip Learning Education (ILS), Bangalore 2022.
- 2) **"Functional English"** (As per AICTE 2018 Model Curriculum) (ISBN-978-93-5350-047-4) Cengage learning India Pvt Limited [Latest Edition 2019].

#### **Reference Books:**

- 1) English for Engineers by N.P.Sudharshana and C.Savitha, Cambridge University Press 2018.
- 2) Technical Communication by Gajendra Singh Chauhan and Et al, (ISBN-978-93-5350-050-4), Cengage learning India Pvt Limited [Latest Revised Edition] 2019.
- 3) Technical Communication Principles and Practice, Third Edition by Meenakshi Raman and Sangeetha Sharma, Oxford University Press 2017.
- 4) High School English Grammar & Composition by Wren and Martin, S Chandh & Company Ltd 2015.
- 5) Effective Technical Communication Second Edition by M Ashraf Rizvi, McGraw Hill Education (India) Private

#### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- ✓ For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions, Seminars and assignments

#### Theory - 01 Credit Course Scientific Foundations of Health

- 2. To Build the healthy lifestyles for good health for their better future.
- 3. To Create a Healthy and caring relationships to meet the requirements of good/social/positive life.
- 4. To learn about Avoiding risks and harmful habits in their campus and outside the campus for their bright future
- 5. To Prevent and fight against harmful diseases for good health through positive mindset

#### **Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective:

Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

(i) Direct instructional method (Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools),

(iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning,

(v) Personalized learning, (vi) Problems based learning through discussion, (vii) Following the method of expeditionary learning Tools and techniques, (viii) Use of audio visual methods.

Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

Module-1	(03 hours of pedagogy)
Good Health & It's balance for positive mindset: Health -Imp	ortance of Health, Influencing factors of Health,
Health beliefs, Advantages of good health, Health & Behavior, Health &	& Society, Health & family, Health & Personality,
Psychological disorders-Methods to improve good psychological health, (	Changing health habits for good health.
Module-2	(03 hours of pedagogy)
Building of healthy lifestyles for better future: Developing health	y diet for good health, Food & health, Nutritional
guidelines for good health, Obesity & overweight disorders and its mana	gement, Eating disorders, Fitness components for
health Wellness and physical function How to avoid exercise injuries	
Module-3	(03 hours of pedagogy)
Creation of Healthy and caring relationships : Building commun	ication skills, Friends and friendship - Education,
<b>Creation of Healthy and caring relationships :</b> Building communitation the value of relationship and communication skills, Relationships for B	<b>•</b>
	etter or worsening of life, understanding of basic
the value of relationship and communication skills, Relationships for B	etter or worsening of life, understanding of basic
the value of relationship and communication skills, Relationships for B instincts of life (more than a biology), Changing health behaviours throug	etter or worsening of life, understanding of basic gh social engineering. (03 hours of pedagogy)
the value of relationship and communication skills, Relationships for B instincts of life (more than a biology), Changing health behaviours throug Module-4	etter or worsening of life, understanding of basic gh social engineering. (03 hours of pedagogy) promising behaviors, Recognizing and avoiding of

# Module-5(03 hours of pedagogy)Preventing & fighting against diseases for good health: How to protect from different types of infections, How to<br/>reduce risks for good health, Reducing risks & coping with chronic conditions, Management of chronic illness for Quality<br/>of life, Health & Wellness of youth :a challenge for upcoming future, Measuring of health & wealth status.

# 26.10.2022

#### Course outcome (Course Skill Set) :

At the en	nd of the course Scientific Foundations of Health (22SFH18/28) the student will be able to:
C01	To understand and analyse about Health and wellness (and its Beliefs) & It's balance for positive mindset.
C02	Develop the healthy lifestyles for good health for their better future.
CO3	Build a Healthy and caring relationships to meet the requirements of good/social/positive life.
C04	To learn about Avoiding risks and harmful habits in their campus and outside the campus for their bright future.
C05	Prevent and fight against harmful diseases for good health through positive mindset.

#### Assessment Details (both CIE and SEE) :

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### **Continuous Internal Evaluation(CIE) :**

#### Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration.

#### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others.. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

#### The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks

#### **Semester End Examinations (SEE)**

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

#### **Suggested Learning Resources:**

#### **Textbook:**

- 1. "Scientific Foundations of Health" Study Material Prepared by Dr. L Thimmesha, Published in VTU University Website.
- 2. "Scientific Foundations of Health", (ISBN-978-81-955465-6-5) published by Infinite Learning Solutions, Bangalore 2022.
- 3. **Health Psychology A Textbook,** FOURTH EDITION by Jane Ogden McGraw Hill Education (India) Private Limited Open University Press.

#### **Reference Books:**

- 1. Health Psychology (Second edition) by Charles Abraham, Mark Conner, Fiona Jones and Daryl O'Connor Published by Routledge 711 Third Avenue, New York, NY 10017.
- 2. **HEALTH PSYCHOLOGY (Ninth Edition)** by SHELLEY E. TAYLOR University of California, Los Angeles, McGraw Hill Education (India) Private Limited Open University Press.
- 3. SWAYAM / NPTL/ MOOCS/ We blinks/ Internet sources/ YouTube videos and other materials / notes.
- **4. Scientific Foundations of Health (Health & Welness) General Books** published for university and colleges references by popular authors and published by the reputed publisher.

#### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- ✓ For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions, Seminars and assignments

	Group)	oup)	6	
	i			
SEE Marks	SEE. Marks	Marks	Total Marks	Condito
	-			
50	50	50	100	
50	50	50	100	
50	50	50	100	(
50	50	50	100	1
0 50 100				
	1			
	50	- Î.	100	
50		50		
50	50	50	100	1
			1022585	
50	50	50	100	
		742	50 400	

	(ESC-I) Engineering Science Courses-I	(ETC-I) Emerging Technology Courses-I							
Code	Title	L	Т	Р	Code	Title	L	T	P
BESCK104A	Introduction to Civil Engineering	3	0	0	BETCK105A	Smart Materials and Systems	3	0	0
BESCK104B	Introduction to Electrical Engineering	3	0	0	BETCK105B	Green Buildings	3	0	0
BESCK104C	Introduction to Electronics Communication	3	0	0	BETCK105C	Introduction to Nano Technology			0
BESCK104D	Introduction to Mechanical Engineering	3	0	0	BETCK105D	Introduction to Sustainable Engineering	3	0	0
BESCK104E	Introduction to C Programming	2	0	2	BETCK105E	05E Renewable Energy Sources			0
	10 400 AUR			2	BETCK105F	Waste Management			0
				2	BETCK105G	Emerging Applications of Biosensors			0
				2	BETCK105H	Introduction to Internet of Things (IOT)			0
		- 0 - 0		2	BETCK105I	Introduction to Cyber Security	3	0	0
		-0-0			BETCK105J	Introduction to Embedded System	3	0	0
(PLC-I) Prog	ramming Language Courses-I	-33-36	\$	2					Γ
Code	Title	L	Т	Р					
BPLCK105A	Introduction to Web Programming	2	0	2	i.				
BPLCK105B	Introduction to Python Programming	2	0	2					
BPLCK105C	Basics of JAVA programming	2	0	2		2			
BPLCK105D	Introduction to C++ Programming	2	0	2	1				
The course DEPARTMEN	en la serie de	nmir	ng,	and	all courses	under PLC and ETC groups can be taugh	it b	y A	NY

- The student has to select one course from the ESC-I group.
- CSE/ISE & allied branch students shall opt for any one of the courses from the ESC-I group except, BESCK145E-Introduction to C Programming
- The students have to opt for the courses from ESC group without repeating the course in either 1st or 2nd semester
- The students must select one course from either ETC-I or PLC-I group.
- If students study the subject from ETC-I in 1st semester he/she has to select the course from PLC-II in the 2nd semester and vice-versa

Course Title:	Applied Chemistry for Computer Science &Engineering stream				
Course Code:	BCHES102/202	CIEMarks	50		
Course		SEEMarks	50		
Type(Theory/Practical/Integrated)	Integrated	Total Marks	100		
TeachingHours/Week(L:T:P:S) <sup>1</sup>	2:2:2:0	Exam Hours	03		
TotalHoursofPedagogy	40hoursTheory+ 10to12Labslots	Credits	04		

# **Computer Science and Engineering and allied branches(Chemistry group)**

## Courseobjectives

- Toenablestudentstoacquireknowledgeonprinciplesofchemistryforengineeringapplications.
- Todevelopanintuitiveunderstandingofchemistrybyemphasizingtherelatedbranchesofengineer ing.
- Toprovidestudentswithasolidfoundationinanalyticalreasoningrequiredtosolvesocietalproble ms.

#### **Teaching-LearningProcess**

These are samples trategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching-Learning more effective

- Tutorial&remedialclassesforneedystudents(notregularT/R)
- ConductingMakeupclasses/Bridgecourses forneedystudents
- Demonstration of concepts either by building models or by industry visit
- Experiments in laboratories shall be executed in blended mode (conventional or non-conventional methods)
- UseofICT–Onlinevideos,onlinecourses
- Useofonlineplatformsforassignments/Notes/Quizzes(Ex.Googleclassroom)

## MODULE1:SensorsandEnergySystems(8hr)

Sensors:Introduction,working,principleandapplicationsofConductometricsensors,Electrochemical<br/>sensors,Thermometricsensors(Flame<br/>photometry)andOpticalsensors(colorimetry).Sensorsforthemeasurement of dissolved oxygen (DO). Electrochemical sensors for<br/>pharmaceuticals.ElectrochemicalgassensorsforSOxandNOx.Disposablesensorsin<br/>thedetectionofbiomoleculesandpesticides.

 $\label{eq:systems:Introductiontobatteries, construction, working and applications of Lithiumion and Sodiumion batteries. Quantum DotSensitizedSolarCells (QDSSC's)-Principle,$ 

Properties and Applications.

Self-learning: Types of electrochemical sensor, Gas sensor -  $O_2$  sensor, Biosensor - Glucosesensors.

## MODULE2:MaterialsforMemoryandDisplaySystems(8hr)

**Memory Devices:** Introduction, Basic concepts of electronic memory, History of organic/polymerelectronic memory devices, Classification of electronic memory devices,

1.NOTE: Whereverthecontact hours is not sufficient, tutorial hour can be converted to the oryhours

typesoforganicmemorydevices(organicmolecules,polymericmaterials,organicinorganichybridmaterials).

**DisplaySystems**:Photoactiveandelectroactivematerials,Nanomaterialsandorganicmaterials used in optoelectronic devices. Liquid crystals (LC's) - Introduction, classification,properties and application in Liquid Crystal Displays (LCD's). Properties and application ofOrganic Light Emitting Diodes (OLED's) and Quantum Light Emitting Diodes (QLED's), Lightemittingelectrochemicalcells.

Self-learning:PropertiesandfunctionsofSilicon(Si),Germanium(Ge),Copper(Cu),

Aluminium(Al), and Brominated flameret ard ant sincomputers.

# MODULE3:CorrosionandElectrodeSystem(8hr)

Corrosion Chemistry: Introduction, electrochemical theory of corrosion, types of corrosion and the second second

differentialmetalanddifferentialaeration.Corrosioncontrol-galvanization,anodization and sacrificial anode method. Corrosion Penetration Rate (CPR) - Introductionandnumerical problem. Electrode Introduction, types of electrodes. Ion selective electrode System: definition, construction, working and applications of glass electrode. Determination of pH using glasselectrode. Reference electrode-Introduction, calomel electrodeconstruction. workingandapplicationsofcalomelelectrode.Concentrationcell-

Definition, construction and Numerical problems.

**Analytical Techniques**: Introduction, principle and instrumentation of Conductometry; itsapplication in the estimation of weak acid. Potentiometry; its application in the estimationofiron.

Self-learning: IRandUV-Visiblespectroscopy.

# MODULE4:PolymersandGreenFuels(8hr)

Polymers: Introduction, Molecularweight-

Numberaverage,weightaverageandnumericalproblems.Preparation,properties,andcommercialappl icationsofkevlar. Conductingpolymers-

synthesis and conducting mechanism of polyacetyle near dcommercial applications.

**Green Fuels:** Introduction, construction and working of solar photovoltaic cell, advantages, and disadvantages. Generation of energy (green hydrogen) by electrolysis of water and itsadvantages. **Self-learning:**Regenerativefuelcells

# MODULE5:E-WasteManagement(8hr)

E-Waste: Introduction, sources of e-waste, Composition, Characteristics, and Need of ewastemanagement.Toxicmaterialsusedinmanufacturingelectronicandelectricalproducts, health hazards due to exposure to e-waste. Recycling and Recovery: Differentapproachesofrecycling(separation,thermaltreatments,hydrometallurgicalextraction,pyro metallurgical methods, direct recycling). Extraction of gold from E-waste. Role of stakeholders in environmental management of e-waste (producers, consumers, recyclers, andstatutorybodies). Self-learning:Impactofheavymetalsonenvironmentandhumanhealth.

# PRACTICALMODULE

<u>A-Demonstration(anytwo)offline/virtual:</u>

A1.ChemicalStructure drawingusingsoftware:ChemDraworACD/ChemSketch

A2. Determination of strength of an acid in Pb-acid

batteryA3:SynthesisofIron-oxideNanoparticles

A4.Electrolysisofwater

B-Exercise(compulsorilyany4tobeconducted):

B1.Conductometricestimationofacidmixture

 $B2. Potentiometric estimation of FAS using K_2 Cr_2 O_7 \\$ 

B3.DeterminationofpKaofvinegarusingpHsensor(Glasselectrode)

B4. Determination of rate of corrosion of mildsteel by weight loss method B5.

 $Estimation of total hardness of water by {\it EDTA} method$ 

# <u>C-StructuredEnquiry (compulsorilyany4tobeconducted):</u>

C1. Estimation of Copper present in electroplating effluent by optical sensor

(colorimetry)C2.DeterminationofViscositycoefficientoflubricant(Ostwald'sviscometer)

C3. Estimation of iron in TMT bar by diphenyl amine/external indicator

method C4. Estimation of Sodium present in soil/effluents ampleusing flame photometry

C5. Determination of Chemical Oxygen Demand (COD) of industrial was tewaters ample

# D-OpenEndedExperiments(anytwo):

D1: Evaluation of a cid content in beverages by using pHs ensors and simulation. D2.

Construction of photovoltaiccell.

D3.DesignanexperimenttoIdentifythepresenceofproteinsingivensample.

D4. Searching suitable PDB file and target formole cular docking

## Courseoutcome(CourseSkillSet)

Attheendofthecourse thestudentwillbeableto:

1 1000	maorimeeo	u100 ti	nestadentw	moedoreto.					
CO1.	Identify	the	terms	processes	involved	in	scientific	and	engineering
		anda	pplications						
CO2.	Explainthephenomenaofchemistrytodescribethemethodsofengineeringprocesses								
CO3.	Solvetheproblemsinchemistrythatarepertinentinengineeringapplications								
CO4.	Applythebasicconceptsofchemistrytoexplainthechemicalpropertiesandprocesses								
			-			-		-	
CO5.	Analyzep	oroper	tiesandmult	idi processes	associated		withchen	nical s	substances in
	sciplinary	-		Ŧ					

## AssessmentDetails(bothCIEandSEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). Astudentshallbedeemedtohavesatisfiedtheacademicrequirementsandearnedthecreditsallotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in thesemester-end examination (SEE), and a minimum of 40% (40 marks out of 100) in the sum total oftheCIE(ContinuousInternalEvaluation)andSEE(SemesterEndExamination)takentogether.

## ContinuousInternalEvaluation(CIE):

The CIE marks for the theory component of the IC shall be **30 marks** and for the laboratory component **20 Marks**.

# **CIE** for the theory component of the IC

- Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.
- Two Assignments/two quizzes/ seminars/one field survey and report presentation/one-course project totalling 20 marks.

Total Marks scored (test + assignments) out of 80 shall be scaled down to **30 marks CIE for the practical component of the IC** 

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted at the end of the semester.
- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.
- The laboratory test (duration 03 hours) at the end of the 15<sup>th</sup> week of the semester /after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to 05 marks.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

• The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

# Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English/Kannada). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.

There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 subquestions), **should have a mix of topics** under that module.

# SuggestedLearningResources:

# Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year)

- $1. Wiley Engineering Chemistry, Wiley India Pvt. Ltd. New Delhi, 2013-2^{nd} Edition.$
- 2. EngineeringChemistry,Satyaprakash&ManishaAgrawal,KhannaBookPublishing,Delhi
- $\label{eq:alpha} 3. \quad ATextBook of Engg. Chemistry, Shashi Chawla, Dhanpat Rai \& Co. (P) Ltd.$
- 4. EssentialsofPhysicalChemistry,Bahl&Tuli,S.ChandPublishing
- 5. AppliedChemistry,SunitaRattan,Kataria5.EngineeringChemistry,Baskar,Wiley
- 6. EngineeringChemistry–I,D.GrourKrishana,VikasPublishing
- $7. A Textbook of Engineering Chemistry, SSD ara \& Dr. SSU mare, SCh and \& Company Ltd., 12 \\ ``hEdition, 2011.$
- ATextBookofEngineeringChemistry, R.V.GadagandNityanandaShetty, I.K.InternationalPublishinghous e. 2<sup>nd</sup>Edition, 2016.
- 9. TextBook of Polymer Science, F.W. Bill meyer, John Wiley & Sons, 4th Edition, 1999.
- 10. NanotechnologyAChemicalApproachtoNanomaterials,G.A.Ozin&A.C.Arsenault,RSCPublishing,2005 .

 $11. \ Corrosion Engineering, M.G. Fontana, N.D. Greene, McGraw Hill Publications, New York, 3^{rd} Edition, 1996.$ 

- 12. Linden'sHandbookofBatteries,KirbyW.Beard,FifthEdition,McGrawHill,2019.
- 13. OLEDDisplayFundamentalsandApplications,TakatoshiTsujimura,Wiley-Blackwell,2012
- 14. Supercapacitors:Materials,Systems,andApplications,MaxLu,FrancoisBeguin,ElzbietaFrackowiak,Wile y-VCH;1stedition,2013.
- 15. "HandbookonElectroplatingwithManufactureofElectrochemicals",ASIAPACIFICBUSINESSPRESS Inc., 2017. Dr.H. Panda,
- 16. Expanding the Vision of Sensor Materials. National Research Council 1995, Washington, DC: The National Ac ademies Press. doi:10.17226/4782.
- 17. EngineeringChemistry,EditedbyDr.MaheshBandDr.RoopashreeB,SunstarPublisher,Bengaluru,ISBN97 8-93-85155-70-3, 2022
- 18. HighPerformanceMetallicMaterialsforCostSensitiveApplications,F.H.Froes,etal.JohnWiley&Sons, 2010
- 19. InstrumentalMethodsofAnalysis,Dr.K.R.MahadikandDr.L.Sathiyanarayanan,NiraliPrakashan,2020
- 20. PrinciplesofInstrumentalAnalysis,DouglasA.Skoog,F.JamesHoller,StanleyR.CrouchSeventhEdition,CengageLearning, 2020
- 21. PolymerScience,VRGowariker,NVViswanathan,Jayadev,Sreedhar,NewageInt.Publishers,4thEdition, 2021
- 22. EngineeringChemistry,PCJain&MonicaJain,DhanpatRaiPublication,2015-16thEdition.
- 23. Nanostructuredmaterialsandnanotechnology, Hari Singh, Nalwa, academicpress, 1stEdition, 2002.
- 24. NanotechnologyPrinciplesandPractices,SulabhaKKulkarni,CapitalPublishingCompany,3rdEdition2014
- 25. Principlesofnanotechnology, Phanikumar, Scitechpublications, 2nd Edition, 2010.
- 26. ChemistryforEngineeringStudents,B.S.JaiPrakash,R.Venugopal,Sivakumaraiah&PushpaIyengar.,Suba shPublications,5<sup>th</sup>Edition, 2014
- 27. "EngineeringChemistry", O.G.Palanna, TataMcGrawHillEducationPvt.Ltd.NewDelhi, FourthReprint, 20 15.
- 28. ChemistryofEngineeringmaterials, MaliniS, KSAnanthaRaju, CBSpublishersPvtLtd.,
- 29. LaboratoryManualEngg.Chemistry,AnupmaRajput,DhanpatRai&Co.

### WeblinksandVideoLectures(e-Resources):

- <u>http://libgen.rs/</u>
- https://nptel.ac.in/downloads/122101001/
- https://nptel.ac.in/courses/104/103/104103019/
- https://ndl.iitkgp.ac.in/
- <u>https://www.youtube.com/watch?v=faESCxAWR9k</u>
- <u>https://www.youtube.com/watch?v=TBqXMWaxZYM&list=PLyhmwFtznRhuz8L1bb3X-9IbHrDMjHWWh</u>
- <u>https://www.youtube.com/watch?v=j5Hml6KN4TI</u>
- <u>https://www.youtube.com/watch?v=X9GHBdyYcyo</u>
- https://www.youtube.com/watch?v=1xWBPZnEJk8
- <u>https://www.youtube.com/watch?v=wRAo-M8xBHM</u>

### ActivityBasedLearning(SuggestedActivitiesinClass)/PracticalBasedlearning

- □ <u>https://www.vlab.co.in/broad-area-chemical-sciences</u>
- L https://demonstrations.wolfram.com/topics.php
- □ <u>https://interestingengineering.com/science</u>

	COsandPOsMapping(Individualteacherhastofillup)											
	РО											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	1	1				1					
CO2	3	1	1				1					
CO3	3	1	1				1					
CO4	3	1	1				1					
CO5	3	1	1				1					

Course	Introduction to Ele	ctronics & Communication		
Title:				
Course Code:		<b>BESCK104C/204C</b>	CIE Marks	50
Course Type		Theory	SEE Marks	50
(Theory/Pract	ical/Integrated)		Total Marks	100
Teaching Hou	rs/Week (L:T:P: S)	3:0:0:0	Exam Hours	03
Total Hours of	f Pedagogy	40 hours	Credits	03

### **Course objectives**

1. To prepare students with fundamental knowledge/ overview in the field of Electronics and Communication Engineering.

2. To equip students with a basic foundation in electronic engineeringrequired for comprehending the operation and application of electronic ircuits, logic design, embedded systems, and communication systems.

3.Professionalism & Learning Environment: To inculcate in first-year engineering students an ethical and professional attitude by providing an academic environment inclusive of effective communication, teamwork, ability to relate engineering issues to a broader social context, and life-long learning needed for a successful professional career.

### **Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective

1. Lecturer method (L) does not mean only the traditional lecture method, but a different type of teaching method may be adopted to develop the outcomes.

2.Arrange visits to nearby PSUs such as BHEL, BEL, ISRO, etc., and small-scale hardware Industries to give brief information about the electronics manufacturing industry.

- 3. Show Video/animation films to explain the functioning of various analog and digital circuits.
- 4. Encourage collaborative (Group) Learning in the class

5. Ask at least three HOTS (Higher-order Thinking) questions in the class, which promotes criticalthinking

6. Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develop thinking skills such as the ability to evaluate, generalize, and analyze information rather than simply recall it.

7. Topics will be introduced in multiple representations.

8. Show the different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.

9. Discuss how every concept can be applied to the real world - and when that's possible, it helpsimprove the students' understanding.

Module-1 (8 hours)

**Power Supplies** –Block diagram, Half-wave rectifier, Full-waverectifiers and filters, Voltage regulators, Output resistanceand voltage regulation, Voltage multipliers.

**Amplifiers** – Types of amplifiers, Gain, Input and output resistance, Frequency response, Bandwidth, Phase shift, Negativefeedback, multi-stage amplifiers (Text 1)

#### Module-2(8 hours )

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**Oscillators** – Barkhausen criterion, sinusoidal and non-sinusoidal oscillators, Ladder network oscillator, Wein bridge oscillator, Multivibrators, Single-stage astable oscillator, Crystal controlled oscillators (Only Concepts, working, and waveforms. No mathematical derivations)

**Operational amplifiers -**Operational amplifier parameters, Operational amplifier characteristics, Operational amplifier configurations, Operational amplifier circuits.

Text 1)

### Module-3 (8 hours)

**Boolean Algebra and Logic Circuits:** Binary numbers, Number Base Conversion, octal & Hexa Decimal Numbers, Complements, Basic definitions, Axiomatic Definition of Boolean Algebra, Basic Theorems and Properties of Boolean Algebra, Boolean Functions, Canonical and Standard Forms, Other Logic Operations, Digital Logic Gates (Text 2: 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7) **Combinational logic**: Introduction, Design procedure, Adders- Half adder, Full adder (Text 2:4.1, 4.2, 4.3)

### Module-4 (8 hours)

**Embedded Systems** – Definition, Embedded systems vs general computing systems, Classification of Embedded Systems, Major application areas of Embedded Systems, Elements of an Embedded System, Core of the Embedded System, Microprocessor vs Microcontroller, RISC vs CISC **Sensors and Interfacing** – Instrumentation and control systems, Transducers, Sensors, Actuators, LED, 7-Segment LED Display. (Text 3)

Module-5 (8 hours)

**Analog Communication Schemes** – Modern communication system scheme, Information source, and input transducer, Transmitter, Channel or Medium – Hardwired and Soft wired, Noise, Receiver, Multiplexing, Types of communication systems.Types of modulation (only concepts) – AM, FM, Concept of Radio wave propagation (Ground, space, sky)

**Digital Modulation Schemes**: Advantages of digital communication over analog communication, ASK, FSK, PSK, Radio signal transmission Multiple access techniques. (Text 4)

### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination (SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

**Continuous Internal Evaluation (CIE):** 

Three Tests each of 20 Marks;

- 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> tests shall be conducted after completion of the syllabus of 30-35%, 70-75%, and 90-100% of the course/s respectively.
- Assignments/Seminar/quiz/group discussion /field survey & report presentation/ course project/Skill development activities, suitably planned to attain the COs and POs for a total of 40 Marks.

If the nature of the courses requires assignments/Seminars/Quizzes/group discussion two evaluation components shall be conducted. If course project/field survey/skill development activities etc then the evaluation method shall be one.

Total CIE marks (out of 100 marks) shall be scaled down to 50 marks

### Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

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Suggested Learning Resources:

Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year) 1.Mike Tooley, 'Electronic Circuits, Fundamentals & Applications',4thEdition, Elsevier, 2015. DOI https://doi.org/10.4324/9781315737980. eBook ISBN9781315737980

2. Digital Logic and Computer Design, M. Morris Mano, PHI Learning, 2008 ISBN-978-81-203-0417-84.

3. K V Shibu, 'Introduction to Embedded Systems', 2nd Edition, McGraw Hill Education (India), Private Limited, 2016

4. S L Kakani and Priyanka Punglia, 'Communication Systems', New Age International Publisher, 2017.

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Course Code	BCEDK203/203	CIE Marks	50
Teaching Hour/Week (L:T:P:S)	2:0:2:0	SEE Marks	50
Total Hours of Teaching - Learning	40	Total Marks	100
Credits	03	Exam Hours	03
Course Learning Objectives: CLO1: To understand the CLO2: To use drawing a CLO3: To generate picto	e basic principles and conventions s a communication mode rial views using CAD software e development of surfaces neering components <b>ns):</b> powerful engineering communi- y selected by the teacher for har presentation, Charts, Videos, sh generally available actual object can be used. Similarly for other ing orthographic and pictorialvi- h sheets for manual / preparator <u>Module-1</u> S Conventions of Engineering er Aided Drafting software, Co- lection of drawing sheet size a re, rectangle, polygons, spline er, fillet and curves. <b>nes and Planes:</b> Orthographic projections of po	cation tool –Drawing. cation tool –Drawing. ds on practice to induce the fe all be used to enhance visualiz ts. (Example: For rectangular j shapes) iews. rysketching Drawing, Free hand sketching ordinate system and reference and scale. Commands and cre- es, circles, ellipse, text, move	eel of ation before prism / object; g of engineering planes HP, VP eation of Lines
Orthographic projections of planes viz tri		on, hexagon, and circular lam	inae (Placed in
First quadrant only using change of positi	-		
Application on projections of Lines & Pl	lanes (For CIE only)		
	Module-2		
Orthographic Projection of Solids:			
Orthographic projection of right regular rectangle, pentagon, hexagon), Cylinders		P only): Prisms & Pyramids	(triangle, squa

15

#### Module-3

#### **Isometric Projections:**

Isometric scale, Isometric projection of hexahedron (cube), right regular prisms, pyramids, cylinders, cones and spheres. Isometric projection of combination of two simple solids.

#### Conversion of simple isometric drawings into orthographic views.

Problems on applications of Isometric projections of simple objects / engineering components.

Introduction to drawing views using 3D environment (For CIE only).

#### Module-4

#### **Development of Lateral Surfaces of Solids:**

Development of lateral surfaces of right regular prisms, cylinders, pyramids and cones resting with base on HP only. Development of lateral surfaces of their frustums and truncations.

Problems on applications of development of lateral surfaces like funnels and trays.

Problems on applications of development of lateral surfaces of transition pieces connecting circular duct and rectangular duct (For CIE Only)

#### Module-5

#### Multidisciplinary Applications & Practice (For CIE Only):

**Free hand Sketching;** True free hand, Guided Free hand, Roads, Buildings, Utensils, Hand tools & Furniture's etc **Drawing Simple Mechanisms;** Bicycles, Tricycles, Gear trains, Ratchets, two-wheeler cart & Four-wheeler carts to dimensions etc

**Electric Wiring and lighting diagrams;** Like, Automatic fire alarm, Call bell system, UPS system, Basic power distribution system using suitable software

**Basic Building Drawing;** Like, Architectural floor plan, basic foundation drawing, steel structures- Frames, bridges, trusses using Auto CAD or suitable software,

**Electronics Engineering Drawings**- Like, Simple Electronics Circuit Drawings, practice on layers concept. **Graphs & Charts**: Like, Column chart, Pie chart, Line charts, Gantt charts, etc. using Microsoft Excel or any suitable software.

#### **Course Outcomes**

At the end of the course the student will be able to:

- CO 1. Drawand communicate the objects with definite shape and dimensions
- CO 2. Recognize and Draw the shape and size of objects through different views
- **CO 3.** Develop the lateral surfaces of the object
- CO 4. Create a Drawing views using CAD software.
- CO 5. Identify the interdisciplinary engineering components or systems through its graphical representation.

# 16

#### Assessment Details (both CIE and SEE):

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks) and that for SEE minimum passing marks is 35% of the maximum marks (18 marks). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination (SEE), and a minimum of 40% (40 marks out of 100) in the sum of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) takentogether.

#### **Continuous Internal Evaluation (CIE)**

- CIE shall be evaluated for max. marks of 100 and later the same shall be scaled-down to 50 marks as detailed below:
- CIE component should comprise of Continuous evaluation of Drawing work of students as and when the Modules are covered based onbelow detailed weightage.

Module	Max. Marks	Evaluation Weightage in marks			
	Weightage	Computer display and print out	Sketching		
		(a)	(b)		
Module 1	15	10	05		
Module 2	20	15	05		
Module 3	20	20	00		
Module 4	20	20	00		
Module 5	25	15	10		
Total	100	80	20		
Consideration	on of Class work	Total of [(a) + (b)] = 100 Scaled down to 30 Marks			

- At least one **Test** covering all the modules is to be conducted for 100 marks and evaluation to be based SEE pattern, and the same is to be scaled down to **20Marks**.
- The final CIE = Class work marks + Test marks

#### Semester End Examination (SEE)

- SEE shall be conducted and evaluated for maximum marks 100. Marks obtained shall be accounted for SEE final marks, reducing it by50%
- Question paper shall be set jointly by both Internal and External Examiner and made available for each batch as per schedule. *Questions are to be set preferably from TextBooks*.
- Related to Module-1: One full question can be set either from "points & lines" or "planes".
- Evaluation shall be carried jointly by both theexaminers.
- Scheme of Evaluation: *To be defined by the examiners jointly and the same shall be submitted to the university along with questionpaper.*
- One full question shall be set from each of the Module from Modules 1,2,3 and 4 as per the below tabled weightage details. *However, the student may be awarded full marks, if he/she completes solution on computer display withoutsketch.*

Module	Max. Marks	Evaluation Weightage in marks			
Weightage		Computer display and print out	Preparatory sketching		
		(a)	( <b>b</b> )		
Module 1	20	15	05		
Module 2	30	25	05		
Module 3	25	20	05		
Module 4	25	20	05		
Total	100	80	20		
Consideration of SEE Marks		Total of (a) + (b) $\div$ 2 = Final SEE marks			

#### Suggested Learning Resources:

#### **Text Books**

- S.N. Lal, & T Madhusudhan:, Engineering Visulisation, 1st Edition, Cengage, Publication
- Parthasarathy N. S., Vela Murali, Engineering Drawing, Oxford University Press, 2015.

#### **Reference Books**

- *Bhattacharya S. K.*, Electrical Engineering Drawing, New Age International publishers, second edition 1998, reprint2005.
- Chris Schroder, Printed Circuit Board Design using AutoCAD, Newnes, 1997.
- *K S Sai Ram* Design of steel structures, , Third Edition byPearson
- Nainan p kurian Design of foundation systems, Narosapublications
- A S Pabla, Electrical power distribution, 6th edition, Tata Mcgrawhill
- *Bhatt, N.D., Engineering Drawing: Plane and Solid Geometry*, 53<sup>rd</sup> edition, Charotar Publishing House Pvt. Limited, 2019.
- *K. R. Gopalakrishna, & Sudhir Gopalakrishna*: Textbook Of Computer Aided Engineering Drawing, 39<sup>th</sup>Edition, Subash Stores, Bangalore,2017

#### **COs and POs Mapping (**CO-PO mappings are only **Indicative)**

COs		POs										
	1	2	3	4	5	6	7	8	9	10	11	12
C01	3	2			3	1		1	1	3		2
CO2	3	2			3	1		1	1	3		2
CO3	3	2			3	1		1	1	3		2
CO4	3	3			3	1	1		1	3		1
CO5	3	2			3				1	3		2

Level 3- Highly Mapped, Level 2-Moderately Mapped, Level 1-Low Mapped, Level 0- Not Mapped

### I Semester

Course Title:	Mathematics-I for Computer Science and Engineering stream				
Course Code:	BMATS101	CIE Marks	50		
Course Type	Integrated	SEE Marks	50		
(Theory/Practical/Integrated)		Total Marks	100		
Teaching Hours/Week (L:T:P: S)	2:2:2:0	Exam Hours	03		
Total Hours of Pedagogy	40 hours Theory + 10 to12 Lab slots	Credits	04		

Course objectives: The goal of the course Mathematics-I for Computer Science and Engineering stream(22MATS11) is to

- **Familiarize** the importance of calculus associated with one variable and multivariable for computer science and engineering.
- **Analyze**Computer science and engineering problems by applying Ordinary Differential Equations.
- Apply the knowledge of modular arithmetic to computer algorithms.
- **Develop** the knowledge of Linear Algebra to solve the system of equations.

### **Teaching-Learning Process**

### **Pedagogy (General Instructions):**

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

- 1. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted so that the delivered lessons shall develop students' theoretical and applied mathematical skills.
- 2. State the need for Mathematics with Engineering Studies and Provide real-life examples.
- 3. Support and guide the students for self–study.
- 4. You will also be responsible for assigning homework, grading assignments and quizzes, and documenting students' progress.
- 5. Encourage the students to group learning to improve their creative and analytical skills.
- 6. Show short related video lectures in the following ways:
  - As an introduction to new topics (pre-lecture activity).
  - As a revision of topics (post-lecture activity).
  - As additional examples (post-lecture activity).
  - As an additional material of challenging topics (pre-and post-lecture activity).
  - As a model solution of some exercises (post-lecture activity).

### Module-1:Calculus (8 hours)

Introduction to polar coordinates and curvature relating to Computer Science and Engineering.

Polar coordinates, Polar curves, angle between the radius vector and the tangent, angle between two curves. Pedal equations. Curvature and Radius of curvature - Cartesian, Parametric, Polar and Pedal forms. Problems.

Self-study: Center and circle of curvature, evolutes and involutes.

Applications: Computer graphics, Image processing.

(RBT Levels: L1, L2 and L3)

Module-2:Series Expansion and Multivariable Calculus (8 hours)

Introduction of series expansion and partial differentiation in Computer Science & Engineering applications.

Taylor's and Maclaurin's series expansion for one variable (Statement only) – problems. Indeterminate forms - L'Hospital's rule-Problems.

Partial differentiation, total derivative - differentiation of composite functions. Jacobian and problems. Maxima and minima for a function of two variables. Problems.

**Self-study:** Euler's theorem and problems. Method of Lagrange's undetermined multipliers with single constraint.

**Applications:** Series expansion in computer programming, Computing errors and approximations. **(RBT Levels: L1, L2 and L3)** 

#### Module-3: Ordinary Differential Equations (ODEs) of First Order (8 hours)

Introduction to first-order ordinary differential equations pertaining to the applications for Computer Science & Engineering.

Linear and Bernoulli's differential equations. Exact and reducible to exact differential equations -Integrating factors on  $\frac{1}{N} \left( \frac{\partial M}{\partial y} - \frac{\partial N}{\partial x} \right)$  and  $\frac{1}{M} \left( \frac{\partial N}{\partial x} - \frac{\partial M}{\partial y} \right)$ . Orthogonal trajectories, L-R & C-R circuits. Problems.

**Non-linear differential equations:** Introduction to general and singular solutions, Solvable for p only, Clairaut's equations, reducible to Clairaut's equations. Problems.

**Self-Study:** Applications of ODEs, Solvable for x and y.

Applications of ordinary differential equations: Rate of Growth or Decay, Conduction of heat. (RBT Levels: L1, L2 and L3)

Module-4: Modular Arithmetic (8 hours)

**Introduction of modular arithmetic and its applications in Computer Science and Engineering.** Introduction to Congruences, Linear Congruences, The Remainder theorem, Solving Polynomials, Linear Diophantine Equation, System of Linear Congruences, Euler's Theorem, Wilson Theorem and Fermat's little theorem. Applications of Congruences-RSA algorithm.

**Self-Study:** Divisibility, GCD, Properties of Prime Numbers, Fundamental theorem of Arithmetic. **Applications:** Cryptography, encoding and decoding, RSA applications in public key encryption. **(RBT Levels: L1, L2 and L3)** 

Module-5: Linear Algebra (8 hours)

Introduction of linear algebra related to Computer Science & Engineering.

Elementary row transformationofa matrix, Rank of a matrix. Consistency and Solution of system of linear equations - Gauss-elimination method, Gauss-Jordan method and approximate solution by Gauss-Seidel method. Eigenvalues and Eigenvectors, Rayleigh's power method to find the dominant Eigenvalue and Eigenvector.

**Self-Study:** Solution of system of equations by Gauss-Jacobi iterative method. Inverse of a square matrix by Cayley- Hamilton theorem.

**Applications:** Boolean matrix, Network Analysis, Markov Analysis, Critical point of a network system. Optimum solution.

(RBT Levels: L1, L2 and L3).

1	2D plots for Cartesian and polar curves
2	Finding angle between polar curves, curvature and radius of curvature of a given curve
3	Finding partial derivatives and Jacobian
4	Applications to Maxima and Minima of two variables
5	Solution of first-order ordinary differential equation and plotting the solution curves
6	Finding GCD using Euclid's Algorithm
7	Solving linear congruences $ax \equiv b \pmod{m}$
8	Numerical solution of system of linear equations, test for consistency and graphical representation
9	Solution of system of linear equations using Gauss-Seidel iteration
10	Compute eigenvalues and eigenvectors and find the largest and smallest eigenvalue by
	Rayleigh power method.
ugge	sted software: Mathematica/MatLab/Python/Scilab
	e outcome (Course Skill Set)
	end of the course the student will be able to:
t the	end of the course the student will be able to:apply the knowledge of calculus to solve problems related to polar curves andlearn the
t the CO1	end of the course the student will be able to:apply the knowledge of calculus to solve problems related to polar curves andlearn the notion of partial differentiation to compute rate of change of multivariate functions
t the CO1 CO2	end of the course the student will be able to:apply the knowledge of calculus to solve problems related to polar curves andlearn the notion of partial differentiation to compute rate of change of multivariate functionsanalyze the solution of linear and nonlinear ordinary differential equationsget acquainted and to apply modular arithmetic to computer algorithms
t the CO1 CO2 CO3	end of the course the student will be able to:apply the knowledge of calculus to solve problems related to polar curves andlearn the notion of partial differentiation to compute rate of change of multivariate functionsanalyze the solution of linear and nonlinear ordinary differential equationsget acquainted and to apply modular arithmetic to computer algorithms
t the CO1 CO2 CO3	end of the course the student will be able to:apply the knowledge of calculus to solve problems related to polar curves andlearn the notion of partial differentiation to compute rate of change of multivariate functionsanalyze the solution of linear and nonlinear ordinary differential equationsget acquainted and to apply modular arithmetic to computer algorithmsmake use of matrix theory for solving the system of linear equations and computer

### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

### **Continuous Internal Evaluation(CIE):**

The CIE marks for the theory component of the IC shall be **30 marks** and for the laboratory component **20 Marks**.

### CIE for the theory component of the IC

- Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.
- Two Assignments/two quizzes/ seminars/one field survey and report presentation/one-course project totalling 20 marks.

Total Marks scored (test + assignments) out of 80 shall be scaled down to **30 marks CIE for the practical component of the IC** 

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted at the end of the semester.
- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.
- The laboratory test (duration 03 hours) at the end of the 15<sup>th</sup> week of the semester/after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to 05 marks.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

• The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

### Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English/Kannada). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

### Suggested Learning Resources:

Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year) Text Books

- 1. **B. S. Grewal**: "Higher Engineering Mathematics", Khanna Publishers, 44<sup>th</sup>Ed., 2021.
- 2. E. Kreyszig: "Advanced Engineering Mathematics", John Wiley & Sons, 10<sup>th</sup>Ed., 2018.
- 3. David M Burton: "Elementary Number Theory" Mc Graw Hill, 7<sup>th</sup> Ed., 2017.

### **Reference Books**

- 4. V. Ramana: "Higher Engineering Mathematics" McGraw-Hill Education, 11<sup>th</sup> Ed., 2017
- 5. Srimanta Pal & Subodh C.Bhunia: "Engineering Mathematics" Oxford University Press, 3<sup>rd</sup> Ed., 2016.
- 6. N.P Bali and Manish Goyal: "A Textbook of Engineering Mathematics" Laxmi

Publications, 10	0 <sup>th</sup> Ed., 2022.
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- 7. **C. Ray Wylie, Louis C. Barrett:** "Advanced Engineering Mathematics" McGraw Hill Book Co., New York, 6<sup>th</sup> Ed., 2017.
- 8. **Gupta C.B, Sing S.R and Mukesh Kumar:** "Engineering Mathematic for Semester I and II", Mc-Graw Hill Education(India) Pvt. Ltd 2015.
- 9. **H. K. Dass and Er. Rajnish Verma:** "Higher Engineering Mathematics" S. Chand Publication, 3<sup>rd</sup> Ed., 2014.
- 10. James Stewart: "Calculus" Cengage Publications, 7<sup>th</sup>Ed., 2019.
- 11. David C Lay: "Linear Algebra and its Applications", Pearson Publishers, 4<sup>th</sup> Ed., 2018.
- 12. Gareth Williams: "Linear Algebra with Applications", Jones Bartlett Publishers Inc., 6<sup>th</sup> Ed., 2017.
- 13. Gilbert Strang: "Linear Algebra and its Applications", Cengage Publications, 4<sup>th</sup> Ed. 2022.
- 14. William Stallings: "Cryptography and Network Security" Pearson Prentice Hall, 6<sup>th</sup> Ed., 2013.
- 15. Kenneth H Rosen: "Discrete Mathematics and its Applications" McGraw-Hill, 8<sup>th</sup> Ed. 2019.
- 16. Ajay Kumar Chaudhuri: "Introduction to Number Theory"NCBA Publications, 2<sup>nd</sup> Ed., 2009.
- 17. **Thomas Koshy:** "Elementary Number Theory with Applications" Harcourt Academic Press, 2<sup>nd</sup> Ed., 2008.

#### Web links and Video Lectures (e-Resources):

- <u>http://nptel.ac.in/courses.php?disciplineID=111</u>
- <u>http://www.class-central.com/subject/math(MOOCs)</u>
- http://academicearth.org/
- VTU e-Shikshana Program
- VTU EDUSAT Program

### Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning

- Quizzes
- Assignments
- Seminar

#### COs and POs Mapping (Individual teacher has to fill up)

COs		POs						
	1	2	3	4	5	6	7	
CO1								
CO2								
CO3								
CO4								
CO5								
Level 3- Hi	ghly Mapped,	Level 2-Mo	derately Map	ped, Level	1-Low Mapped	, Level 0- N	ot Mapped	

# Theory - 01 Credit Course Indian Constitution

26.10.2022

Course Title:	Indian Constitution		
Course Code:	1	CIE Marks	50
	BIGOK107-207	SEE Marks	50
Course Type (Theory/Practical /Integrated)		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy Course objectives :	15 hours	Credits	01
<ol> <li>To know the Fundamental Rights (F</li> <li>To know about our Union Governm</li> <li>To know the State Executive &amp; Ele</li> <li>To learn the Amendments and Emer</li> </ol> <b>Teaching-Learning Process</b> These are sample Strategies, which teache make Teaching –Learning more effective: 7 process. The pedagogy shall involve the com <ol> <li>(i) Direct instructional method ( Low/O (iii) Blended learning (Combination learning (ui) Broblems based learning</li> </ol>	ent, political structure & co ctions system of India. gency Provisions, other im r can use to accelerate the Feachers shall adopt suitab bination of different metho Id Technology), (ii) Flippe of both), (iv) Enquiry and	odes, procedures. portant provisions given e attainment of the vario le pedagogy for effective dologies which suit mode ed classrooms (High/adva	by the constitution. ous course outcomes and teaching - learning ern technological tools. nced Technological tools),
<ul><li>learning, (vi) Problems based learnin</li><li>(ii) Apart from conventional lecture met animation films may be adapted so t</li></ul>	hods, various types of inno	• ·	-
practical skills.	(0.0.1		
Module-1	•	irs of pedagogy)	1 / 1 / 1 / / /
Module-1 Indian Constitution: Necessity of the Const Indian constitution, Making of the Constitution	titution, Societies before ar on, Role of the Constituent	ad after the Constitution a Assembly.	doption. Introduction to the
Module-1 Indian Constitution: Necessity of the Const Indian constitution, Making of the Constitution Module-2	titution, Societies before ar on, Role of the Constituent (03 hor	ad after the Constitution a Assembly. urs of pedagogy)	-
Module-1 Indian Constitution: Necessity of the Const Indian constitution, Making of the Constitution	titution, Societies before ar on, Role of the Constituent (03 hou nble of Indian Constitutio	ad after the Constitution a Assembly. urs of pedagogy) n & Key concepts of th	-
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Module-1           Indian Constitution: Necessity of the Const           Indian constitution, Making of the Constitution           Module-2           Salient features of India Constitution. Prear           Rights (FR's) and its Restriction and limit	titution, Societies before ar on, Role of the Constituent (03 hou nble of Indian Constitutio rations in different Comple (03 hou SP's) and its present rel	ad after the Constitution a Assembly. <b>urs of pedagogy)</b> n & Key concepts of th x Situations. building. <b>urs of pedagogy)</b> evance in Indian soc	e Preamble. Fundamenta
Module-1           Indian Constitution: Necessity of the Constitution           Indian constitution, Making of the Constitution           Module-2           Salient features of India Constitution. Prear           Rights (FR's) and its Restriction and limit           Module-3           Directive Principles of State Policy (DPS and its Scope and significance in Nation, U	titution, Societies before ar on, Role of the Constituent <b>(03 hou</b> nble of Indian Constitutio rations in different Comple <b>(03 hou</b> SP's) and its present rel Inion Executive : Parliame	ad after the Constitution a Assembly. <b>urs of pedagogy)</b> n & Key concepts of th x Situations. building. <b>urs of pedagogy)</b> evance in Indian soc	e Preamble. Fundamenta
Module-1           Indian Constitution: Necessity of the Constitution           Indian constitution, Making of the Constitution           Module-2           Salient features of India Constitution. Prear           Rights (FR's) and its Restriction and limit           Module-3           Directive Principles of State Policy (DPS and its Scope and significance in Nation, U Minister, Union Cabinet.           Module-4	titution, Societies before ar on, Role of the Constituent <b>(03 hou</b> mble of Indian Constitutio rations in different Comple <b>(03 hou</b> SP's) and its present rel Union Executive : Parliame <b>(03 hou</b> ommittees, Important Parli	ad after the Constitution a Assembly. <b>urs of pedagogy)</b> n & Key concepts of th x Situations. building. <b>urs of pedagogy)</b> evance in Indian soc ntary System, Union Exe <b>urs of pedagogy)</b> amentary Terminologies.	e Preamble. Fundamenta viety. Fundamental Duties ecutive – President, Prime
Module-1         Indian Constitution: Necessity of the Constitution         Indian constitution, Making of the Constitution         Module-2         Salient features of India Constitution. Prear         Rights (FR's) and its Restriction and limit         Module-3         Directive Principles of State Policy (DPS and its Scope and significance in Nation, U Minister, Union Cabinet.         Module-4         Parliament - LS and RS, Parliamentary Consume Court of India and other Courts, Juce         Module-5	titution, Societies before ar on, Role of the Constituent <b>(03 hou</b> nble of Indian Constitutio ations in different Comple <b>(03 hou</b> SP's) and its present rel Union Executive : Parliame <b>(03 hou</b> ommittees, Important Parli dicial Reviews and Judicial <b>(03 ho</b>	ad after the Constitution a Assembly. <b>urs of pedagogy)</b> n & Key concepts of th x Situations. building. <b>urs of pedagogy)</b> evance in Indian soc ntary System, Union Exe <b>urs of pedagogy)</b> amentary Terminologies. Activism. <b>urs of pedagogy)</b>	e Preamble. Fundamenta eiety. Fundamental Duties ecutive – President, Prime
Module-1         Indian Constitution: Necessity of the Constitution         Indian constitution, Making of the Constitution         Indian constitution, Making of the Constitution         Module-2         Salient features of India Constitution. Prear         Rights (FR's) and its Restriction and limit         Module-3         Directive Principles of State Policy (DPS and its Scope and significance in Nation, U         Minister, Union Cabinet.         Module-4         Parliament - LS and RS, Parliamentary Co         Supreme Court of India and other Courts, Juce         Module-5         State Executive and Governer, CM, State C	titution, Societies before ar on, Role of the Constituent <b>(03 hou</b> nble of Indian Constitution ations in different Complet <b>(03 hou</b> SP's) and its present relevation SP's) and its present relevation SP's) and its present relevation (03 hou ommittees, Important Parlia dicial Reviews and Judicial <b>(03 hou</b> Cabinet, Legislature - VS descent to the second cabinet, Legislature - VS descent to the second cabinet, Legislature - VS descent to the second cabinet, Legislature - VS descent to the second cabinet of the second to the second to the second cabinet of the second to the second to the second to the second cabinet of the second to the seco	ad after the Constitution a Assembly. <b>urs of pedagogy)</b> n & Key concepts of th x Situations. building. <b>urs of pedagogy)</b> evance in Indian soc ntary System, Union Exce <b>urs of pedagogy)</b> amentary Terminologies. Activism. <b>urs of pedagogy)</b> & VP, Election Commiss	e Preamble. Fundamenta eiety. Fundamental Duties ecutive – President, Prime . Judicial System of India
Module-1         Indian Constitution: Necessity of the Constitution         Indian constitution, Making of the Constitution         Module-2         Salient features of India Constitution. Prear         Rights (FR's) and its Restriction and limit         Module-3         Directive Principles of State Policy (DPS and its Scope and significance in Nation, U Minister, Union Cabinet.         Module-4         Parliament - LS and RS, Parliamentary Consupreme Court of India and other Courts, Jude Module-5	titution, Societies before ar on, Role of the Constituent <b>(03 hou</b> nble of Indian Constitution ations in different Complet <b>(03 hou</b> SP's) and its present relevation SP's) and its present relevation SP's) and its present relevation (03 hour constitution) (03 hour constitution) (03 hour constitution) (03 hour constitution) (03 hour constitution) (03 hour constitution)	ad after the Constitution a Assembly. <b>urs of pedagogy)</b> n & Key concepts of th x Situations. building. <b>urs of pedagogy)</b> evance in Indian soc ntary System, Union Exce <b>urs of pedagogy)</b> amentary Terminologies. Activism. <b>urs of pedagogy)</b> & VP, Election Commiss	e Preamble. Fundamenta eiety. Fundamental Duties ecutive – President, Prime . Judicial System of India
Module-1           Indian Constitution: Necessity of the Constitution           Indian constitution, Making of the Constitution           Module-2           Salient features of India Constitution. Prear           Rights (FR's) and its Restriction and limit           Module-3           Directive Principles of State Policy (DPS and its Scope and significance in Nation, U Minister, Union Cabinet.           Module-4           Parliament - LS and RS, Parliamentary Corsupreme Court of India and other Courts, Jude Module-5           State Executive and Governer, CM, State Corses. Amendment to Constitution, and In           Course outcome (Course Skill Set)           At the end of the course 22IC017/27 the state state is a state of the course 22IC017/27 the state is a state is a state of the course 22IC017/27 the state is a state is a state of the course 22IC017/27 the state is a state is a state is a state of the course 22IC017/27 the state is a state is a state of the course 22IC017/27 the state is a state is a state is a state of the course 22IC017/27 the state is a state is a state of the course 22IC017/27 the state is a stat	titution, Societies before ar on, Role of the Constituent <b>(03 hou</b> nble of Indian Constitutio ations in different Complet <b>(03 hou</b> SP's) and its present rel Union Executive : Parliame <b>(03 hou</b> ommittees, Important Parli dicial Reviews and Judicial <b>(03 hou</b> cabinet, Legislature - VS & nportant Constitutional An	ad after the Constitution a Assembly. <b>urs of pedagogy)</b> n & Key concepts of th x Situations. building. <b>urs of pedagogy)</b> evance in Indian soc ntary System, Union Exce <b>urs of pedagogy)</b> amentary Terminologies. Activism. <b>urs of pedagogy)</b> & VP, Election Commiss	e Preamble. Fundamenta eiety. Fundamental Duties ecutive – President, Prime . Judicial System of India sion, Elections & Electora
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Module-1         Indian Constitution: Necessity of the Constitution         Indian constitution, Making of the Constitution         Indian constitution, Making of the Constitution         Module-2         Salient features of India Constitution. Prear         Rights (FR's) and its Restriction and limit         Module-3         Directive Principles of State Policy (DPS and its Scope and significance in Nation, U         Minister, Union Cabinet.         Module-4         Parliament - LS and RS, Parliamentary Co         Supreme Court of India and other Courts, Jud         Module-5         State Executive and Governer, CM, State C         Process. Amendment to Constitution, and In         Course outcome (Course Skill Set)         At the end of the course 22ICO17/27 the st         C01       Analyse the basic structure of Ind         C02       Remember their Fundamental Rig         C03       know about our Union Government	titution, Societies before ar on, Role of the Constituent <b>(03 hou</b> nble of Indian Constitution ations in different Complet <b>(03 hou</b> SP's) and its present relevant Union Executive : Parliame <b>(03 hou</b> SP's) and its present relevant Union Executive : Parliame <b>(03 hou</b> committees, Important Parli dicial Reviews and Judicial <b>(03 hou</b> committees, Important Parli dicial Reviews and Judicial <b>(03 hou</b> cabinet, Legislature - VS a aportant Constitutional An tudent will be able to: ian Constitution. thts, DPSP's and Fundame nt, political structure & con	ad after the Constitution a Assembly. <b>urs of pedagogy)</b> n & Key concepts of th x Situations. building. <b>urs of pedagogy)</b> evance in Indian soc ntary System, Union Exce <b>urs of pedagogy)</b> amentary Terminologies. Activism. <b>urs of pedagogy)</b> & VP, Election Commisses nendments till today. Emce ntal Duties (FD's) of our des, procedures.	e Preamble. Fundamenta eiety. Fundamental Duties ecutive – President, Prime . Judicial System of India sion, Elections & Electora ergency Provisions.
Module-1         Indian Constitution: Necessity of the Constitution         Indian constitution, Making of the Constitution         Module-2         Salient features of India Constitution. Preat         Rights (FR's) and its Restriction and limit         Module-3         Directive Principles of State Policy (DPS and its Scope and significance in Nation, U Minister, Union Cabinet.         Module-4         Parliament - LS and RS, Parliamentary Consupreme Court of India and other Courts, June Supreme Court of India and other Courts, June State Executive and Governer, CM, State Constitution, and Im Image Course outcome (Course Skill Set)         At the end of the course 22IC017/27 the state CO1         Analyse the basic structure of India CO2	titution, Societies before ar on, Role of the Constituent <b>(03 hou</b> nble of Indian Constitution ations in different Complet <b>(03 hou</b> SP's) and its present relevant Union Executive : Parliame <b>(03 hou</b> SP's) and its present relevant Union Executive : Parliame <b>(03 hou</b> committees, Important Parli dicial Reviews and Judicial <b>(03 hou</b> committees, Important Parli dicial Reviews and Judicial <b>(03 hou</b> cabinet, Legislature - VS a aportant Constitutional An tudent will be able to: ian Constitution. thts, DPSP's and Fundame nt, political structure & con	ad after the Constitution a Assembly. <b>urs of pedagogy)</b> n & Key concepts of th x Situations. building. <b>urs of pedagogy)</b> evance in Indian soc ntary System, Union Exce <b>urs of pedagogy)</b> amentary Terminologies. Activism. <b>urs of pedagogy)</b> & VP, Election Commisses nendments till today. Emce ntal Duties (FD's) of our des, procedures.	e Preamble. Fundamenta eiety. Fundamental Duties ecutive – President, Prime . Judicial System of India sion, Elections & Electora ergency Provisions.

### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### Continuous Internal Evaluation(CIE):

#### Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration

#### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others.. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks

#### Semester End Examinations (SEE)

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

#### **Suggested Learning Resources:**

#### **Textbook:**

- 1. "Constitution of India" (for Competitive Exams) Published by Naidhruva Edutech Learning Solutions, Bengaluru. 2022.
- 2. "Introduction to the Constitution of India", (Students Edition.) by Durga Das Basu (DD Basu): Prentice –Hall, 2008.

#### **Reference Books:**

- 1. "Constitution of India, Professional Ethics and Human Rights" by Shubham Singles, Charles E. Haries, and et al: published by Cengage Learning India, Latest Edition 2019.
- 2. **"The Constitution of India"** by Merunandan K B: published by Merugu Publication, Second Edition, Bengaluru.
- 3. "Samvidhana Odu" for Students & Youths by Justice HN Nagamohan Dhas, Sahayana, kerekon.
- 4. M.Govindarajan, S.Natarajan, V.S.Senthilkumar, "Engineering Ethics", Prentice Hall, 2004.

#### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- ✓ For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions
- ✓ Seminars and assignments

26.10.2022

#### **Theory - 01 Credit Course** Scientific Foundations of Health

Course Title:	Scientific Foundation	s of Health	
Course Code:	BSFHK158/258	CIE Marks	50
Course Type (Theory (Described) (Interneted)	Theory	SEE Marks	50
Course Type (Theory/Practical /Integrated)		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01
The course Scientific Foundations of Heal 1. To know about Health and wellness			et.
<ol> <li>To know about Health and wellness</li> <li>To Build the healthy lifestyles for go</li> </ol>		-	et.
			anitiva lifa
3. To Create a Healthy and caring relat	1 1	<b>U</b> 1	
4. To learn about Avoiding risks and h	-	-	•
5. To Prevent and fight against harmfu	l diseases for good health t	hrough positive mindset	

#### **Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching -Learning more effective:

Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

(i) Direct instructional method (Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools),

(iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning,

(v) Personalized learning, (vi) Problems based learning through discussion, (vii) Following the method of expeditionary learning Tools and techniques, (viii) Use of audio visual methods.

Apart from conventional lecture methods various types of innovative teaching techniques through videos, animation films

Module-1	(03 hours of pedagogy)								
Good Health & It's balance for positive mindset: Health -Imp	portance of Health, Influencing factors of Health,								
Health beliefs, Advantages of good health, Health & Behavior, Health a	& Society, Health & family, Health & Personality,								
Psychological disorders-Methods to improve good psychological health,	Changing health habits for good health.								
Module-2(03 hours of pedagogy)									
Building of healthy lifestyles for better future: Developing health	ny diet for good health, Food & health, Nutritional								
guidelines for good health, Obesity & overweight disorders and its man	agement, Eating disorders, Fitness components for								
health Wellness and physical function How to avoid exercise iniuries									
Module-3	(03 hours of pedagogy)								
Creation of Healthy and caring relationships : Building commun	nication skills, Friends and friendship - Education,								
the value of relationship and communication skills, Relationships for B	etter or worsening of life, understanding of basic								
instincts of life (more than a biology), Changing health behaviours throu	gh social engineering.								
Module-4	(03 hours of pedagogy)								
Avoiding risks and harmful habits : Characteristics of health com	promising behaviors, Recognizing and avoiding of								
addictions, How addiction develops, Types of addictions, influencing fa	actors of addictions, Differences between addictive								
people and non addictive people & their behaviors. Effects of addictions	Such as, how to recovery from addictions.								
Module-5	(03 hours of pedagogy)								
Preventing & fighting against diseases for good health: How to	protect from different types of infections, How to								

of life, Health & Wellness of youth :a challenge for upcoming future, Measuring of health & wealth status.

# 26.10.2022

#### Course outcome (Course Skill Set) :

At the en	t the end of the course Scientific Foundations of Health (22SFH18/28) the student will be able to:								
C01	To understand and analyse about Health and wellness (and its Beliefs) & It's balance for positive mindset.								
C02	Develop the healthy lifestyles for good health for their better future.								
CO3	Build a Healthy and caring relationships to meet the requirements of good/social/positive life.								
C04	To learn about Avoiding risks and harmful habits in their campus and outside the campus for their bright future.								
C05	Prevent and fight against harmful diseases for good health through positive mindset.								

#### Assessment Details (both CIE and SEE) :

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### **Continuous Internal Evaluation(CIE) :**

#### Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration.

#### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others.. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

#### The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks

#### **Semester End Examinations (SEE)**

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

#### **Suggested Learning Resources:**

#### **Textbook:**

- 1. "Scientific Foundations of Health" Study Material Prepared by Dr. L Thimmesha, Published in VTU University Website.
- 2. "Scientific Foundations of Health", (ISBN-978-81-955465-6-5) published by Infinite Learning Solutions, Bangalore 2022.
- 3. **Health Psychology A Textbook,** FOURTH EDITION by Jane Ogden McGraw Hill Education (India) Private Limited Open University Press.

#### **Reference Books:**

- 1. Health Psychology (Second edition) by Charles Abraham, Mark Conner, Fiona Jones and Daryl O'Connor Published by Routledge 711 Third Avenue, New York, NY 10017.
- 2. **HEALTH PSYCHOLOGY (Ninth Edition)** by SHELLEY E. TAYLOR University of California, Los Angeles, McGraw Hill Education (India) Private Limited Open University Press.
- 3. SWAYAM / NPTL/ MOOCS/ We blinks/ Internet sources/ YouTube videos and other materials / notes.
- **4. Scientific Foundations of Health (Health & Welness) General Books** published for university and colleges references by popular authors and published by the reputed publisher.

#### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- $\checkmark$  For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions, Seminars and assignments

Course Title: Introduction to C++ Programming								
Course Code:		BPLCK105D/BPLCK205D	CIE Marks	50				
Course Type (Theor	y/Practical	Integrated	SEE Marks	50				
/Integrated )			Total Marks	100				
Teaching Hours/We	eek (L:T:P: S)	2:0:2	Exam Hours	03				
Total Hours of Peda	gogy	40 hours	Credits	03				

#### **Course objectives**

- Understanding about object oriented programming and Gain knowledge about the capability to store information together in an object.
- Understand the capability of a class to rely upon another class and functions.
- Understand about constructors which are special type of functions.
- Create and process data in files using file I/O functions
- Use the generic programming features of C++ including Exception handling

#### **Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective

- 1. Chalk and talk
- 2. Onine demonstration
- **3.** Hands on problem solving

#### Module-1 (8 hours)

Introduction to Object Oriented Programming: Computer programming background- C++ overview. First C++ Program -Basic C++ syntax, Object Oriented Programming: What is an object, Classes, methods and messages, abstraction and encapsulation, inheritance, abstract classes, polymorphism.

#### **Textbook 1: Chapter 1(1.1 to 1.8)**

Module-2 (8 hours)

Functions in C++: Tokens – Keywords – Identifiers and constants – Operators in C++ – Scope resolution operator – Expressions and their types – Special assignment expressions – Function prototyping – Call by reference – Return by reference – Inline functions -Default arguments – Function overloading.

#### Textbook 2: Chapter 3(3.2,3.3,3.4,3.13,3.14,3.19, 3.20) , chapter 4(4.3,4.4,4.5,4.6,4.7,4.9) Module-3 (8 hours)

Inheritance & Polymorphism: Derived class Constructors, destructors-Types of Inheritance-Defining Derived classes, Single Inheritance, Multiple, Hierarchical Inheritance, Hybrid Inheritance.

### Textbook 2: Chapter 6 (6.2,6.11) chapter 8 (8.1 to,8.8)

Module-4 (8 hours)

I/O Streams: C++ Class Hierarchy- File Stream-Text File Handling- Binary File Handling during file operations.

Textbook 1: Chapter 12(12.5), Chapter 13 (13.6,13.7)

#### Module-5 (8 hours)

Exception Handling: Introduction to Exception - Benefits of Exception handling- Try and catch blockThrow statement- Pre-defined exceptions in C++

### Textbook 2: Chapter 13 (13.2 to13.6)

Cours	e outcome	(Course Skill Set)
At the	end of the c	course the student will be able to:
	C01	Able to understand and design the solution to a problem using object-oriented
		programming concepts.
	CO2	
		Able to reuse the code with extensible Class types, User-defined operators and
		function Overloading.
	CO3	
		Achieve code reusability and extensibility by means of Inheritance and
		Polymorphism
	CO4	
		Implement the features of C++ including templates, exceptions and file handling for
		providing programmed solutions to complex problems.

Programming Assignments:

1. Write a C++ program to sort the elements in ascending and descending order.

2. Write a C++ program to find the sum of all the natural numbers from 1 to n.

3. Write a C++ program to swap 2 values by writing a function that uses call by reference technique.

4. Write a C++ program to demonstrate function overloading for the following prototypes.

*add(int a, int b) add(double a, double b)* 

5. Create a class named Shape with a function that prints "This is a shape". Create another class named Polygon inheriting the Shape class with the same function that prints "Polygon is a shape". Create two other classes named Rectangle and Triangle having the same function which prints "Rectangle is a polygon" and "Triangle is a polygon" respectively. Again, make another class named Square having the same function which prints "Square is a rectangle".Now, try calling the function by the object of each of these classes.

6.Suppose we have three classes Vehicle, FourWheeler, and Car. The class Vehicle is the base class, the class FourWheeler is derived from it and the class Car is derived from the class FourWheeler. Class Vehicle has a method 'vehicle' that prints 'I am a vehicle', class FourWheeler has a method 'fourWheeler' that prints 'I have four wheels', and class Car has a method 'car' that prints 'I am a car'. So, as this is a multi-level inheritance; we can have access to all the other classes methods from the object of the class Car. We invoke all the methods from a Car object and print the corresponding outputs of the methods.

So, if we invoke the methods in this order, car(), fourWheeler(), and vehicle(), then the output will be

I am a car

I have four wheels

I am a vehicle

Write a C++ program to demonstrate multilevel inheritance using this.

7. Write a C++ program to create a text file, check file created or not, if created it will write some text into the file and then read the text from the file.

8.Write aC++ program to write and read time in/from binary file using fstream

9. Write a function which throws a division by zero exception and catch it in catch block. Write a C++ program to demonstrate usage of try, catch and throw to handle exception.

10. Write a C++ program function which handles array of bounds exception using C++.

### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

### **Continuous Internal Evaluation(CIE):**

The CIE marks for the theory component of the IC shall be **30 marks** and for the laboratory component **20 Marks**.

### CIE for the theory component of the IC

- Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.
- Two Assignments/two quizzes/ seminars/one field survey and report presentation/onecourse project totaling20 marks.

Total Marks scored (test + assignments) out of 80 shall be scaled down to 30 marks

### CIE for the practical component of the IC

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted at the end of the semester.
- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.

• The laboratory test **(duration 03 hours)** at the end of the 15<sup>th</sup> week of the semester /after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to **05 marks**.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

• The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

### Semester End Examination (SEE): SEE for IC

Theory SEE will be conducted by University as per the scheduled time table, with common question papers for the course (duration 03 hours)

- 1. The question paper will have ten questions. Each question is set for 20 marks.
- 2. There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.
- 3. The students have to answer 5 full questions, selecting one full question from each module.

The theory portion of the Integrated Course shall be for both CIE and SEE, whereas the practical

### portion will have a CIE component only. Questions mentioned in the SEE paper shall include

### questions from the practical component).

### Passing standard:

- The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks-30) in the theory component and 08 (40% of maximum marks -20) in the practical component. The laboratory component of the IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 04/05 questions to be set from the practical component of IPCC, the total marks of all questions should not be more than 30 marks.
- SEE will be conducted for 100 marks and students shall secure 35% of the maximum marks to qualify for the SEE. Marks secured will be scaled down to 50.

### Suggested Learning Resources:

**Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year)** Textbooks

1. Bhushan Trivedi, "Programming with ANSI C++", Oxford Press, Second Edition, 2012.

2. Balagurusamy E, Object Oriented Programming with C++, Tata McGraw Hill Education Pvt.Ltd , Fourth Edition 2010.

Web links and Video Lectures (e-Resources):

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# 16-2-2023

Weblinks and Video Lectures (e-Resources):

- 1. Basics of C++ https://www.youtube.com/watch?v=BClS40yzssA
- 2. Functions of C++ <u>https://www.youtube.com/watch?v=p8ehAjZWjPw</u>

Tutorial Link:

- 1. https://www.w3schools.com/cpp/cpp\_intro.asp
- 2. https://www.edx.org/course/introduction-to-c-3

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

• Assign small tasks to Develop and demonstrate using C++

COs	POs								
	1	2	3	4	5	6	7		
CO1									
CO2									
CO3									
CO4									

### Theory - 01 Credit Course Professional Writing Skills in English

Course Title:	Professional Writing S	<u> </u>	
Course Code:	BPWSK206-106	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01
<ul> <li>Course objectives:</li> <li>The course Professional Writing Skills in Eng. <ol> <li>To Identify the Common Errors in W</li> <li>To Achieve better Technical writing</li> <li>To read Technical proposals properl</li> <li>To Acquire Employment and Workp</li> <li>To learn about Techniques of Inform</li> </ol> </li> <li>Teaching-Learning Process These are sample Strategies, which teacher can Teaching -Learning more effective: Teachers sh shall involve the combination of different methods requirements of the Global employment market. <ol> <li>Direct instructional method ( Low/Old Telearning (Combination of both), (iv) Enquire</li> <li>(v) Personalized learning, (vi) Problems base</li> <li>Tools and techniques, (viii) Use of audio vis</li> </ol> </li> </ul>	Vriting and Speaking of Eng g and Presentation skills for y and make them to write g place communication skills. nation Transfer through prese use to accelerate the attainn all adopt suitable pedagogy for plogies which suit modern tech echnology), (ii) Flipped classro y and evaluation based learning ed learning through discussion, ual methods through language	glish. employment. ood technical reports. sentation in different l nent of the various cour effective teaching - lear nological tools and softw oms (High/advanced Te g, . (vii) Following the met Labs in teaching of of L	rse outcomes and make ning process. The pedagogy vare's to meet the present chnological tools), (iii) Blended hod of expeditionary learning SRW skills.
adapted so that the delivered lesson can progress t	he students in theoretical appli-	ed and practical skills in	teaching of communicative
skills in general. Language Lab : To augment LSRW, gramm Grammar, Vocabulary) through tests, activiti can be referred as per the AICTE / VTU guid	es, exercises etc., comprehe lelines.	nsive web-based learr	
Language Lab : To augment LSRW, gramm Grammar, Vocabulary) through tests, activiti can be referred as per the AICTE / VTU guid Module-1	es, exercises etc., comprehe lelines. (03 hou	nsive web-based learr	ing and assessment systems
<b>Language Lab :</b> To augment LSRW, gramm Grammar, Vocabulary) through tests, activiti can be referred as per the AICTE / VTU guid	es, exercises etc., comprehe lelines. (03 hou and Speaking English : C bs and their forms, Subject	nsive web-based learr <b>rs of pedagogy)</b> Common errors identif Verb Agreement (Con	ing and assessment systems ication in parts of speech, ncord Rules), Common errors
Language Lab : To augment LSRW, gramm Grammar, Vocabulary) through tests, activiti can be referred as per the AICTE / VTU guid Module-1 Identifying Common Errors in Writing Use of verbs and phrasal verbs, Auxiliary ver	es, exercises etc., comprehe lelines. (03 hou and Speaking English : C bs and their forms, Subject ses and errors identification	nsive web-based learr <b>rs of pedagogy)</b> Common errors identif Verb Agreement (Con	ing and assessment systems ication in parts of speech, ncord Rules), Common errors
Language Lab : To augment LSRW, gramm Grammar, Vocabulary) through tests, activiti can be referred as per the AICTE / VTU guid Module-1 Identifying Common Errors in Writing Use of verbs and phrasal verbs, Auxiliary ver in Subject-verb agreement, Sequence of Tens Module-2 Nature and Style of sensible writing: On Conclusion, Importance of Proper Punctuati and Corrections activities. Misplaced modifie Module-3 Technical Reading and Writing Prace Significance of Reports, Types of Reports.	es, exercises etc., comprehe lelines. (03 hou and Speaking English : C bbs and their forms, Subject ses and errors identification (03 hou rganizing Principles of Pa ion, Precise writing and Te ers, Contractions, Collocations (03 hou ctices: Technical writing p Introduction to Technical	nsive web-based learr rs of pedagogy) Common errors identifi Verb Agreement (Con in Tenses. Words Cor rs of pedagogy) ragraphs in Document chniques in Essay with , Word Order, Errors du Irs of pedagogy) process, Introduction Proposals Writing, T	ing and assessment systems ication in parts of speech, ncord Rules), Common errors ifused/Misused. hts, Writing Introduction and riting, Sentence arrangements e to the Confusion of words. to Technical Reports writing, Fypes of Technical Proposals.
Language Lab : To augment LSRW, gramm Grammar, Vocabulary) through tests, activiti can be referred as per the AICTE / VTU guid Module-1 Identifying Common Errors in Writing Use of verbs and phrasal verbs, Auxiliary ver in Subject-verb agreement, Sequence of Tens Module-2 Nature and Style of sensible writing: On Conclusion, Importance of Proper Punctuati and Corrections activities. Misplaced modifie Module-3 Technical Reading and Writing Prace Significance of Reports, Types of Reports. Characteristics of Technical Proposals. Scier & Sentence Improvement, Cloze Test and Th	es, exercises etc., comprehe lelines. (03 hou and Speaking English : C bbs and their forms, Subject ses and errors identification (03 hou rganizing Principles of Pa ion, Precise writing and Te ers, Contractions, Collocations (03 hou ctices: Technical writing p Introduction to Technical ntific Writing Process. Gran eme Detection Exercises.	nsive web-based learr rs of pedagogy) Common errors identifi Verb Agreement (Con in Tenses. Words Cor rs of pedagogy) ragraphs in Document chniques in Essay with , Word Order, Errors dur trs of pedagogy) process, Introduction Proposals Writing, Tenmar – Voices and References process and References	ing and assessment systems ication in parts of speech, ncord Rules), Common errors ifused/Misused. nts, Writing Introduction and riting, Sentence arrangements e to the Confusion of words. to Technical Reports writing Fypes of Technical Proposals
Language Lab : To augment LSRW, gramm Grammar, Vocabulary) through tests, activiti can be referred as per the AICTE / VTU guid Module-1 Identifying Common Errors in Writing Use of verbs and phrasal verbs, Auxiliary ver in Subject-verb agreement, Sequence of Tens Module-2 Nature and Style of sensible writing: On Conclusion, Importance of Proper Punctuati and Corrections activities. Misplaced modifie Module-3 Technical Reading and Writing Prace Significance of Reports, Types of Reports. Characteristics of Technical Proposals. Scier & Sentence Improvement, Cloze Test and Th Module-4	es, exercises etc., comprehe lelines. (03 hou and Speaking English : C bs and their forms, Subject bes and errors identification (03 hou rganizing Principles of Pa ton, Precise writing and Te ers, Contractions, Collocations (03 hou ctices: Technical writing p Introduction to Technical ntific Writing Process. Grar meme Detection Exercises. (03 hou	nsive web-based learr irs of pedagogy) Common errors identif Verb Agreement (Con- in Tenses. Words Cor- irs of pedagogy) ragraphs in Document chniques in Essay web- the pedagogy) process, Introduction Proposals Writing, Tenmar – Voices and Re- irs of pedagogy)	ing and assessment systems ication in parts of speech, ncord Rules), Common errors ifused/Misused. hts, Writing Introduction and riting, Sentence arrangements e to the Confusion of words. to Technical Reports writing Fypes of Technical Proposals eported Speech, Spotting Error
Language Lab : To augment LSRW, gramm Grammar, Vocabulary) through tests, activiti can be referred as per the AICTE / VTU guid Module-1 Identifying Common Errors in Writing Use of verbs and phrasal verbs, Auxiliary ver in Subject-verb agreement, Sequence of Tens Module-2 Nature and Style of sensible writing: On Conclusion, Importance of Proper Punctuati and Corrections activities. Misplaced modifie Module-3 Technical Reading and Writing Prace Significance of Reports, Types of Reports. Characteristics of Technical Proposals. Scient & Sentence Improvement, Cloze Test and Th Module-4 Professional Communication for Employ Improving Listening Skills. Reading Co official/employment/business Letters, Resum Blog Writing and Memos.	es, exercises etc., comprehe lelines. (03 hou and Speaking English : C bbs and their forms, Subject tess and errors identification (03 hou rganizing Principles of Pa ion, Precise writing and Te ers, Contractions, Collocations (03 hou ctices: Technical writing p Introduction to Technical ntific Writing Process. Gran teme Detection Exercises. (03 hou yment: Listening Compre omprehension, Tips for te vs. Bio Data, Profile, CV	nsive web-based learn rs of pedagogy) Common errors identifi Verb Agreement (Con- in Tenses. Words Cor- ragraphs in Documen- ragraphs in Documen- ragraphs in Documen- chniques in Essay wri- , Word Order, Errors du Irs of pedagogy) process, Introduction Proposals Writing, To- nmar – Voices and Re- Irs of pedagogy) hension, Types of I effective reading. J . Writing effective res	ing and assessment systems ication in parts of speech, ncord Rules), Common errors afused/Misused. Ints, Writing Introduction and riting, Sentence arrangements e to the Confusion of words. to Technical Reports writing Types of Technical Proposals eported Speech, Spotting Erro Listening, Listening Barriers, ob Applications, Types of
Language Lab : To augment LSRW, gramm Grammar, Vocabulary) through tests, activiti can be referred as per the AICTE / VTU guid Module-1 Identifying Common Errors in Writing Use of verbs and phrasal verbs, Auxiliary ver in Subject-verb agreement, Sequence of Tens Module-2 Nature and Style of sensible writing: On Conclusion, Importance of Proper Punctuati and Corrections activities. Misplaced modifie Module-3 Technical Reading and Writing Prace Significance of Reports, Types of Reports. Characteristics of Technical Proposals. Scient & Sentence Improvement, Cloze Test and Th Module-4 Professional Communication for Employ Improving Listening Skills. Reading Co	es, exercises etc., comprehe lelines. (03 hou and Speaking English : C bbs and their forms, Subject ces and errors identification (03 hou rganizing Principles of Pa ion, Precise writing and Te ers, Contractions, Collocations (03 hou ctices: Technical writing p Introduction to Technical ntific Writing Process. Gran eme Detection Exercises. (03 hou yment: Listening Compre omprehension, Tips for te vs. Bio Data, Profile, CV (03 hou	nsive web-based learr rs of pedagogy) Common errors identif Verb Agreement (Con- in Tenses. Words Cor- urs of pedagogy) ragraphs in Documen- chniques in Essay we- , Word Order, Errors du- urs of pedagogy) process, Introduction Proposals Writing, To- nmar – Voices and Re- urs of pedagogy) hension, Types of I effective reading. J . Writing effective res- urs of pedagogy)	ing and assessment systems ication in parts of speech, ncord Rules), Common errors afused/Misused. hts, Writing Introduction and riting, Sentence arrangements e to the Confusion of words. to Technical Reports writing, Types of Technical Proposals, eported Speech, Spotting Error Listening, Listening Barriers, ob Applications, Types of ume for employment, Emails,

# 26.10.2022

#### Course outcome (Course Skill Set)

At the end	d of the course the student will be able to:
C01	To understand and identify the Common Errors in Writing and Speaking.
CO2	To Achieve better Technical writing and Presentation skills.
CO3	To read Technical proposals properly and make them to Write good technical reports.
CO4	Acquire Employment and Workplace communication skills.
C05	To learn about Techniques of Information Transfer through presentation in different level.

#### **Assessment Details (both CIE and SEE)**

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### **Continuous Internal Evaluation(CIE):**

#### Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration

#### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (To have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

#### The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks

#### Semester End Examinations (SEE)

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

#### **Suggested Learning Resources:**

#### Textbook:

- 1) "Professional Writing Skills in English" published by Fillip Learning Education (ILS), Bangalore 2022.
- 2) **"Functional English"** (As per AICTE 2018 Model Curriculum) (ISBN-978-93-5350-047-4) Cengage learning India Pvt Limited [Latest Edition 2019].

#### **Reference Books:**

- 1) English for Engineers by N.P.Sudharshana and C.Savitha, Cambridge University Press 2018.
- 2) Technical Communication by Gajendra Singh Chauhan and Et al, (ISBN-978-93-5350-050-4), Cengage learning India Pvt Limited [Latest Revised Edition] 2019.
- 3) Technical Communication Principles and Practice, Third Edition by Meenakshi Raman and Sangeetha Sharma, Oxford University Press 2017.
- 4) High School English Grammar & Composition by Wren and Martin, S Chandh & Company Ltd 2015.
- 5) Effective Technical Communication Second Edition by M Ashraf Rizvi, McGraw Hill Education (India) Private

#### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- ✓ For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions, Seminars and assignments

51. No	Course a Co	nd Course			Tea									
No								k	Examination					
1		ue	Course Title	TD/PSB	Theory Lecture	Tutorial	Practical/ Drawing	NOS	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits	
1	*****				L	T	P	S	03	50	50	100	04	
201	*ASC(IC)	BMATE101	Mathematics-I for EES	Maths	2	2	2	0	03	50	50	100	0.	
2	#ASC(IC)	BCHEE102	Chemistry for EES	Chemistry	2	2	2	0	03	50	50	100	04	
3	ESC	BCEDK103	Computer-Aided Engineering Drawing	Mechanical	2	0	2	0	03	50	50	100	0	
4	ESC-I	BESCK104x	Engineering Science Course-1	Respective Engg Dept	3	0	0	0	03	50	50	100	0	
	ETC-I	BETCK105x	Emerging Technology Course-I		3	0	0	0	03					
5		OR		Any Dept	5	<u> </u>		<u> </u>		50	50	100	03	
	PLC-I	BPLCK105x	Programming Language Course-I		2	0	2	0	03					
		BPWSK106	Professional Writing Skills in English					20 10						
6	AEC	б	OR	Humanities	1	0	0	0	01	50	50	100	01	
		BENGK106	Communicative English											
- 28		BICOK107	Indian Constitution		¢	e8		2 - X	23	23	2			
7	HSMS		OR	Humanities	1	0	0	0	01	50	50	100	0	
		BKSKK107/ BKBKK107	Samskrutika Kannada/ Balake Kannada	Se in consistent derived			3		1000	12.0	12.7	0.008		
		BSFHK158	Scientific Foundations of Health		1	0	0	0	01					
8	HSMS		OR	Any Dept.						50	50	100	01	
		BIDTK158	Innovation and Design Thinking	a a a a a a a a a a a a a a a a a a a	1	0	0	0	01					

	(ESC-I) Engineering Science Courses-I				(ETC-1) Emerging Technology Courses-I						
Code	Title	L	Т	P	Code	Title	L	Т	P		
BESCK104A	Introduction to Civil Engineering	3	0	0	BETCK105A	Smart Materials and Systems	3	0	0		
BESCK104B	Introduction to Electrical Engineering	3	0	0	BETCK105B	Green Buildings	3	0	0		
BESCK104C	Introduction to Electronics Communication	3	0	0	BETCK105C	Introduction to Nano Technology	3	0	0		
BESCK104D	Introduction to Mechanical Engineering	3	0	0	BETCK105D	Introduction to Sustainable Engineering	3	0	0		
BESCK104E	Introduction toC Programming	2	0	2	BETCK105E	Renewable Energy Sources	3	0	0		
					BETCK105F	Waste Management	3	0	0		
					BETCK105G	Emerging Applications of Biosensors	3	0	0		
				<u> </u>	BETCK105H	Introduction to Internet of Things (IOT)	3	0	0		
2		- 92 92		100-100 	BETCK1051	Introduction to Cyber Security	3	0	0		
		31.3			BETCK105J	Introduction to Embedded System	3	0	0		
(PLC-I) Prog	ramming Language Courses-I	-050									
Code	Title	L	Т	P	s						
BPLCK105A	Introduction to Web Programming	2	0	2							
BPLCK105B	Introduction to Python Programming	2	0	2							
BPLCK105C	Basics of JAVA programming	2	0	2							
BPLCK105D	Introduction to C++ Programming	2	0	2							
	BESCK104EIntroduction to C Programm	ing, a	ind	all	courses unde	r PLC and ETC groupscan be taught by fac	ulty	of A	N		

- The student has to select one course from the ESC-I group.
- EEE Students shall opt for any one of the courses from the ESC-I group except, BESCK104B-Introduction to Electrical Engineering and ECE/ETC/BM/ML students shall opt any one of the courses from ESC-I except BESCK104C Introduction to Electronics Engineering
- The students have to opt for the courses from ESC group without repeating the course in either 1st or 2nd semester
- The students must select one course from either ETC-I or PLC-I group.
- If students study the subject from ETC-I in 1st semester he/she has to select the course from PLC-II in the 2nd semester and vice-versa

# Electrical & Electronics Engineering and Allied branches(Chemistry group)

CourseTitle:	Chemistry for Electri Engineering stream	cal and Elect	ronics
CourseCode:	BCHEE202/202	CIEMarks	50
Course		SEEMarks	50
Course Type(Theory/Practical/Integrated)	Integrated	Total Marks	100
TeachingHours/Week(L:T:P:S) <sup>1</sup>	2:2:2:0	Exam Hours	03
TotalHoursofPedagogy Courseobjectives	40hoursTheory+10to 12Lab slots	Credits	04
<ul> <li>Toenablestudentstoacquireknowledge ions.</li> <li>Todevelopanintuitiveunderstandingof ngineering.</li> <li>Toprovidestudentswithasolidfoundati problems.</li> </ul> <b>Teaching-LearningProcess</b> Thesearesamplestrategies,whichteachercar eoutcomesandmakeTeaching-Learningmor <ul> <li>Tutorial&amp;remedialclassesforneedystu</li> <li>ConductingMakeupclasses/Bridgecou</li> <li>Demonstrationofconceptseitherbybui</li> <li>Experimentsinlaboratoriesshallbeexee conventionalmethods)</li> </ul>	fchemistrybyemphasizin oninanalyticalreasoning nusetoacceleratetheattain eeffective dents(notregularT/R) rsesforneedystudents ldingmodelsorbyindustr cutedinblendedmode(co	gtherelatedbi requiredtosol nmentoftheva yvisit	ranchesofe vesocietal
<ul> <li>UseofICT–Onlinevideos,onlinecourses</li> <li>Useofonlineplatformsforassignments/</li> </ul>	/Notes/Quizzes(Ex.Goog		
MODULE1:Chemistryc ConductorsandInsulators:Introduction,pr	ofElectronicMaterials(8	3hr)	
Batteries: Introduction, classification of	calproblems.Conducting cetylene.Preparation, pheneoxide. lectroless plating of cop netalfinishinganddistinct <b>nversionandStorage(8</b> ) batteries. Components,	oolymers– per in the m ionbetween <b>hr)</b> construction	anufacture n, working
andapplications of modern batteries; Na battery)andflowbattery(Vanadiumredoxflow <b>FuelCells</b> :Introduction,construction,working	wbattery).		

 $<sup>1.</sup> NOTE: Where verthe contact\ hours is not sufficient, tutorial hour can be converted to\ theory hours$ 

polymerelectrolytemembrane(PEM)fuelcell.

**SolarEnergy:**Introduction,importanceofsolarPVcell,constructionandworkingofsolarPVcell,a dvantagesanddisadvantages.

**Self-learning:**Electrodesforelectrostaticdoublelayercapacitors,pseudocapacitors,and hybridcapacitor.

### MODULE3:CorrosionScienceandE-wasteManagement(8hr)

**CorrosionChemistry:**Introduction,electrochemicaltheoryofcorrosion,typesofcorrosiondifferentialmetalanddifferentialaeration.Corrosioncontrol-galvanization,anodization and sacrificial anode method. Corrosion Penetration Rate (CPR) - Introductionandnumerical problem.

**E-waste Management**: Introduction, sources, types, effects of e-waste on environment andhuman health, methods of disposal, advantages of recycling. Extraction of copper and goldfrome-waste.

Self-learning: Recycling of PCB and battery components

### MODULE4:NanomaterialsandDisplaySystems(8hr)

**Nanomaterials:** Introduction, size dependent properties of nanomaterials (Surface area,Catalytic, Conducting), preparation of nanomaterials by sol-gel and co-precipitation methodwithexample.Introduction,propertiesandapplications-

Nanofibers, Nanophotonics, Nanosensors.

**DisplaySystems**:Liquidcrystals(LC's)-Introduction, classification, properties and application in Liquid Crystal Displays (LCD's). Properties and application of Organic LightEmittingDiodes(OLED's) and Quantum Lightemittingdiodes(QLED's).

**PerovskiteMaterials**:Introduction, properties and applications in optoelectronic devices.

 ${\it Self-learning:} Properties \& electrochemical applications of carbon nanotubes and graphene.$ 

### MODULE5:SensorsinAnalyticalTechniques(8hr)

**Electrode System**: Introduction, types of electrodes. Ion selective electrode – definition, construction, working and applications of glass electrode. Determination of pH using glasselectrode. Reference electrode- Introduction, calomel electrode- construction, workingand applications of calomelelectrode.Concentrationcell– Definition, construction and Numerical problems.

**Sensors:**Introduction,workingprincipleandapplicationsofConductometricsensors,Electroch emicalsensors, Thermometricsensors, andOpticalsensors.

AnalyticalTechniques:Introduction,principleandinstrumentationofColorimetricsensors;

its application in the estimation of copper, principleandinstrumentation of Potentiometric sensors; principleandinstrumentation its application in the estimation of iron, Conductometric sensors; its application in the estimation of weakacid.

 ${\small Self-learning:} IR and UV-V is ible spectroscopy.$ 

### **PRACTICALMODULE**

### <u>A-Demonstration(anytwo)offline/virtual:</u>

A1.Synthesisofpolyurethane

A2. Determination of strength of an acid in Pb-acid

battery A3. Synthesis of iron oxiden an oparticles

A4.Electroplatingofcopperonmetallicobjects

### <u>B-Exercise(compulsorilyany4tobeconducted):</u>

B1.Conductometricestimationofacidmixture

 $B2. Potentiometric estimation of FAS using K_2 Cr_2 O_7\\$ 

B3.DeterminationofpKaofvinegarusingpHsensor(Glasselectrode)

B4. Determination of rate of corrosion of mildsteel by weight loss method B5. Estimation of total hardness of water by EDTA method

### <u>C-StructuredEnquiry (compulsorilyany4tobeconducted):</u>

C1. Estimation of Copper present in electroplating effluent by optical sensor (colorimetry)C2.DeterminationofViscositycoefficientoflubricant(Ostwald'sviscometer) C3. Estimation of iron in TMT bar by diphenyl amine/external indicator

methodC4.EstimationofSodiumpresentinsoil/effluentsampleusingflamephotometr y

C5. Determination of Chemical Oxygen Demand (COD) of industrial was tervater sample

### <u>D-OpenEndedExperiments(anytwo):</u>

D1. Estimation of metal in e-waste by optical

sensorsD2.Electroless platingofNickleonCopper

D3. Determination of glucose by electrochemical sensors

D4. Synthesis of polyaniline and its conductivity measurement

### Courseoutcome(CourseSkillSet)

Attheendofthecourse thestudentwillbeableto:

CO1.	Identify		terms applications	processes	involved	in	scientific	and	engineering
CO2.	Explaint		1 1	emistrytodes	scribethem	ethc	dsofengine	ering	
	processe	S							

**CO3.** Solvetheproblemsinchemistrythatarepertinentinengineeringapplications

**CO4.** Applythebasicconceptsofchemistrytoexplainthechemicalpropertiesandprocesses

CO5.Analyzeproperties and multi processes associated<br/>disciplinary situationswith chemical substances in

### AssessmentDetails(bothCIEandSEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). Astudentshallbedeemedtohavesatisfiedtheacademicrequirementsandearnedthecreditsallotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in thesemester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total oftheCIE(ContinuousInternalEvaluation)andSEE(SemesterEndExamination)takentogether.

### ContinuousInternalEvaluation(CIE):

The CIE marks for the theory component of the IC shall be **30 marks** and for the laboratory component **20 Marks**.

### CIE for the theory component of the IC

- Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.
- Two Assignments/two quizzes/ seminars/one field survey and report presentation/one-course project totalling 20 marks.

Total Marks scored (test + assignments) out of 80 shall be scaled down to **30 marks CIE for the practical component of the IC** 

• On completion of every experiment/program in the laboratory, the students shall be

evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted at the end of the semester.

- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.
- The laboratory test **(duration 03 hours)** at the end of the 15<sup>th</sup> week of the semester /after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to **05 marks**.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

• The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

### Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English/Kannada). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.

There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

### SuggestedLearningResources:

### Books(TitleoftheBook/Nameoftheauthor/Nameofthepublisher/EditionandYear)

- 1. WileyEngineeringChemistry,WileyIndiaPvt.Ltd.NewDelhi,2013-2<sup>nd</sup>Edition.
- 2. EngineeringChemistry,Satyaprakash&ManishaAgrawal,KhannaBookPublishing,Delhi
- 3. ATextBookofEngg.Chemistry,ShashiChawla,DhanpatRai&Co.(P)Ltd.
- 4. EssentialsofPhysicalChemistry,Bahl & Tuli,S.ChandPublishing
- 5. AppliedChemistry,SunitaRattan,Kataria5.EngineeringChemistry,Baskar,Wiley
- 6. EngineeringChemistry–I,D.Grour Krishana,VikasPublishing
- 7. ATextbookofEngineeringChemistry,SSDara&Dr.SSUmare,SChand&CompanyLtd.,12<sup>h</sup>Edition,2011
- 8. ATextBookofEngineeringChemistry,R.V.GadagandNityanandaShetty,I.K.InternationalPublishingh ouse. 2<sup>nd</sup>Edition,2016.
- 9. TextBookofPolymerScience,F.W.Billmeyer,JohnWiley&Sons,4thEdition,1999.
- 10. NanotechnologyAChemicalApproachtoNanomaterials,G.A.Ozin &A.C.Arsenault,RSCPublishing,2005.
- CorrosionEngineering,M.G.Fontana,N.D.Greene,McGrawHillPublications,NewYork,3rdEdition,199
   6.
- 12. Linden'sHandbookofBatteries,KirbyW.Beard,FifthEdition,McGrawHill,2019.
- $13. \ OLED Display Fundamentals and Applications, TakatoshiT sujimura, Wiley-Blackwell, 2012$
- 14. Supercapacitors: Materials, Systems, and Applications, Max Lu, Francois Beguin,ElzbietaFrackowiak,Wiley-VCH;1st edition,2013.

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- 15. "HandbookonElectroplatingwithManufactureofElectrochemicals",ASIAPACIFICBUSINESSPRESS Inc., 2017. Dr.H. Panda,
- 16. Expanding the Vision of Sensor Materials. National Research Council 1995, Washington, DC: The Nation al Academies Press. doi:10.17226/4782.
- 17. EngineeringChemistry,EditedbyDr.MaheshBandDr.RoopashreeB,SunstarPublisher,Bengaluru,IS BN978-93-85155-70-3, 2022
- 18. HighPerformanceMetallicMaterialsforCostSensitiveApplications,F.H.Froes,etal.JohnWiley&Sons, 2010
- 19. Instrumental Methods of Analysis, Dr. K. R. Mahadik and Dr. L. Sathiyanarayanan, Nirali Prakashan, 2020
- 20. PrinciplesofInstrumentalAnalysis,DouglasA.Skoog,F.JamesHoller, StanleyR.CrouchSeventhEdition,CengageLearning, 2020
- 21. PolymerScience,VRGowariker,NVViswanathan,Jayadev,Sreedhar,NewageInt.Publishers,4thEditio n, 2021
- 22. EngineeringChemistry,PCJain&MonicaJain,DhanpatRaiPublication,2015-16<sup>th</sup>Edition.
- 23. Nanostructuredmaterialsandnanotechnology, Hari Singh, Nalwa, academic press, 1<sup>st</sup>Edition, 2002.
- 24. NanotechnologyPrinciplesandPractices,SulabhaKKulkarni,CapitalPublishingCompany,3<sup>rd</sup>Edition 2014
- 25. Principlesofnanotechnology, Phanikumar, Scitechpublications, 2<sup>nd</sup>Edition, 2010.
- 26. Chemistryfor EngineeringStudents,B.S.JaiPrakash,R.Venugopal, Sivakumaraiah&PushpaIyengar.,SubashPublications,5<sup>th</sup>Edition, 2014
- 27. "EngineeringChemistry",O.G.Palanna,TataMcGrawHillEducationPvt.Ltd.NewDelhi,FourthReprint, 2015.
- 28. ChemistryofEngineeringmaterials,MaliniS,KSAnanthaRaju,CBSpublishersPvtLtd.
- 29. LaboratoryManualEngg.Chemistry,AnupmaRajput,DhanpatRai&Co.

### WeblinksandVideoLectures(e-Resources):

- <u>http://libgen.rs/</u>
- <u>https://nptel.ac.in/downloads/122101001/</u>
- <u>https://nptel.ac.in/courses/104/103/104103019/</u>
- <u>https://ndl.iitkgp.ac.in/</u>
- <u>https://www.youtube.com/watch?v=faESCxAWR9k</u>
- <u>https://www.youtube.com/watch?v=TBqXMWaxZYM&list=PLyhmwFtznRhuz8L1bb3X-9IbHrDMjHWWh</u>
- <u>https://www.youtube.com/watch?v=j5Hml6KN4TI</u>
- https://www.youtube.com/watch?v=X9GHBdyYcyo
- <u>https://www.youtube.com/watch?v=1xWBPZnEJk8</u>
- <u>https://www.youtube.com/watch?v=wRAo-M8xBHM</u>

### ActivityBasedLearning(SuggestedActivitiesinClass)/PracticalBasedlearning

- <u>https://www.vlab.co.in/broad-area-chemical-sciences</u>
- <u>https://demonstrations.wolfram.com/topics.php</u> <u>https://interestingengineering.com/science</u>

	COsandPOsMapping(Individualteacherhastofillup)												
	РО												
	P01 P02 P03 P04 P05 P06 P07 P08 P09 P010 P011 P03									P012			
<b>CO1</b>	3	1	1				1						
CO2	3	1	1				1						
<b>CO3</b>	3	1	1				1						
<b>CO4</b>	3	1	1				1						
CO5	3	1	1				1						

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### I Semester

Course Title: Mathematics-I for Electrical & Electronics Engineering Stream			
Course Code:	BMATE101	CIE Marks	50
Course Type	Integrated	SEE Marks	50
(Theory/Practical/Integrated)		Total Marks	100
Teaching Hours/Week (L:T:P: S)	2:2:2:0	Exam Hours	03
Total Hours of Pedagogy	40 hours Theory + 10 to12 Lab slots	Credits	04

Course objectives: The goal of the course Mathematics-I for Electrical & Electronics Engineering stream(22MATE11) is to

- **Familiarize** the importance of calculus associated with one variable and multivariable for Electrical and Electronics engineering.
- AnalyzeElectrical and Electronics engineering problems by applying Ordinary Differential Equations.
- **Familiarize** the important tools in Integral Calculus that are essential in Electrical and Electronics engineering.
- **Develop** the knowledge of Linear Algebra to solve the system of equations.

### **Teaching-Learning Process**

### **Pedagogy (General Instructions):**

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

- 1. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted so that the delivered lessons shall develop students' theoretical and applied mathematical skills.
- 2. State the need for Mathematics with Engineering Studies and Provide real-life examples.
- 3. Support and guide the students for self-study.
- 4. You will also be responsible for assigning homework, grading assignments and quizzes, and documenting students' progress.
- 5. Encourage the students to group learning to improve their creative and analytical skills.
- 6. Show short related video lectures in the following ways:
  - As an introduction to new topics (pre-lecture activity).
  - As a revision of topics (post-lecture activity).
  - As additional examples (post-lecture activity).
  - As an additional material of challenging topics (pre-and post-lecture activity).
  - As a model solution of some exercises (post-lecture activity).

### Module-1:Calculus (8 hours)

Introduction to polar coordinates and curvature relating to EC & EE Engineering applications.Polar coordinates, Polar curves, angle between the radius vector and the tangent, angle between two curves. Pedal equations. Curvature and Radius of curvature - Cartesian, Parametric, Polar and Pedal forms. Problems.

Self-study: Center and circle of curvature, evolutes and involutes.

Applications: Communication signals, Manufacturing of microphones, and Image processing. (RBT Levels: L1, L2 and L3)

### Module-2:Series Expansion and Multivariable Calculus (8 hours)

Introduction of series expansion and partial differentiation in EC & EE Engineering applications.

Taylor's and Maclaurin's series expansion for one variable (Statement only) – problems. Indeterminate forms - L'Hospital's rule - Problems.

Partial differentiation, total derivative - differentiation of composite functions. Jacobian and problems. Maxima and minima for a function of two variables. Problems.

**Self-study:** Euler's Theorem and problems. Method of Lagrange's undetermined multipliers with single constraint.

**Applications:** Series expansion in communication signals, Errors and approximations, and vector calculus.

(RBT Levels: L1, L2 and L3)

Module-3: Ordinary Differential Equations (ODEs) of First Order (8 hours)

Introduction to first-order ordinary differential equations pertaining to the applications for EC & EE engineering.

Linear and Bernoulli's differential equations. Exact and reducible to exact differential equations-Integrating factors on  $\frac{1}{N} \left( \frac{\partial M}{\partial y} - \frac{\partial N}{\partial x} \right)$  and  $\frac{1}{M} \left( \frac{\partial N}{\partial x} - \frac{\partial M}{\partial y} \right)$ . Orthogonal trajectories, L-R and C-R circuits. Problems.

**Non-linear differential equations:** Introduction to general and singular solutions, Solvable for p only, Clairaut's equations, reducible to Clairaut's equations. Problems.

**Self-Study:** Applications of ODEs, Solvable for x and y.

Applications of ordinary differential equations: Rate of Growth or Decay, Conduction of heat. (RBT Levels: L1, L2 and L3)

Module-4:Integral Calculus(8 hours)

Introduction to Integral Calculus in EC & EE Engineering applications.

**Multiple Integrals:** Evaluation of double and triple integrals, evaluation of double integrals by change of order of integration, changing into polar coordinates. Applications to find Area and Volume by double integral.Problems.

**Beta and Gamma functions:** Definitions, properties, relation between Beta and Gamma functions. Problems.

Self-Study: Volume by triple integration, Center of gravity.

**Applications:** Antenna and wave propagation, Calculation of optimum power in electrical circuits, field theory.

(RBT Levels: L1, L2 and L3)

Module-5: Linear Algebra (8 hours)

### Introduction of linear algebra related to EC & EE engineering applications.

Elementary row transformationofa matrix, Rank of a matrix. Consistency and Solution of system of linear equations - Gauss-elimination method, Gauss-Jordan method and approximate solution by Gauss-Seidel method. Eigenvalues and Eigenvectors, Rayleigh's power method to find the dominant Eigenvalue and Eigenvector.

**Self-Study:** Solution of system of equations by Gauss-Jacobi iterative method. Inverse of a square matrix by Cayley- Hamilton theorem.

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Applications of Linear Algebra:	Network	Analysis,	Markov	Analysis,	Critical	point of a	network
system. Optimum solution.							

(RBT Levels: L1, L2 and L3)

List of Laboratory experiments (2 hours/week per batch/ batch strength 15)

10 lab sessions + 1 repetition class + 1 Lab Assessment

- 1 2D plots for Cartesian and polar curves
  - Finding angle between polar curves, curvature and radius of curvature of a given curve

3 Finding partial derivatives and Jacobian

4 Applications to Maxima and Minima of two variables

- 5 Solution of first-order ordinary differential equation and plotting the solution curves
- 6 Program to compute area, volume and centre of gravity
- 7 Evaluation of improper integrals
- 8 Numerical solution of system of linear equations, test for consistency and graphical representation
- 9 Solution of system of linear equations using Gauss-Seidel iteration
- 10 Compute eigenvalues and eigenvectors and find the largest and smallest eigenvalue by Rayleigh power method.

Suggested software's: Mathematica/MatLab/Python/Scilab

## Course outcome (Course Skill Set)

At the end of the course the student will be able to:

CO1	apply the knowledge of calculus to solve problems related to polar curves and learn the
	notion of partial differentiation to compute rate of change of multivariate functions
CO2	analyze the solution of linear and nonlinear ordinary differential equations
CO3	apply the concept of change of order of integration and variables to evaluate multiple integrals and their usage in computing area and volume
CO4	make use of matrix theory for solving the system of linear equations and compute

- CO4 make use of matrix theory for solving the system of linear equations and compute eigenvalues and eigenvectors
- CO5 familiarize with modern mathematical tools namely

MATHEMATICA/ MATLAB/ PYTHON/SCILAB

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

## **Continuous Internal Evaluation(CIE):**

The CIE marks for the theory component of the IC shall be **30 marks** and for the laboratory component **20 Marks**.

## CIE for the theory component of the IC

- Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.
- Two Assignments/two quizzes/ seminars/one field survey and report presentation/one-course

project totalling 20 marks.

Total Marks scored (test + assignments) out of 80 shall be scaled down to **30 marks** 

## CIE for the practical component of the IC

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted at the end of the semester.
- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.
- The laboratory test (duration 03 hours) at the end of the 15<sup>th</sup> week of the semester/after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to 05 marks.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

• The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

## Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English/Kannada). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

## Suggested Learning Resources:

Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year) Text Books

- 1. **B. S. Grewal**: "Higher Engineering Mathematics", Khanna Publishers, 44<sup>th</sup>Ed., 2021.
- 2. E. Kreyszig: "Advanced Engineering Mathematics", John Wiley & Sons, 10<sup>th</sup>Ed., 2018.

## **Reference Books**

- 1. **V. Ramana:** "Higher Engineering Mathematics" McGraw-Hill Education, 11<sup>th</sup> Ed., 2017
- 2. Srimanta Pal & Subodh C.Bhunia: "Engineering Mathematics" Oxford University Press,

3<sup>rd</sup> Ed., 2016.

- 3. **N.P Bali and Manish Goyal**: "A Textbook of Engineering Mathematics" Laxmi Publications, 10<sup>th</sup> Ed., 2022.
- 4. **C. Ray Wylie, Louis C. Barrett:** "Advanced Engineering Mathematics" McGraw Hill Book Co., New York, 6<sup>th</sup> Ed., 2017.
- 5. **Gupta C.B, Sing S.R and Mukesh Kumar:** "Engineering Mathematic for Semester I and II", Mc-Graw Hill Education(India) Pvt. Ltd 2015.
- 6. **H. K. Dass and Er. Rajnish Verma:** "Higher Engineering Mathematics" S. Chand Publication, 3<sup>rd</sup> Ed., 2014.
- 7. James Stewart: "Calculus" Cengage Publications, 7<sup>th</sup>Ed., 2019.
- 8. **David C Lay:** "Linear Algebra and its Applications", Pearson Publishers, 4<sup>th</sup> Ed., 2018.
- 9. **Gareth Williams:** "Linear Algebra with Applications", Jones Bartlett Publishers Inc., 6<sup>th</sup> Ed., 2017.

10. Gilbert Strang: "Linear Algebra and its Applications", Cengage Publications, 4<sup>th</sup> Ed. 2022.

## Web links and Video Lectures (e-Resources):

- <u>http://nptel.ac.in/courses.php?disciplineID=111</u>
- <u>http://www.class-central.com/subject/math(MOOCs)</u>
- http://academicearth.org/
- VTU e-Shikshana Program
- VTU EDUSAT Program

## Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- Quizzes
- Assignments
- Seminar

## COs and POs Mapping (Individual teacher has to fill up)

COs	POs							
	1	2	3	4	5	6	7	
CO1								
CO2								
CO3								
CO4								
CO5								
Level 3- Hig	ghly Mapped,	Level 2-Mo	derately Map	ped, Level	1-Low Mapped	, Level 0- N	ot Mapped	

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	•	l Engineering Drawing (C		
Course Code		BCEDK203/203	CIE Marks	50
Teaching Hour/W	eek (L:T:P:S)	2:0:2:0	SEE Marks	50
Total Hours of Te	aching - Learning	40	Total Marks	100
Credits		03	Exam Hours	03
CL CL CL CL CL CL CL CL CL CL CL CL CL C	A01: To understand the A02: To use drawing as A03: To generate pictor A04: To understand the A05: To visualize engin g (General Instruction uld be made aware of p studies can be suitably oflearning. Models, Power Point pr ctice. on problems use very g arton boxes, book, etc c D software for generatin sketch book with graph CIE only gineering drawing, BIS atroduction to Computer D/3D environment. Sele axes, polylines, square, extend, break, chamfer ojections of Points, Lin hographic projections: C	(a) (a) (b) (c) (c) (c) (c) (c) (c) (c) (c) (c) (c	cation tool –Drawing. ads on practice to induce the fe all be used to enhance visualiz ts. (Example: For rectangular p shapes) ews. rysketching Drawing, Free hand sketching ordinate system and reference and scale. Commands and creas s, circles, ellipse, text, move ints in 1 <sup>st</sup> and 3 <sup>rd</sup> quadrants.	ation before prism / object; g of engineering planes HP, VP, eation of Lines, e, copy, off-set.
		Module-2		
	ection of right regular	solids ( <b>Solids Resting on HI</b> Cones, Cubes &Tetrahedron.	P only): Prisms & Pyramids	(triangle, squar

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#### Module-3

#### **Isometric Projections:**

Isometric scale, Isometric projection of hexahedron (cube), right regular prisms, pyramids, cylinders, cones and spheres. Isometric projection of combination of two simple solids.

#### Conversion of simple isometric drawings into orthographic views.

Problems on applications of Isometric projections of simple objects / engineering components.

Introduction to drawing views using 3D environment (For CIE only).

#### Module-4

## **Development of Lateral Surfaces of Solids:**

Development of lateral surfaces of right regular prisms, cylinders, pyramids and cones resting with base on HP only. Development of lateral surfaces of their frustums and truncations.

Problems on applications of development of lateral surfaces like funnels and trays.

Problems on applications of development of lateral surfaces of transition pieces connecting circular duct and rectangular duct (For CIE Only)

#### Module-5

#### Multidisciplinary Applications & Practice (For CIE Only):

**Free hand Sketching;** True free hand, Guided Free hand, Roads, Buildings, Utensils, Hand tools & Furniture's etc **Drawing Simple Mechanisms;** Bicycles, Tricycles, Gear trains, Ratchets, two-wheeler cart & Four-wheeler carts to dimensions etc

**Electric Wiring and lighting diagrams;** Like, Automatic fire alarm, Call bell system, UPS system, Basic power distribution system using suitable software

**Basic Building Drawing;** Like, Architectural floor plan, basic foundation drawing, steel structures- Frames, bridges, trusses using Auto CAD or suitable software,

**Electronics Engineering Drawings**- Like, Simple Electronics Circuit Drawings, practice on layers concept. **Graphs & Charts**: Like, Column chart, Pie chart, Line charts, Gantt charts, etc. using Microsoft Excel or any suitable software.

## **Course Outcomes**

At the end of the course the student will be able to:

- CO 1. Drawand communicate the objects with definite shape and dimensions
- CO 2. Recognize and Draw the shape and size of objects through different views
- **CO 3.** Develop the lateral surfaces of the object
- CO 4. Create a Drawing views using CAD software.
- CO 5. Identify the interdisciplinary engineering components or systems through its graphical representation.

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## Assessment Details (both CIE and SEE):

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks) and that for SEE minimum passing marks is 35% of the maximum marks (18 marks). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination (SEE), and a minimum of 40% (40 marks out of 100) in the sum of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) takentogether.

## **Continuous Internal Evaluation (CIE)**

- CIE shall be evaluated for max. marks of 100 and later the same shall be scaled-down to 50 marks as detailed below:
- CIE component should comprise of Continuous evaluation of Drawing work of students as and when the Modules are covered based onbelow detailed weightage.

Module	Max. Marks	Evaluation Weightag	ge in marks
	Weightage	Computer display and print out	Sketching
		(a)	(b)
Module 1	15	10	05
Module 2	20	15	05
Module 3	20	20	00
Module 4	20	20	00
Module 5	25	15	10
Total	100	80	20
Consideration	on of Class work	Total of [(a) + (b)] = 100 Scaled down to 30 Marks	

- At least one **Test** covering all the modules is to be conducted for 100 marks and evaluation to be based SEE pattern, and the same is to be scaled down to **20Marks**.
- The final CIE = Class work marks + Test marks

## Semester End Examination (SEE)

- SEE shall be conducted and evaluated for maximum marks 100. Marks obtained shall be accounted for SEE final marks, reducing it by50%
- Question paper shall be set jointly by both Internal and External Examiner and made available for each batch as per schedule. *Questions are to be set preferably from TextBooks*.
- Related to Module-1: One full question can be set either from "points & lines" or "planes".
- Evaluation shall be carried jointly by both theexaminers.
- Scheme of Evaluation: *To be defined by the examiners jointly and the same shall be submitted to the university along with questionpaper.*
- One full question shall be set from each of the Module from Modules 1,2,3 and 4 as per the below tabled weightage details. *However, the student may be awarded full marks, if he/she completes solution on computer display withoutsketch.*

Module	Max. Marks	Evaluation Weightage in marks				
Weightage		Computer display and print out	Preparatory sketching			
		(a)	(b)			
Module 1	20	15	05			
Module 2	30	25	05			
Module 3	25	20	05			
Module 4	25	20	05			
Total	100	80	20			
Considerat	tion of SEE Marks	Total of (a) + (b) $\div$ 2 = Final SEE	marks			

#### Suggested Learning Resources:

#### **Text Books**

- S.N. Lal, & T Madhusudhan:, Engineering Visulisation, 1st Edition, Cengage, Publication
- Parthasarathy N. S., Vela Murali, Engineering Drawing, Oxford University Press, 2015.

#### **Reference Books**

- *Bhattacharya S. K.*, Electrical Engineering Drawing, New Age International publishers, second edition 1998, reprint2005.
- Chris Schroder, Printed Circuit Board Design using AutoCAD, Newnes, 1997.
- *K S Sai Ram* Design of steel structures, , Third Edition byPearson
- Nainan p kurian Design of foundation systems, Narosapublications
- A S Pabla, Electrical power distribution, 6th edition, Tata Mcgrawhill
- *Bhatt, N.D., Engineering Drawing: Plane and Solid Geometry*, 53<sup>rd</sup> edition, Charotar Publishing House Pvt. Limited, 2019.
- *K. R. Gopalakrishna, & Sudhir Gopalakrishna*: Textbook Of Computer Aided Engineering Drawing, 39<sup>th</sup>Edition, Subash Stores, Bangalore,2017

#### **COs and POs Mapping (**CO-PO mappings are only **Indicative)**

COs						P	Os					
	1	2	3	4	5	6	7	8	9	10	11	12
C01	3	2			3	1		1	1	3		2
CO2	3	2			3	1		1	1	3		2
CO3	3	2			3	1		1	1	3		2
CO4	3	3			3	1	1		1	3		1
CO5	3	2			3				1	3		2

Level 3- Highly Mapped, Level 2-Moderately Mapped, Level 1-Low Mapped, Level 0- Not Mapped

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Course Title:	INTRODUCTION 7	TO MECHANICAL ENGINEERING		
Course Code:		<b>BESCK104D/204D</b>	CIE Marks	50
Course Type		Theory	SEE Marks	50
(Theory/Practica	l/Integrated )		Total Marks	100
Teaching Hours/	Week (L:T:P: S)	2:2:0:0	Exam Hours	03
Total Hours of Pe	dagogy	40 hours	Credits	03

## **Course Learning Objectives**

- To develop basic Knowledge on Mechanical Engineering, Fundamentals and Energy Sources.
- Understand the concept of different types of Machine tool operations and Modern Manufacturing Processes like CNC, 3D printing.
- To know the concept of IC engines and Future Mobility vehicles.
- To give exposure in the field of Engineering Materials and Manufacturing Processes Technology and its applications
- To acquire a basic understanding role of Mechanical Engineering in the Robotics and Automation in industry.

## **Teaching-Learning Process**

- Adopt different types of teaching methods to develop the outcomes throughPowerPoint presentations and Video demonstrations or Simulations.
- Arrange visits to show the live working models other than laboratory topics.
- Adopt collaborative (Group Learning) Learning in the class.
- Adopt Problem Based Learning (PBL), which fosters students Analytical skills and develops thinking skills such as evaluating, generalizing, and analyzing information.

## Module-1 (8 hours)

**Introduction:** Role of Mechanical Engineering in Industries and Society- Emerging Trends and Technologies in different sectors such as Energy, Manufacturing, Automotive, Aerospace, and Marine sectors.

**Energy**: Introduction and applications of Energy sources like Fossil fuels, Nuclear fuels, Hydel, Solar, wind, and bio-fuels, Environmental issues like Global warming and Ozone depletion

## Module-2 (8 hours)

## Machine Tool Operations:

Working Principle of lathe, Lathe operations: Turning, facing, knurling. Working principles of Drilling Machine, drilling operations: drilling, boring, reaming. Working of Milling Machine, Milling operations: plane milling and slot milling.

(No sketches of machine tools, sketches to be used only for explaining the operations).

**Introduction to Advanced Manufacturing Systems:** Introduction, components of CNC, advantages and applications of CNC, 3D printing.

## Module-3 (8 hours)

**Introduction to IC Engines**: Components and Working Principles, 4-Strokes Petrol and Diesel Engines, Application of IC Engines.

**Insight into Future Mobility;** Electric and Hybrid Vehicles, Components of Electric and Hybrid Vehicles. Advantages and disadvantages of EVs and Hybrid vehicles.

## Module-4 (8 hours)

**Engineering Materials**: Types and applications of Ferrous & Nonferrous Metals, silica, ceramics, glass, graphite, diamond and polymer. Shape Memory Alloys. **Joining Processes**: Soldering, Brazing and Welding, Definitions, classification of welding process, Arc welding, Gas welding and types of flames.

Module-5 (8 hours)

# **152** <sup>16-2-2023</sup>

**Introduction to Mechatronics and Robotics:** open-loop and closed-loop mechatronic systems. Classification based on robotics configuration: polar cylindrical, Cartesian coordinate and spherical. Application, Advantages and disadvantages.

Automation in industry: Definition, types – Fixed, programmable and flexible automation, basic elements with block diagrams, advantages.

**Introduction to IOT**: Definition and Characteristics, Physical design, protocols, Logical design of IoT, Functional blocks, and communication models.

Course (	Course Outcome (Course Skill Set)							
At the en	d of the course the student will be able to:							
C01	Explain the concepts of Role of Mechanical Engineering and Energy sources.							
CO2	Describe the Machine Tool Operations and advanced Manufacturing process.							
CO3	Explain the Working Principle of IC engines and EV vehicles.							
CO4	Discuss the Properties of Common Engineering Materials and various Metal Joining							
	Processes.							
CO5	Explain the Concepts of Mechatronics, Robotics and Automation in IoT							

## Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination (SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

## Continuous Internal Evaluation(CIE):

Three Tests each of 20 Marks;

• 1<sup>st</sup>, 2<sup>nd,</sup> and 3<sup>rd</sup> tests shall be conducted after completion of the syllabus of 30-35%,

70-75%, and 90-100% of the course/s respectively.

 Assignments/Seminar/quiz/group discussion /field survey & report presentation/ course project/Skill development activities, suitably planned to attain the COs and POs for a total of 40 Marks.

If the nature of the courses requires assignments/Seminars/Quizzes/group discussion two evaluation components shall be conducted. If course project/field survey/skill development activities etc then the evaluation method shall be one.

## Total CIE marks (out of 100 marks) shall be scaled down to 50 marks

## Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English/Kannada). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

## Suggested Learning Resources:

Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year) Text Books:

- 1. Elements of Mechanical Engineering, K R Gopala Krishna, Subhash Publications, 2008
- 2. An Introduction to Mechanical Engineering, Jonathan Wickert and Kemper Lewis, Third Edition, 2012

## **Reference Books:**

1. Elements of Workshop Technology (Vol. 1 and 2), Hazra Choudhry and Nirzar Roy, Media

Promoters and Publishers Pvt. Ltd., 2010.

- 2. Manufacturing Technology- Foundry, Forming and Welding, P.N.Rao Tata McGraw Hill 3rdEd., 2003.
- 3. Internal Combustion Engines, V. Ganesan, Tata McGraw Hill Education; 4th edition, 2017
- 4. Robotics, Appu Kuttan KK K. International Pvt Ltd, volume 1
- 5. Dr SRN Reddy, Rachit Thukral and Manasi Mishra, "Introduction to Internet of Things: A Practical Approach", ETI Labs
- 6. Raj kamal, "Internet of Things: Architecture and Design", McGraw hill.

## Web links and Video Lectures (e-Resources):

- <u>https://rakhoh.com/en/applications-and-advantages-of-steam-in-manufacturing- and-process-industry/</u>)
- Videos | Makino (For Machine Tool Operation)

## Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- Demonstration of lathe/milling/drilling operations
- Demonstration of working of IC Engine.
- Study arc welding, oxy-acetylene gas flame structure.
- Video demonstration of latest trends in mobility robotics and Automation
- Demonstration of developing models on machine tools

COs		POs										
	1	2	3	4	5	6	7	8	9	10	11	12
CO1	3					1	2			1		1
CO2	3					1	1			1		1
CO3	3					1	1			1		1
CO4	3					1	1			1		1
CO5	3					1	1			1		1

## Theory - 01 Credit Course Indian Constitution

Course Title:	Indian Constitution		
Course Code:		CIE Marks	50
Course Type (Theory/Practical /Integrated)	BIGOK107-207	SEE Marks	50
	1.0.0.0	Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy Course objectives :	15 hours	Credits	01
The course INDIAN CONSTITUTION (22	ICO17 / 27) will enable th	ne students	
1. To know about the basic structure o		ie students,	
<ol> <li>To know the Fundamental Rights (F</li> </ol>		pental Duties (FD's) of ou	r constitution
<ol> <li>To know about our Union Governm</li> </ol>			i constitution.
<ol> <li>To know the State Executive &amp; Ele</li> </ol>	· 1	odes, procedures.	
5. To learn the Amendments and Emer	•	nnortant provisions given	by the constitution
	geney i tovisions, other in	iiportaiti provisions given	by the constitution.
<b>Teaching-Learning Process</b> These are sample Strategies, which teache	r can use to accelerate th	e attainment of the vari	ous course outcomes and
make Teaching –Learning more effective:			
process. The pedagogy shall involve the com	_		
(i) Direct instructional method ( Low/O		U	e
(iii) Blended learning (Combination	••••		-
learning, (vi) Problems based learning			5, (1) 1 615011411264
(ii) Apart from conventional lecture met		ovative teaching techniqu	es through videos.
animation films may be adapted so t			-
practical skills.			·····
Module-1 Indian Constitution: Necessity of the Const	titution, Societies before a		doption. Introduction to the
Module-1 Indian Constitution: Necessity of the Const Indian constitution, Making of the Constitution	titution, Societies before a on, Role of the Constituen	nd after the Constitution a t Assembly.	doption. Introduction to the
Module-1 Indian Constitution: Necessity of the Const Indian constitution, Making of the Constitution Module-2	titution, Societies before a on, Role of the Constituen (03 ho	nd after the Constitution a t Assembly. <b>Purs of pedagogy)</b>	-
Module-1           Indian Constitution: Necessity of the Const           Indian constitution, Making of the Constitution           Module-2           Salient features of India Constitution. Pream	titution, Societies before a on, Role of the Constituen <b>(03 ho</b> nble of Indian Constitution	nd after the Constitution a t Assembly. <b>Purs of pedagogy)</b> on & Key concepts of th	-
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Module-1         Indian Constitution: Necessity of the Constitution         Indian constitution, Making of the Constitution         Module-2         Salient features of India Constitution. Prear         Rights (FR's) and its Restriction and limit         Module-3         Directive Principles of State Policy (DPS and its Scope and significance in Nation, U         Minister, Union Cabinet.         Module-4         Parliament - LS and RS, Parliamentary Co         Supreme Court of India and other Courts, Jud         Module-5         State Executive and Governer, CM, State C         Process. Amendment to Constitution, and In         Course outcome (Course Skill Set)         At the end of the course 22IC017/27 the state	titution, Societies before a on, Role of the Constituen (03 ho nble of Indian Constitution ations in different Comple (03 ho SP's) and its present re Union Executive : Parliamo (03 ho ommittees, Important Parl dicial Reviews and Judicia (03 ho committees, Important Parl dicial Reviews and Judicia (03 ho committees, Legislature - VS uportant Constitutional An tudent will be able to: ian Constitution.	nd after the Constitution a t Assembly. <b>Purs of pedagogy)</b> on & Key concepts of the ex Situations. building. <b>Urs of pedagogy)</b> elevance in Indian soce entary System, Union Exc <b>Durs of pedagogy)</b> iamentary Terminologies il Activism. <b>Durs of pedagogy)</b> & VP, Election Commisses mendments till today. Eme	e Preamble. Fundamenta ciety. Fundamental Duties ecutive – President, Prime . Judicial System of India sion, Elections & Electoral ergency Provisions.
Module-1           Indian Constitution: Necessity of the Constitution           Indian constitution, Making of the Constitution           Indian constitution, Making of the Constitution           Module-2           Salient features of India Constitution. Prear           Rights (FR's) and its Restriction and limit           Module-3           Directive Principles of State Policy (DPS and its Scope and significance in Nation, U           Minister, Union Cabinet.           Module-4           Parliament - LS and RS, Parliamentary Co           Supreme Court of India and other Courts, Juce           Module-5           State Executive and Governer, CM, State C           Process. Amendment to Constitution, and In           Course outcome (Course Skill Set)           At the end of the course 22IC017/27 the st           C01         Analyse the basic structure of India	titution, Societies before a on, Role of the Constituen (03 ho mble of Indian Constitution ations in different Comple (03 ho SP's) and its present re Union Executive : Parliamo (03 ho ommittees, Important Parl dicial Reviews and Judicia (03 ho committees, Important Parl dicial Reviews and Judicia	nd after the Constitution a t Assembly. <b>Purs of pedagogy)</b> on & Key concepts of the ex Situations. building. <b>urs of pedagogy)</b> elevance in Indian soce entary System, Union Exce <b>Durs of pedagogy)</b> iamentary Terminologies 1 Activism. <b>Durs of pedagogy)</b> & VP, Election Commisses mendments till today. Eme ental Duties (FD's) of our	e Preamble. Fundamenta ciety. Fundamental Duties ecutive – President, Prime . Judicial System of India sion, Elections & Electoral ergency Provisions.
Module-1           Indian Constitution: Necessity of the Constitution           Indian constitution, Making of the Constitution           Indian constitution, Making of the Constitution           Module-2           Salient features of India Constitution. Prear           Rights (FR's) and its Restriction and limit           Module-3           Directive Principles of State Policy (DPS and its Scope and significance in Nation, U Minister, Union Cabinet.           Module-4           Parliament - LS and RS, Parliamentary Consupreme Court of India and other Courts, June Module-5           State Executive and Governer, CM, State Constitution, and Im           Course outcome (Course Skill Set)           At the end of the course 22IC017/27 the state CO1           Analyse the basic structure of India CO2	titution, Societies before a on, Role of the Constituen (03 ho nble of Indian Constitution ations in different Comple (03 ho SP's) and its present re Union Executive : Parliame (03 ho Ommittees, Important Parliation Committees, Important Parliation (03 ho committees, Important Parliation (10 ho committees, Important Parliati	nd after the Constitution a t Assembly. <b>Purs of pedagogy)</b> on & Key concepts of th ex Situations. building. <b>Urs of pedagogy)</b> elevance in Indian soc entary System, Union Exc <b>Durs of pedagogy)</b> iamentary Terminologies 1 Activism. <b>Durs of pedagogy)</b> & VP, Election Commisse mendments till today. Emc ental Duties (FD's) of our odes, procedures.	e Preamble. Fundamenta ciety. Fundamental Duties ecutive – President, Prime . Judicial System of India sion, Elections & Electoral ergency Provisions.

## Assessment Details (both CIE and SEE)

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## Continuous Internal Evaluation(CIE):

## Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration

#### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others.. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks

## Semester End Examinations (SEE)

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

## **Suggested Learning Resources:**

## **Textbook:**

- 1. "Constitution of India" (for Competitive Exams) Published by Naidhruva Edutech Learning Solutions, Bengaluru. 2022.
- 2. "Introduction to the Constitution of India", (Students Edition.) by Durga Das Basu (DD Basu): Prentice –Hall, 2008.

## **Reference Books:**

- 1. "Constitution of India, Professional Ethics and Human Rights" by Shubham Singles, Charles E. Haries, and et al: published by Cengage Learning India, Latest Edition 2019.
- 2. **"The Constitution of India"** by Merunandan K B: published by Merugu Publication, Second Edition, Bengaluru.
- 3. "Samvidhana Odu" for Students & Youths by Justice HN Nagamohan Dhas, Sahayana, kerekon.
- 4. M.Govindarajan, S.Natarajan, V.S.Senthilkumar, "Engineering Ethics", Prentice Hall, 2004.

#### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- $\checkmark$  For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions
- ✓ Seminars and assignments

Course Title:	Introduction to	C++ Programming		
Course Code:		BPLCK105D/BPLCK205D	CIE Marks	50
Course Type (Theor	y/Practical	Integrated	SEE Marks	50
/Integrated )			Total Marks	100
Teaching Hours/We	eek (L:T:P: S)	2:0:2	Exam Hours	03
Total Hours of Peda	gogy	40 hours	Credits	03

#### **Course objectives**

- Understanding about object oriented programming and Gain knowledge about the capability to store information together in an object.
- Understand the capability of a class to rely upon another class and functions.
- Understand about constructors which are special type of functions.
- Create and process data in files using file I/O functions
- Use the generic programming features of C++ including Exception handling

#### **Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective

- 1. Chalk and talk
- 2. Onine demonstration
- **3.** Hands on problem solving

## Module-1 (8 hours)

Introduction to Object Oriented Programming: Computer programming background- C++ overview. First C++ Program -Basic C++ syntax, Object Oriented Programming: What is an object, Classes, methods and messages, abstraction and encapsulation, inheritance, abstract classes, polymorphism.

## **Textbook 1: Chapter 1(1.1 to 1.8)**

Module-2 (8 hours)

Functions in C++: Tokens – Keywords – Identifiers and constants – Operators in C++ – Scope resolution operator – Expressions and their types – Special assignment expressions – Function prototyping – Call by reference – Return by reference – Inline functions -Default arguments – Function overloading.

## Textbook 2: Chapter 3(3.2,3.3,3.4,3.13,3.14,3.19, 3.20) , chapter 4(4.3,4.4,4.5,4.6,4.7,4.9) Module-3 (8 hours)

Inheritance & Polymorphism: Derived class Constructors, destructors-Types of Inheritance-Defining Derived classes, Single Inheritance, Multiple, Hierarchical Inheritance, Hybrid Inheritance.

## Textbook 2: Chapter 6 (6.2,6.11) chapter 8 (8.1 to,8.8)

Module-4 (8 hours)

I/O Streams: C++ Class Hierarchy- File Stream-Text File Handling- Binary File Handling during file operations.

Textbook 1: Chapter 12(12.5), Chapter 13 (13.6,13.7)

#### Module-5 (8 hours)

Exception Handling: Introduction to Exception - Benefits of Exception handling- Try and catch blockThrow statement- Pre-defined exceptions in C++

## Textbook 2: Chapter 13 (13.2 to13.6)

Cours	e outcome	(Course Skill Set)
At the	end of the o	course the student will be able to:
	CO1	Able to understand and design the solution to a problem using object-oriented
		programming concepts.
	CO2	
		Able to reuse the code with extensible Class types, User-defined operators and
		function Overloading.
	CO3	
		Achieve code reusability and extensibility by means of Inheritance and
		Polymorphism
	CO4	Invalue on the factures of $C_{1,1}$ is shuding towards a superfixed and file bondling for
		Implement the features of C++ including templates, exceptions and file handling for
		providing programmed solutions to complex problems.

Programming Assignments:

1. Write a C++ program to sort the elements in ascending and descending order.

2. Write a C++ program to find the sum of all the natural numbers from 1 to n.

3. Write a C++ program to swap 2 values by writing a function that uses call by reference technique.

4. Write a C++ program to demonstrate function overloading for the following prototypes.

*add(int a, int b) add(double a, double b)* 

5. Create a class named Shape with a function that prints "This is a shape". Create another class named Polygon inheriting the Shape class with the same function that prints "Polygon is a shape". Create two other classes named Rectangle and Triangle having the same function which prints "Rectangle is a polygon" and "Triangle is a polygon" respectively. Again, make another class named Square having the same function which prints "Square is a rectangle".Now, try calling the function by the object of each of these classes.

6.Suppose we have three classes Vehicle, FourWheeler, and Car. The class Vehicle is the base class, the class FourWheeler is derived from it and the class Car is derived from the class FourWheeler. Class Vehicle has a method 'vehicle' that prints 'I am a vehicle', class FourWheeler has a method 'fourWheeler' that prints 'I have four wheels', and class Car has a method 'car' that prints 'I am a car'. So, as this is a multi-level inheritance; we can have access to all the other classes methods from the object of the class Car. We invoke all the methods from a Car object and print the corresponding outputs of the methods.

So, if we invoke the methods in this order, car(), fourWheeler(), and vehicle(), then the output will be

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I have four wheels

I am a vehicle

Write a C++ program to demonstrate multilevel inheritance using this.

7. Write a C++ program to create a text file, check file created or not, if created it will write some text into the file and then read the text from the file.

8.Write aC++ program to write and read time in/from binary file using fstream

9. Write a function which throws a division by zero exception and catch it in catch block. Write a C++ program to demonstrate usage of try, catch and throw to handle exception.

10. Write a C++ program function which handles array of bounds exception using C++.

## Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

## Continuous Internal Evaluation(CIE):

The CIE marks for the theory component of the IC shall be **30 marks** and for the laboratory component **20 Marks**.

## CIE for the theory component of the IC

- Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.
- Two Assignments/two quizzes/ seminars/one field survey and report presentation/onecourse project totaling20 marks.

Total Marks scored (test + assignments) out of 80 shall be scaled down to 30 marks

## CIE for the practical component of the IC

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted at the end of the semester.
- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.

• The laboratory test **(duration 03 hours)** at the end of the 15<sup>th</sup> week of the semester /after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to **05 marks**.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

## Semester End Examination (SEE): SEE for IC

Theory SEE will be conducted by University as per the scheduled time table, with common question papers for the course (duration 03 hours)

- 1. The question paper will have ten questions. Each question is set for 20 marks.
- 2. There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.
- 3. The students have to answer 5 full questions, selecting one full question from each module.

The theory portion of the Integrated Course shall be for both CIE and SEE, whereas the practical

## portion will have a CIE component only. Questions mentioned in the SEE paper shall include

## questions from the practical component).

## Passing standard:

- The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks-30) in the theory component and 08 (40% of maximum marks -20) in the practical component. The laboratory component of the IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 04/05 questions to be set from the practical component of IPCC, the total marks of all questions should not be more than 30 marks.
- SEE will be conducted for 100 marks and students shall secure 35% of the maximum marks to qualify for the SEE. Marks secured will be scaled down to 50.

## Suggested Learning Resources:

**Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year)** Textbooks

1. Bhushan Trivedi, "Programming with ANSI C++", Oxford Press, Second Edition, 2012.

2. Balagurusamy E, Object Oriented Programming with C++, Tata McGraw Hill Education Pvt.Ltd , Fourth Edition 2010.

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Weblinks and Video Lectures (e-Resources):

- 1. Basics of C++ https://www.youtube.com/watch?v=BClS40yzssA
- 2. Functions of C++ <u>https://www.youtube.com/watch?v=p8ehAjZWjPw</u>

Tutorial Link:

- 1. https://www.w3schools.com/cpp/cpp\_intro.asp
- 2. https://www.edx.org/course/introduction-to-c-3

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

• Assign small tasks to Develop and demonstrate using C++

COs		POs					
-	1	2	3	4	5	6	7
CO1							
CO2							
CO3							
CO4							

## Theory - 01 Credit Course Scientific Foundations of Health

Course Title:	Scientific Foundation	s of Health	
Course Code:	BSFHK158/258	CIE Marks	50
Course Tures (The our (Due stice) (Interpreted)	Theory	SEE Marks	50
Course Type (Theory/Practical /Integrated)		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01
<b>Course objectives</b> The course Scientific Foundations of Heal	th (22SFH18/28) will enab	e the students,	

- 1. To know about Health and wellness (and its Beliefs) & It's balance for positive mindset.
- 2. To Build the healthy lifestyles for good health for their better future.
- 3. To Create a Healthy and caring relationships to meet the requirements of good/social/positive life.
- 4. To learn about Avoiding risks and harmful habits in their campus and outside the campus for their bright future
- 5. To Prevent and fight against harmful diseases for good health through positive mindset

#### **Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective:

Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

(i) Direct instructional method ( Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools),

(iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning,

(v) Personalized learning, (vi) Problems based learning through discussion, (vii) Following the method of expeditionary learning Tools and techniques, (viii) Use of audio visual methods.

Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

Module-1	(03 hours of pedagogy)
Good Health & It's balance for positive mindset: Health -Importanc	e of Health, Influencing factors of Health,
Health beliefs, Advantages of good health, Health & Behavior, Health & Socie	ety, Health & family, Health & Personality,
Psychological disorders-Methods to improve good psychological health, Changi	ng health habits for good health.
Module-2	(03 hours of pedagogy)
Building of healthy lifestyles for better future: Developing healthy diet	for good health, Food & health, Nutritional
guidelines for good health, Obesity & overweight disorders and its managemen	t, Eating disorders, Fitness components for
health Wellness and physical function How to avoid exercise injuries	
Module-3	(03 hours of pedagogy)
Creation of Healthy and caring relationships : Building communication	abilla Erianda and friandshin Education
	i skins, ritenus and menusinp - Education,
the value of relationship and communication skills, Relationships for Better of	
the value of relationship and communication skills, Relationships for Better of instincts of life (more than a biology), Changing health behaviours through soci	r worsening of life, understanding of basic
	r worsening of life, understanding of basic
instincts of life (more than a biology), Changing health behaviours through soci	r worsening of life, understanding of basic al engineering. (03 hours of pedagogy)

# **Preventing & fighting against diseases for good health:** How to protect from different types of infections, How to reduce risks for good health, Reducing risks & coping with chronic conditions, Management of chronic illness for Quality of life, Health & Wellness of youth :a challenge for upcoming future, Measuring of health & wealth status.

people and non addictive people & their behaviors. Effects of addictions Such as..., how to recovery from addictions.

Module-5

(03 hours of pedagogy)

# 26.10.2022

#### Course outcome (Course Skill Set) :

At the en	nd of the course Scientific Foundations of Health (22SFH18/28) the student will be able to:
C01	To understand and analyse about Health and wellness (and its Beliefs) & It's balance for positive mindset.
C02	Develop the healthy lifestyles for good health for their better future.
CO3	Build a Healthy and caring relationships to meet the requirements of good/social/positive life.
C04	To learn about Avoiding risks and harmful habits in their campus and outside the campus for their bright future.
C05	Prevent and fight against harmful diseases for good health through positive mindset.

## Assessment Details (both CIE and SEE) :

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### **Continuous Internal Evaluation(CIE) :**

#### Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration.

#### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others.. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

#### The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks

#### **Semester End Examinations (SEE)**

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

#### **Suggested Learning Resources:**

#### **Textbook:**

- 1. "Scientific Foundations of Health" Study Material Prepared by Dr. L Thimmesha, Published in VTU University Website.
- 2. "Scientific Foundations of Health", (ISBN-978-81-955465-6-5) published by Infinite Learning Solutions, Bangalore 2022.
- 3. **Health Psychology A Textbook,** FOURTH EDITION by Jane Ogden McGraw Hill Education (India) Private Limited Open University Press.

## **Reference Books:**

- 1. Health Psychology (Second edition) by Charles Abraham, Mark Conner, Fiona Jones and Daryl O'Connor Published by Routledge 711 Third Avenue, New York, NY 10017.
- 2. **HEALTH PSYCHOLOGY (Ninth Edition)** by SHELLEY E. TAYLOR University of California, Los Angeles, McGraw Hill Education (India) Private Limited Open University Press.
- 3. SWAYAM / NPTL/ MOOCS/ We blinks/ Internet sources/ YouTube videos and other materials / notes.
- **4. Scientific Foundations of Health (Health & Welness) General Books** published for university and colleges references by popular authors and published by the reputed publisher.

#### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- ✓ For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions, Seminars and assignments

## Theory - 01 Credit Course Professional Writing Skills in English

Course Title:	Professional Writing S		
Course Code:	BPWSK206-106	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01
<b>Course objectives:</b> The course Professional Writing Skills in Eng	alish (22PWS26) will enabl	e the students	
<b>.</b>			
1. To Identify the Common Errors in V			
2. To Achieve better Technical writing			
3. To read Technical proposals proper	•		
4. To Acquire Employment and Work			
5. To learn about Techniques of Inform	nation Transfer through pres	sentation in different le	evel.
Teaching-Learning Process			
These are sample Strategies, which teacher can			
Teaching –Learning more effective: Teachers sh		-	
shall involve the combination of different methods requirements of the Global employment market.	ologies which suit modern tech	monogical loois and soffw	are s to meet the present
(i) Direct instructional method ( Low/Old Te	echnology). (ii) Flinned classro	oms (High/advanced Tec	hnological tools) (iii) Blended
learning (Combination of both), (iv) Enquir			inioiogical toolo), (iii) Dichaed
(v) Personalized learning, (vi) Problems base			od of expeditionary learning
Tools and techniques, (viii) Use of audio vis		· · · <del>-</del>	
Apart from conventional lecture methods, various	types of innovative teaching te	chniques through videos	, animation films may be
adapted so that the delivered lesson can progress t	he students In theoretical appli	ed and practical skills in	teaching of communicative
skills in general.			
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Language Lab : To augment LSRW, gramm			
Language Lab : To augment LSRW, gramm Grammar, Vocabulary) through tests, activiti	es, exercises etc., comprehe		
Language Lab : To augment LSRW, gramm Grammar, Vocabulary) through tests, activiti can be referred as per the AICTE / VTU guid	es, exercises etc., comprehe lelines.	nsive web-based learn	
Language Lab : To augment LSRW, gramm Grammar, Vocabulary) through tests, activiti can be referred as per the AICTE / VTU guid Module-1	es, exercises etc., comprehe lelines. (03 hou	nsive web-based learn	ing and assessment systems
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## 26.10.2022

## Course outcome (Course Skill Set)

At the end	d of the course the student will be able to:
C01	To understand and identify the Common Errors in Writing and Speaking.
CO2	To Achieve better Technical writing and Presentation skills.
CO3	To read Technical proposals properly and make them to Write good technical reports.
CO4	Acquire Employment and Workplace communication skills.
C05	To learn about Techniques of Information Transfer through presentation in different level.

## Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

## Continuous Internal Evaluation(CIE):

## Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration

## Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (To have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

## The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks

## Semester End Examinations (SEE)

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

## **Suggested Learning Resources:**

## Textbook:

- 1) "Professional Writing Skills in English" published by Fillip Learning Education (ILS), Bangalore 2022.
- "Functional English" (As per AICTE 2018 Model Curriculum) (ISBN-978-93-5350-047-4) Cengage learning India Pvt Limited [Latest Edition 2019].

## **Reference Books:**

- 1) English for Engineers by N.P.Sudharshana and C.Savitha, Cambridge University Press 2018.
- 2) Technical Communication by Gajendra Singh Chauhan and Et al, (ISBN-978-93-5350-050-4), Cengage learning India Pvt Limited [Latest Revised Edition] 2019.
- **3)** Technical Communication Principles and Practice, Third Edition by Meenakshi Raman and Sangeetha Sharma, Oxford University Press 2017.
- 4) High School English Grammar & Composition by Wren and Martin, S Chandh & Company Ltd 2015.
- 5) Effective Technical Communication Second Edition by M Ashraf Rizvi, McGraw Hill Education (India) Private

## Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- ✓ For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions, Seminars and assignments

II Sei	mester (Civil	Engineering St		e academic year 20 (For the stu			tended	I sem	ester u	nder Ch	emistry	Group	)
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1	*ASC (IC)	BMATC201	Mathematics-II for Civil Engineering	Maths	2	2	2	0	03	50	50	100	04
2	#ASC (IC)	BPHYC202	Applied Physics for Civil Engineering	РНҮ	2	2	2	0	03	50	50	100	04
				Civil	2	2	0	0					
3	ESC	BCIVC203	Engineering Mechanics	Engineering Dept		1055			03	50	50	100	03
4	ESC-II	BESCK204x	Engineering Science Course-II	Respective Engg Dept	3	0	0	0	03	50	50	100	03
10	PLC-II	BPLCK205x	Programming Language Course-II	- In	2	0	2	0	03				
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6	AEC	÷	OR	Humanities	1	0	0	0	01	50	50	100	01
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		BICOK207	Indian Constitution										
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8	AEC/SDC		OR	Any Dept			5		01	50	50	100	01
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- 145	(ESC-II) Engineering Science Courses-II		0.000		(ETC-II) Emerging Technology Courses-II								
Code	Title	L	Т	P	Code	Title	L	Т	1				
BESCK204A	Introduction to Civil Engineering	3	0	0	BETCK205A	Smart materials and Systems	3	0	(				
BESCK204B	Introduction to Electrical Engineering	3	0	0	BETCK205B	Green Buildings	3	0	(				
BESCK204C	Introduction to Electronics Communication	3	0	0	BETCK205C	Introduction to Nano Technology	3	0	(				
BESCK204D	Introduction to Mechanical Engineering	3	0	0	BETCK205D	Introduction to Sustainable Engineering	3	0	0				
BESCK204E	Introduction to C Programming	Z	0	Z	BETCK205E	Renewable Energy Sources	3	0	C				
			;		BETCK205F	Waste Management	3	0	0				
					BETCK205G	Emerging Applications of Biosensors	3	0	0				
		1			BETCK205H	Introduction to Internet of Things(IoT)	3	0	0				
			x		BETCK205I	Introduction to Cyber Security	3	0	0				
					BETCK205J	Introduction to Embedded System	3	0	0				
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Code	Title	L	T	P									
BPLCK205A	Introduction to Web Programming	2	0	Z	í.		28 62						
BPLCK205B	Introduction to Python Programming	2	0	2					t				
BPLCK205C	Basics of JAVA programming	2	0	2	í.								
BPLCK205D	Introduction to C++ Programming	2	0	2				0.—.					
The course B DEPARTMEN		ng, a	nd	all	courses under	PLC and ETC groups can be taught by fa	culty o	of A	N				

- Engineering
- The students have to opt for the courses from ESC group without repeating the course in either 1\* or 2<sup>nd</sup> semester
- The students must select one course from either ETC-II or PLC-II group.
- If students study the subject from ETC-I in 1st semester he/she has to select the course from PLC-II in the 2nd semester and vice-versa

Course Title:	ENGINEERING MECHAN	ICS	
Course Code:	BCIVC103/203	CIE Marks	50
Course Type	Theory	SEE Marks	50
(Theory/Practical/Integrated)	Theory	Total Marks	100
Teaching Hours/Week (L:T:P: S)	2:2:0:0	Exam Hours	03
Total Hours of Pedagogy	25 hrs Lecture+25 hrs Tutorial = 50 hrs	Credits	03

## **Course objectives**

- To develop students' ability to analyze the problems involving forces, moments with their applications.
- To analyse the member forces in trusses
- To make students to learn the effect of friction on different planes
- To develop the student's ability to find out the centre of gravity and moment of inertia and their applications.
- To make the students learn about kinematics and kinetics and their applications.

## **Teaching-Learning Process**

These are sample Strategies; which teachers can use to accelerate the attainment of the various course outcomes.

- 1. Lecture method (L) does not mean only the traditional lecture method, but a different type of teaching method may be adopted to develop the outcomes.
- 2. Show Video/animation films to explain the infrastructures and the mechanism involved in the principle.
- 3. Encourage collaborative (Group) Learning in the class.
- 4. Ask at least three HOT (Higher-order Thinking) questions in the class, which promotes critical thinking.
- 5. Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develop thinking skills such as the ability to evaluate, generalize, and analyze information rather than simply recall it.
- 6. Topics will be introduced in multiple representations.
- 7. Show the different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.
- 8. Discuss how every concept can be applied to the real world and when that's possible, it helps improve the students' understanding.
- 9. Individual teachers can device innovative pedagogy to improve teaching-learning.

## Module-1 (10)

**Resultant of coplanar force system:** Basic dimensions and units, Idealisations, Classification of force system, principle of transmissibility of a force, composition of forces, resolution of a force, Free body diagrams, moment, Principle of moments, couple, Resultant of coplanar concurrent force system, Resultant of coplanar non-concurrent force system, Numerical examples.

## Module-2 (10)

**Equilibrium of coplanar force system:** Equilibrium of coplanar concurrent force system, Lami's theorem, Equilibrium of coplanar parallel force system, types of beams, types of loadings, types of supports, Equilibrium of coplanar non-concurrent force system, support reactions of statically determinate beams subjected to various types of loads, Numerical examples.

#### Module-3(10)

**Analysis of Trusses:** Introduction, Classification of trusses, analysis of plane perfect trusses by the method of joints and method of sections, Numerical examples.

**Friction:** Introduction, laws of Coulomb friction, equilibrium of blocks on horizontal plane, equilibrium of blocks on inclined plane, ladder friction, wedge friction Numerical examples.

## Module-4(10)

**Centroid of Plane areas:** Introduction,Locating the centroid of rectangle, triangle, circle, semicircle, quadrant and sector of a circle using method of integration, centroid of composite areas and simple built up sections, Numerical examples.

**Moment of inertia of plane areas:**Introduction, Rectangular moment of inertia, polar moment of inertia, product of inertia, radius of gyration, parallel axes theorem, perpendicular axis theorem, moment of inertia of rectangular, triangular and circular areas from the method of integration, moment of inertia of composite areas and simple built up sections, Numerical examples.

#### Module-5 (10)

## **Kinematics:**

Linear motion: Introduction, Displacement, speed, velocity, acceleration, acceleration due to gravity, Numerical examples on linear motion

Projectiles: Introduction, numerical examples on projectiles.

**Kinetics:**Introduction, D 'Alembert's principle of dynamic equilibrium and its application in-plane motionand connected bodies including pulleys, Numerical examples.

## Course outcome (Course Skill Set)

At the end of the course the student will be able to:

C01	Compute the resultant of a force system and resolution of a force
CO2	Comprehend the action for forces, moments, and other types of loads on rigid bodies and
	compute the reactive forces
CO3	Analyse the frictional resistance offered by different planes
CO4	Locate the centroid and compute the moment of inertia of sections
C05	Analyze the bodies in motion

## Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

## Continuous Internal Evaluation(CIE):

Three Tests each of 20 Marks;

• 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> tests shall be conducted after completion of the syllabus of 30-35%,

70-75%, and 90-100% of the course/s respectively.

 Assignments/Seminar/quiz/group discussion /field survey & report presentation/ course project/Skill development activities, suitably planned to attain the COs and POs for a total of 40 Marks.

If the nature of the courses requires assignments/Seminars/Quizzes/group discussion two evaluation components shall be conducted. If course project/field survey/skill development activities etc then the evaluation method shall be one.

## Total CIE marks (out of 100 marks) shall be scaled down to 50 marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time.Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others. The Teachers shall choose the types of assessment depending on the requirement of the course and plan to attain the COs and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

## Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

## Suggested Learning Resources:

Text Books

- 1. Bansal R. K., Rakesh Ranjan Beohar and Ahmad Ali Khan, Basic Civil Engineering and Engineering Mechanics, 2015,Laxmi Publications.
- 2. Kolhapure B K, Elements of Civil Engineering and Engineering Mechanics, 2014, EBPB

## **Reference Books:**

- 1. Beer F.P. and Johnston E. R., Mechanics for Engineers, Statics and Dynamics, 1987, McGraw Hill.
- 2. Irving H. Shames, Engineering Mechanics, 2019, Prentice-Hall.
- 3. Hibbler R. C., Engineering Mechanics: Principles of Statics and Dynamics, 2017, Pearson Press.
- 4. Timoshenko S, Young D. H., Rao J. V., Engineering Mechanics, 5th Edition, 2017, Pearson Press.
- 5. Bhavikatti S S, Engineering Mechanics, 2019, New Age International
- 6. Reddy Vijaykumar K and Suresh Kumar K, Engineering Mechanics, 2011, BS publication

## Web links and Video Lectures (e-Resources):

- <u>https://www.youtube.com/watch?v=nGfVTNfNwnk&list=PLOSWwFV98rfKXq2KBphJz95rao7q8PpwT</u>
- <u>https://www.youtube.com/watch?v=nkg7VNW9UCc&list=PLOSWwFV98rfKXq2KBphJz95rao7q8PpwT&i ndex=2</u>
- <u>https://www.youtube.com/watch?v=ljDIIMvxeg&list=PLOSWwFV98rfKXq2KBphJz95rao7q8PpwT&index=5</u>
- <u>https://www.youtube.com/watch?v=VQRcChR9IkU&list=PLOSWwFV98rfKXq2KBphJz95r</u> <u>ao7q8PpwT&index=18</u>
- <u>https://www.youtube.com/watch?v=3YBXteL-qY4</u>
- <u>https://www.youtube.com/watch?v=z95UW4wwzSc&list=PLOSWwFV98rfKXq2KBphJz95r</u> <u>ao7q8PpwT&index=10</u>
- <u>https://www.youtube.com/watch?v=lheoBL2QaqU&list=PLOSWwFV98rfKXq2KBphJz95rao</u> 7q8PpwT&index=7
- <u>https://www.youtube.com/watch?v=atoP5\_DeTPE</u>
- https://www.youtube.com/watch?v=ksmsp9OzAsI
- <u>https://www.youtube.com/watch?v=x1ef048b3CE</u>
- https://www.youtube.com/watch?v=l\_Nck-X49qc
- https://play.google.com/store/apps/details?id=appinventor.ai\_jgarc322.Resultant\_Force
- https://www.youtube.com/watch?v=RIBeeW1DSZg
- <u>https://www.youtube.com/watch?v=R8wKV0UQtlo</u>
- <u>https://www.youtube.com/watch?v=0RZHHgL8m\_A</u>
- <u>https://www.youtube.com/watch?v=Bls5KnQOWkY</u>

Activity-Based Learning (Suggested Activities in Class)/ Practical Based learning

- <u>https://www.youtube.com/watch?v=Zrc\_gB1YYS0</u>
- <u>https://play.google.com/store/apps/details?id=vn.edu.best4u.com.bieudonoiluc</u>
- <u>https://www.youtube.com/watch?v=Hn\_iozUo9m4</u>
- <u>https://play.google.com/store/apps/details?id=com.teobou</u>
- <u>https://www.youtube.com/watch?v=WOHRp3V-QA0</u>

CO2         2         3	12
CO2         2         3	
CO3         2         3	
<u>CO4</u> 2 3	
CO5 2 3 .	
Level 3- Highly Mapped, Level 2-Moderately Mapped, Level 1-Low Mapped, Level 0- Not Map	ped

## 16-2-2023

## II Semester

Course Title: Mathematics-II for Civil Engineering stream							
Course Code:	BMATC201	CIE Marks	50				
Course Type	Integrated	SEE Marks	50				
(Theory/Practical/Integrated)		Total Marks	100				
Teaching Hours/Week (L:T:P: S)	2:2:2:0	Exam Hours	03				
Total Hours of Pedagogy	40 hours Theory + 10 to 12 Lab slots	Credits	04				

Course objectives: The goal of the course Mathematics-II for Civil Engineering stream (22MATC21) is to

- **Familiarize** the importance of Integral calculus and Vector calculus essential for civil engineering.
- Analyze Civil engineering problems by applying Partial Differential Equations.
- **Develop** the knowledge of solving civil engineering problems numerically.

## **Teaching-Learning Process**

## Pedagogy (General Instructions):

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

- 1. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted so that the delivered lessons shall develop students' theoretical and applied mathematical skills.
- 2. State the need for Mathematics with Engineering Studies and Provide real-life examples.
- 3. Support and guide the students for self-study.
- 4. You will also be responsible for assigning homework, grading assignments and quizzes, and documenting students' progress.
- 5. Encourage the students to group learning to improve their creative and analytical skills.
- 6. Show short related video lectures in the following ways:
  - As an introduction to new topics (pre-lecture activity).
  - As a revision of topics (post-lecture activity).
  - As additional examples (post-lecture activity).
  - As an additional material of challenging topics (pre-and post-lecture activity).
  - As a model solution of some exercises (post-lecture activity).

## Module-1:Integral Calculus (8 hours)

## Introduction to Integral Calculus in Civil Engineering applications.

**Multiple Integrals:** Evaluation of double and triple integrals, evaluation of double integrals by change of order of integration, changing into polar coordinates. Applications to find Area and Volume by double integral.Problems.

**Beta and Gamma functions:** Definitions, properties, relation between Beta and Gamma functions. Problems.

Self-Study: Volume by triple integration, Center of gravity.

**Applications:** Applications to mathematical quantities (Area, Surface area, Volume), Analysis of probabilistic models.

(RBT Levels: L1, L2 and L3)

## Module-2:Vector Calculus(8 hours)

Introduction to Vector Calculus in Civil Engineering applications.

**Vector Differentiation:** Scalar and vector fields. Gradient, directional derivative, curl and divergence - physical interpretation, solenoidal and irrotational vector fields. Problems.

**Vector Integration:** Line integrals, Surface integrals. Applications to work done by a force and flux. Statement of Green's theorem and Stoke's theorem. Problems.

Self-Study: Volume integral and Gauss divergence theorem.

**Applications:** Heat and mass transfer, oil refinery problems, environmental engineering. Analysis of streamlines, velocity and acceleration of a moving particle.

(RBT Levels: L1, L2 and L3)

## Module-3:Partial Differential Equations (PDEs)(8 hours)

Importance of partial differential equations for Civil Engineering applications

Formation of PDE's by elimination of arbitrary constants and functions. Solution of nonhomogeneous PDE by direct integration. Homogeneous PDEs involving derivatives with respect to one independent variable only. Solution of Lagrange's linear PDE.Derivation of one-dimensional heat equation and wave equation.

**Self-Study:** Solution of one-dimensional heat equation and wave equation by the method of separation of variables.

Applications: Design of structures (vibration of rod/membrane)

(RBT Levels: L1, L2 and L3)

Module-4:Numerical Methods -1(8 hours)

**Importance of numerical methods for discrete data in the field of Civil Engineering.** Solution of algebraic and transcendental equations: Regula-Falsi and Newton-Raphson methods

Solution of algebraic and transcendental equations: Regula-Falsi and Newton-Raphson methods (only formulae). Problems.

Finite differences, Interpolation using Newton's forward and backward difference formulae, Newton's divided difference formula and Lagrange's interpolation formula (All formulae without proof). Problems.

Numerical integration: Trapezoidal, Simpson's  $(1/3)^{rd}$  and  $(3/8)^{th}$  rules (without proof). Problems.

Self-Study: Bisection method, Lagrange's inverse Interpolation.

**Applications:** Estimating the approximate roots, extremum values, area, volume, and surface area. Finding approximate solutions to civil engineering problems.

(RBT Levels: L1, L2 and L3)

Module-5:Numerical Methods -2(8 hours)

Introduction to various numerical techniques for handling Civil Engineering applications.

Numerical Solution of Ordinary Differential Equations (ODE's): Numerical solution of ordinary differential equations of first order and first degree - Taylor's series method, Modified Euler's method, Runge-Kutta method of fourth order and Milne's predictor-corrector formula (No derivations of formulae). Problems.

Self-Study: Adam-Bashforth method.

**Applications:** Finding approximate solutions to ODE related to civil engineering fields. **(RBT Levels: L1, L2 and L3)** 

## 16-2-2023

	f Laboratory experiments (2 hours/week per batch/ batch strength 15)					
10 lab	sessions + 1 repetition class + 1 Lab Assessment					
1	Program to compute surface area, volume and centre of gravity					
2	Evaluation of improper integrals					
3	Finding gradient, divergent, curl and their geometrical interpretation					
4	Verification of Green's theorem					
5	Solution of one-dimensional heat equation and wave equation					
6	Solution of algebraic and transcendental equations by Regula-Falsi and Newton-Raphson method					
7	Interpolation/Extrapolation using Newton's forward and backward difference formula					
8	Computation of area under the curve using Trapezoidal, Simpson's (1/3) <sup>rd</sup> and (3/8) <sup>th</sup> rule					
9	Solution of ODE of first order and first degree by Taylor's series and Modified Euler's					
	method					
10	Solution of ODE of first order and first degree by Runge-Kutta 4 <sup>th</sup> order and Milne's					
	predictor-corrector method					
Sugge	sted software's: Mathematica/MatLab/Python/Scilab					
Cours	e outcome (Course Skill Set)					
At the	end of the course the student will be able to:					
CO1	Apply the knowledge of multiple integrals to compute area and volume.					
CO2	Understand the applications of vector calculus refer to solenoidal, irrotational vectors, line integral and surface integral.					
CO3	Demonstrate partial differential equations and their solutions for physical interpretations.					
CO4	Apply the knowledge of numerical methods in solving physical and engineering					
	phenomena.					
CO5	Get familiarize with modern mathematical tools namely					
	MATHEMATICA/MATLAB/PYTHON/SCILAB					
	ward Data la (hath CIE and CEE)					

## Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

## **Continuous Internal Evaluation(CIE):**

The CIE marks for the theory component of the IC shall be **30 marks** and for the laboratory component **20 Marks**.

## CIE for the theory component of the IC

- Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.
- Two Assignments/two quizzes/ seminars/one field survey and report presentation/one-course project totalling 20 marks.

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## Total Marks scored (test + assignments) out of 80 shall be scaled down to **30 marks CIE for the practical component of the IC**

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted at the end of the semester.
- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.
- The laboratory test (duration 03 hours) at the end of the 15<sup>th</sup> week of the semester/after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to 05 marks.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

## Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English/Kannada). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

## Suggested Learning Resources:

Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year) Text Books

- 1. **B. S. Grewal**: "Higher Engineering Mathematics", Khanna Publishers, 44<sup>th</sup>Ed., 2021.
- 2. E. Kreyszig: "Advanced Engineering Mathematics", John Wiley & Sons, 10<sup>th</sup>Ed., 2018.

## **Reference Books**

- 1. V. Ramana: "Higher Engineering Mathematics" McGraw-Hill Education, 11<sup>th</sup> Ed., 2017
- 2. Srimanta Pal & Subodh C.Bhunia: "Engineering Mathematics" Oxford University Press, 3<sup>rd</sup>Ed., 2016.
- 3. **N.P Bali and Manish Goyal**: "A Textbook of Engineering Mathematics" Laxmi Publications, 10<sup>th</sup>Ed., 2022.
- 4. **C. Ray Wylie, Louis C. Barrett:** "Advanced Engineering Mathematics" McGraw Hill Book Co., New York, 6<sup>th</sup> Ed., 2017.
- 5. **Gupta C.B, Sing S.R and Mukesh Kumar:** "Engineering Mathematic for Semester I and II", Mc-Graw Hill Education(India) Pvt. Ltd 2015.
- 6. **H.K. Dass and Er. Rajnish Verma:** "Higher Engineering Mathematics" S.Chand Publication, 3<sup>rd</sup> Ed., 2014.
- 7. James Stewart: "Calculus" Cengage Publications, 7<sup>th</sup>Ed., 2019.

## Web links and Video Lectures (e-Resources):

- <u>http://nptel.ac.in/courses.php?disciplineID=111</u>
- <u>http://www.class-central.com/subject/math(MOOCs)</u>
- http://academicearth.org/
- VTU e-Shikshana Program
- VTU EDUSAT Program

## Activity-Based Learning (Suggested Activities in Class)/Practical-Based Learning

- Quizzes
- Assignments
- Seminar

## COs and POs Mapping (Individual teacher has to fill up)

COs	POs						
	1	2	3	4	5	6	7
CO1							
CO2							
CO3							
CO4							
CO5							
Level 3- Hi	ghly Mapped,	Level 2-Mo	derately Map	ped, Lev	el 1-Low Mappe	d, Level 0- N	ot Mapped

## 16-2-2023

Course Title:	Applied Physics for CV Stream				
Course Code:	BPHYC102/202	CIE Marks	50		
Course Type (Theory/Dreatical/Integrated	Integrated	SEE Marks	50		
Course Type (Theory/Practical/Integrated)	Integrated	Total Marks	100		
Teaching Hours/Week (L:T:P: S)	2:2:2:0	Exam Hours	03		
Total Hours of Pedagogy	40 hours Theory + 10-12 Lab slots	Credits	04		

#### **Course objectives**

- To understand the types of oscillation, shock waves & its generation, and applications.
- To Study the elastic properties of materials and failures of engineering materials
- To Study the acoustics buildings and the essentials of radiometry and photometry.
- To understand the principles photonic devices and their application relevant to civil engineering.
- To understand the various natural disaster and safety

#### **Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective

- 1. Flipped Class
- 2. Chalk and Talk
- 3. Blended Mode of Teaching and Learning
- 4. Simulations, Interactive Simulations and Animations
- 5. NPTEL and Other Videos for theory topics
- 6. Smart Class Room
- 7. Lab Experiment Videos

#### Module-1 (8 Hours)

#### Module -I: Oscillations and Shock waves:

**Oscillations:** Simple Harmonic motion (SHM), Differential equation for SHM (No derivation), Sprigs: Stiffness Factor and its Physical Significance, Series and Parallel combination of springs (Derivation), Types of Springs and their applications. Theory of Damped oscillations (Qualitative), Types of Damping (Graphical Approach). Engineering applications of Damped oscillations, Theory of Forced oscillations (Qualitative), Resonance, Sharpness of resonance. Numerical Problems.

**Shock waves:** Mach number and Mach Angle, Mach Regimes, Definition and Characteristics of Shock waves, Construction and working of Reddy Shock tube, Applications of Shock Waves, Numerical problems.

#### **Pre-requisites: Basics of Oscillations**

#### Self-learning: Simple Harmonic motion, Differential equation for SHM

#### Module-2 (8 Hours)

#### Elasticity

Stress-Strain Curve, Stress hardening and softening. Elastic Moduli, Poisson's ratio, Relation between Y, n and  $\sigma$  (with derivation), mention relation between K, Y and  $\sigma$ , limiting values of Poisson's ratio. Beams, Bending moment and derivation of expression, Cantilever and I section girder and their Engineering Applications, Elastic materials (qualitative). Failures of engineering materials - Ductile fracture, Brittle fracture, Stress concentration, Fatigue and factors affecting fatigue (only qualitative explanation), Numerical problems.

#### Pre requisites: Elasticity,Stress & Strain

Self-learning: Stress-Strain Curve

#### Module-3 (8 Hours)

#### Acoustics, Radiometry and Photometry:

**Acoustics:** Introduction to Acoustics, Types of Acoustics, Reverberation and reverberation time, Absorption power and Absorption coefficient, Requisites for acoustics in auditorium, Sabine's formula (derivation), Measurement of absorptioncoefficient, Factors affecting the acoustics and remedial measures, Sound Insulation and itsmeasurements. Noise and its Measurements, Impact of Noise in Multi-storied buildings.

**Radiometry and Photometry:** Radiation Quantities, Spectral Quantities, Relation between luminance and Radiantquantities, Reflectanceand Transmittance, Photometry (cosinelaw and inverse square law).

Prerequisites:BasicsofSound,Waves&lightproperties. Self-learning:Introductiontoacoustics.

Module-4 (8 Hours)

## Photonics:

#### LASER

Properties of a LASER Beam, Interaction of Radiation with Matter, LASER action, Population Inversion, MetastableState, Requisites of a LASER System, Semiconductor LASER, LASER Range Finder, LIDAR, Road Profiling, BridgeDeflection, SpeedChecker, NumericalProblems.

#### OpticalFiber

Principle and Construction of Optical Fibers, Acceptance angle and Numerical Aperture (NA), Expression for NA, Modes of Propagation, Attenuation and Fiber Losses, Fiber Optic Displacement Sensor, Fiber Optic Temperature Sensor, Numerical Problems

#### Pre requisite: Propertiesof light.

Self-learning: Total Internal Reflection.

#### Module-5 (8 Hours)

#### NaturalhazardsandSafety

Introduction, Earthquake, (general characteristics, Physics of earthquake, Richter scale of measurement and earthquakeresistant measures), Tsunami (causes for tsunami, characteristics, adverse effects, risk reduction measures, engineeringstructures to withstand tsunami), Landslide (causes such as excess rain fall, geological structure, human excavation etc.,types of land slide, adverse effects, engineering solution for landslides). Forest Fires and detection using remote sensing.Firehazardsandfireprotection,fire-proofingmaterials,firesafetyregulationsandfirefightingequipment-Preventionandsafety measures.NumericalProblems.

#### Pre requisite: Oscillations.

#### Self-learning:Richterscale.

#### Course outcome (Course Skill Set)

 At the end of the course the student will be able to:

 CO1
 Elucidate the concepts in oscillations, waves, elasticity and material failures

 CO2
 Summarize concepts of acoustics in buildings and explain the concepts in radiation and photometry

 CO3
 Discuss the principles photonic devices and their application relevant to civil engineering.

 CO4
 Describe the various natural hazards and safety precautions.

 CO5
 Practice working in groups to conduct experiments in physics and perform precise and honest measurements.

#### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### **Continuous Internal Evaluation(CIE):**

The CIE marks for the theory component of the IC shall be **30 marks** and for the laboratory component **20 Marks**.

#### CIE for the theory component of the IC

- Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.
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Total Marks scored (test + assignments) out of 80 shall be scaled down to **30 marks** 

## CIE for the practical component of the IC

• On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be

awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted at the end of the semester.

- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.
- The laboratory test (**duration 03 hours**) at the end of the 15<sup>th</sup> week of the semester /after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to **05 marks**.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

• The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

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- The question paper shall be set for 100 marks. The medium of the question paper shall be English/Kannada). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.

There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 subquestions), **should have a mix of topics** under that module.

### Suggested Learning Resources:

#### Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year)

- 1. Materials Science and Engineering by R Balasubramaniam, second edition, Wiley India Pvt. Ltd. Ansari Road, Daryaganj, New Delhi-110002.
- 2. A Textbook of Engineering Physics by M .N. Avadhanulu, P G. Kshirsagar and T V S Arun Murthy, Eleventh edition, S Chand and Company Ltd. New Delhi-110055.
- 3. Engineering Physics by R. K. Gaur and S. L. Gupta, 2010 edition, Dhanpat Rai Publications Ltd., New Delhi-110002,
- 4. Building Science: Lighting and Accoustics, B. P. Singh and Devaraj Singh, Dhanpat Rai Publications (P) Ltc.,
- 5. Building Acoustics : Tor Eric Vigran, Taylor and Francis, 2008 Edition.
- 6. Photometry Radiometry and Measurements of Optical Losses, Micheal Bukshtab, Springer, 2<sup>nd</sup> edition.
- 7. Materials Science for Engineers by James F. Shackelford and Madanapalli K Muralidhara, sixth edition, Pearson Education Asia Pvt. Ltd., New Delhi.
- 8. Lasers and Non Linear Optics, B B Loud, New Age Internationals, 2011 edition
- 9. Shock waves made simple by Chintoo S Kumar, K Takayama and K P J Reddy: Willey India Pvt. Ltd, Delhi 2014.
- 10. An Introduction to Disaster Management, Natural Disastr & Man Made Hazards, S. Vaidyanathan, IKON Books P
- 11. Natural Hazards, Edward Bryant, Cambridge University, Press, 2<sup>nd</sup> Edition
- 12. Natural Hazards by Ramesh .P. Singh, CRC Press, Taylor and Francis group.
- 13. Disaster Education and Management, Rajendra Kumar Bhandari, Springer, India 2014
- 14. Principles of Fire Safety Engineering Understanding Fire & Fire Protection, Akhil Kumar Das, PHI Learning , II Edition.

#### Web links and Video Lectures (e-Resources):

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### Web links:

Simple Harmonic motion: https://www.youtube.com/watch?v=k2FvSzWeVxQ Shock waves: https://physics.info/shock/ Shock waves and its applications: https://www.youtube.com/watch?v=tz\_3M3v3kxk Stress-strain curves: https://web.mit.edu/course/3/3.11/www/modules/ss.pdf Stress curves: https://www.youtube.com/watch?v=f08Y39UiC-o Oscillations and waves : https://openstax.org > books > college-physics-2e Earthquakes: www.asc-india.org Earthquakes and Hazards: http://quake.usgs.gov/tsunami Landslide hazards: http://landslides.usgs.gov Acoustics: https://www.youtube.com/watch?v=fHBPvMDFyO8

### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

http://nptel.ac.in

https://swayam.gov.in

https://virtuallabs.merlot.org/vl physics.html

https://phet.colorado.edu

https://www.myphysicslab.com

### Laboratory Component:

Any Ten Experiments have to be completed from the list of experiments

Note: The experiments have to be classified into

a) Exercise

- b) Demonstration
- c) Structured Inquiry

d) Open Ended

Based on the convenience classify the following experiments into above categories. Select at least one simulation/spreadsheet activity.

### <u>List of Experiments</u>

- 1. Determination of Young's modulus of the material of the given bar Uniform Bending.
- 2. Determination of Rigidity modulus of the Material of the wire using Torsional Pendulum.
- 3. Study of Forced Mechanical Oscillations and Resonance.
- 4. Study of the frequency response of Series & Parallel LCR circuits.
- 5. Determination of Fermi Energy of the given Conductor.
- 6. Determination of Resistivity by Four Probe Method.
- 7. Determination of effective spring constant of the given springs in series and parallel combinations.
- 8. Determination of Young's modlus of the material of the given bar Single Cantilever.
- 9. Determination of the the Moment of Inertia of the given irregular body using torsional pendulum.
- 10. Determination of Wavelength of Laser using Diffraction Grating.
- 11. Determination of Acceptance angle and Numerical Aperture of the given Optical Fiber.
- 12. Determination of the Radius of Curvature of the given Plano Convex Lens by setting Newton's Rings.
- 13. Step Interactive Physical Simulations.
- 14. Study of motion using spread Sheets
- 15. Application of Statistics using Spread Sheets.
- 16. PHET Interactive Simulations :

(https://phet.colorado.edu/en/simulations/filter?subjects=physics&type=html.prototype)

## 16-2-2023

COs and	l POs M	apping (I	ndividua	l teacher	has to fil	l up)						
60		POs								-		
COs	1	2	3	4	5	6	7	8	9	10	11	12
CO1	3	2	-	-	1	-	-	-	-	-	-	2
CO2	3	2	-	-	-	-	-	-	-	-	-	2
CO3	3	2	-	-	-	-	-	-	-	-	-	2
CO4	3	3	-	-	-	1	-	-	-	-	-	2
CO5	3	2	1	-	2	-	-	3	3	-	-	2
Level 3- Highly Mapped, Level 2-Moderately Mapped, Level 1-Low Mapped												
Note : The CO-PO mapping values are indicative. The course coordinator can alter the mapping using Competency and												
Perform	ance Ind	licators m	nentioned	in the AI	CTE Exa	ım reforr	ns					

Communicative English Course Title:	Communicative Engli	sh	
Course Code:	BENGK106-206	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S) Total Hours of Pedagogy	1:0:0:0 15 hours	Exam Hours Credits	01 Theory 01
<ol> <li>Course objectives: The course Communicative</li> <li>To know about Fundamentals of Communicative</li> <li>To train to identify the nuances of photogeneous and the second second</li></ol>	nunicative English and Co netics, intonation and enha essentials of important lan	ommunication Skills i nce pronunciation skills guage skills.	n general. s for better Communication skill
4. To enhance with English vocabulary a			on skills.
5. To learn about Techniques of Informat Teaching-Learning Process :	tion Transfer through prese	entation.	
Teachers shall adopt suitable pedagogy for effective methodologies which suit modern technological tool (i) Direct instructional method ( Low/Ol Blended learning (Combination of both) (v) Personalized learning, (vi) Problems learning Tools and techniques, (viii) Use Apart from conventional lecture methods, various ty adapted so that the delivered lesson can progress the skills in general. Language Lab :_To augment LSRW, grammar Grammar, Vocabulary) through tests, activities,	s and software's to meet the p d Technology), (ii) Flipped cl , (iv) Enquiry and evaluation based learning through discus e of audio visual methods thro pes of innovative teaching tec students In theoretical applied and Vocabulary skills (Lis	present requirements of assrooms (High/advanc based learning, ssion, (vii) Following th bugh language Labs in t hniques through videos d and practical skills in stening, Speaking, Re	the Global employment market eed Technological tools), (iii) ne method of expeditionary eaching of of LSRW skills. a, animation films may be teaching of communicative eading, Writing and
can be referred as per the AICTE / VTU guidel			(03 hours of pedagogy
Introduction to Communicative English : Co		damentals of Comm	
Communication, Barriers to Effective Commun	•		-
Interpersonal and Intrapersonal Communication	n Skills.		
Ma	dule-2		(03 hours of pedagogy
Introduction to Phonetics : Phonetic Trans	cription, English Pronunci	iation, Pronunciation	Guidelines to consonants an
vowels, Sounds Mispronounced, Silent and Nor	n silent Letters, Syllables a	nd Structure. Word A	Accent, Stress Shift and
		n Pronunciation.	
Intonation, Spelling Rules and Words often Mis	sspelt. Common Errors in		
	sspelt. Common Errors 11 dule-3		(03 hours of pedagogy)
Мо	dule-3		
Mo Basic English Communicative Gramma	dule-3 r and Vocabulary PAI	<b>RT - I :</b> Grammar: Ba	asic English Grammar and
Mo Basic English Communicative Gramma Parts of Speech, Articles and Preposition. Ques	dule-3 r and Vocabulary PAI tion Tags, One Word Subs	<b>RT - I :</b> Grammar: Ba	asic English Grammar and
Mo Basic English Communicative Gramma Parts of Speech, Articles and Preposition. Ques	dule-3 r and Vocabulary PAI tion Tags, One Word Subs	<b>RT - I :</b> Grammar: Ba	asic English Grammar and
Mo Basic English Communicative Gramma Parts of Speech, Articles and Preposition. Ques Introduction to Vocabulary, All Types of Vocal	dule-3 r and Vocabulary PAI tion Tags, One Word Subs	<b>RT - I :</b> Grammar: Ba	asic English Grammar and
Mo Basic English Communicative Gramma Parts of Speech, Articles and Preposition. Ques Introduction to Vocabulary, All Types of Vocal Mod	dule-3 r and Vocabulary PAI tion Tags, One Word Subs pulary – Exercises on it. lule-4	<b>RT - I :</b> Grammar: Batitutes, Strong and W	asic English Grammar and Yeak forms of words, (03 hours of pedagogy)
Mo Basic English Communicative Gramma Parts of Speech, Articles and Preposition. Ques Introduction to Vocabulary, All Types of Vocal Mod Basic English Communicative Grammar an	dule-3 r and Vocabulary PAI tion Tags, One Word Subs pulary – Exercises on it. lule-4 d Vocabulary PART - II	<b>RT - I :</b> Grammar: Batitutes, Strong and W Words formation - F	asic English Grammar and Yeak forms of words, (03 hours of pedagogy) Prefixes and Suffixes,
Mo Basic English Communicative Gramma Parts of Speech, Articles and Preposition. Ques Introduction to Vocabulary, All Types of Vocal Mod Basic English Communicative Grammar an Contractions and Abbreviations. Word Pairs (M	dule-3 r and Vocabulary PAI tion Tags, One Word Subs pulary – Exercises on it. lule-4 d Vocabulary PART - II linimal Pairs) – Exercises,	<b>RT - I :</b> Grammar: Batitutes, Strong and W Words formation - F	asic English Grammar and Yeak forms of words, (03 hours of pedagogy) Prefixes and Suffixes,
Mo Basic English Communicative Gramma Parts of Speech, Articles and Preposition. Ques Introduction to Vocabulary, All Types of Vocal Mod Basic English Communicative Grammar an Contractions and Abbreviations. Word Pairs (M Tenses (Rules in use of Tenses) and Exercises of	dule-3 r and Vocabulary PAI tion Tags, One Word Subs pulary – Exercises on it. lule-4 d Vocabulary PART - II linimal Pairs) – Exercises,	<b>RT - I :</b> Grammar: Batitutes, Strong and W Words formation - F	asic English Grammar and Yeak forms of words, (03 hours of pedagogy) Prefixes and Suffixes,
Mo Basic English Communicative Gramma Parts of Speech, Articles and Preposition. Ques Introduction to Vocabulary, All Types of Vocal Mod Basic English Communicative Grammar an Contractions and Abbreviations. Word Pairs (M Tenses (Rules in use of Tenses) and Exercises of Mod	dule-3 r and Vocabulary PAI tion Tags, One Word Subs pulary – Exercises on it. lule-4 d Vocabulary PART - II linimal Pairs) – Exercises, on it. ule-5	<b>RT - I :</b> Grammar: Batitutes, Strong and W :Words formation - I Tense and Types of t	asic English Grammar and Teak forms of words, (03 hours of pedagogy) Prefixes and Suffixes, tenses, The Sequence of (03 hours of pedagogy)
Basic English Communicative Gramma Parts of Speech, Articles and Preposition. Ques Introduction to Vocabulary, All Types of Vocal Mod Basic English Communicative Grammar an Contractions and Abbreviations. Word Pairs (M Tenses (Rules in use of Tenses) and Exercises of Mod Communication Skills for Employment :Inf	dule-3r and Vocabulary PAItion Tags, One Word Subsbulary – Exercises on it.lule-4d Vocabulary PART - IIlinimal Pairs) – Exercises,on it.ule-5formation Transfer:Oral Press	<b>RT - I :</b> Grammar: Batitutes, Strong and W :Words formation - F Tense and Types of t esentation and its Pra	asic English Grammar and Yeak forms of words, (03 hours of pedagogy) Prefixes and Suffixes, tenses, The Sequence of (03 hours of pedagogy) ctice. Difference between
Mo Basic English Communicative Gramma Parts of Speech, Articles and Preposition. Ques Introduction to Vocabulary, All Types of Vocal Mod Basic English Communicative Grammar an Contractions and Abbreviations. Word Pairs (M Tenses (Rules in use of Tenses) and Exercises of Mod	dule-3r and Vocabulary PAItion Tags, One Word Subsbulary – Exercises on it.lule-4d Vocabulary PART - IIlinimal Pairs) – Exercises,on it.ule-5formation Transfer:Oral Press	<b>RT - I :</b> Grammar: Batitutes, Strong and W :Words formation - F Tense and Types of t esentation and its Pra	asic English Grammar and Yeak forms of words, (03 hours of pedagogy Prefixes and Suffixes, tenses, The Sequence of (03 hours of pedagogy ctice. Difference between

### 26.10.2022

Course outcome (Course Skill Set)					
At the end of the course Communicative English (22ENG16) the student will be able to:					
C01	Understand and apply the Fundamentals of Communication Skills in their communication skills.				
CO2	Identify the nuances of phonetics, intonation and enhance pronunciation skills.				
CO3 To impart basic English grammar and essentials of language skills as per present requirement.					

### CO4 Understand and use all types of English vocabulary and language proficiency.

CO5 Adopt the Techniques of Information Transfer through presentation.

### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

### Continuous Internal Evaluation(CIE):

### Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration

### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others.. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks

### Semester End Examinations (SEE)

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

### Suggested Learning Resources:

### Textbook:

- 1) Communication Skills by Sanjay Kumar & Pushp Lata, Oxford University Press India Pvt Ltd 2019.
- 2) A Textbook of English Language Communication Skills, (ISBN-978-81-955465-2-7), Published by Infinite Learning Solutions, Bengaluru 2022.

### **Reference Books:**

- 1. **Technical Communication** by Gajendra Singh Chauhan and Et al, (ISBN-978-93-5350-050-4), Cengage learning India Pvt Limited [Latest Revised Edition] 2019.
- 2. English for Engineers by N.P.Sudharshana and C.Savitha, Cambridge University Press 2018.
- English Language Communication Skills Lab Manual cum Workbook, Cengage learning India Pvt Limited [Latest Revised Edition] – (ISBN-978-93-86668-45-5), 2019.
- 4. A Course in Technical English D Praveen Sam, KN Shoba, Cambridge University Press 2020.
- 5. **Practical English Usage** by Michael Swan, Oxford University Press 2016.

### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- $\checkmark$  For active participation of students instruct the students to prepare Flowcharts and Handouts
- $\checkmark$  Organising Group wise discussions Connecting to placement activities
- $\checkmark$  Quizzes and Discussions, Seminars and assignments

Course Title	Introduction to C I	Programming		
ourse Code:		BESCK104E/204E	CIE Marks	50
ourse Type (T	Theory/Practical /Integrated )	Integrated	SEE Marks	50
			Total Marks	100
	s/Week (L:T:P: S)	2:0:2:0	Exam Hours	03
otal Hours of	Pedagogy eObjectives:	40 hours	Credits	03
CLO CLO	<ol> <li>Elucidate the basic architecture and</li> <li>Apply programming constructs of</li> <li>Explore user-defined data structure problems</li> <li>Design and Develop Solutions to functions and procedures</li> </ol>	C language to solve the resolve arrays, structures are	eal-world problems and pointers in implement	0
	ing-LearningProcess(GeneralInstrates are sampleStrategies, which teachers can		nentofthevariouscourse	outcomes
	Lecturer method (L) need not to be			
1.	teaching methods could be adopted	•	ethou, but anomative e	lieeuve
2				
2.	Use of Video/Animation to explain	e	•	
3.	Encourage collaborative (Group Le			•.• •
4.	Ask atleast three HOT(Higher orde thinking.			
5.	Adopt Problem Based Learning (PI thinking skills such as the ability to simply recall it.		•	
6.	Introduce Topics in manifold repres	sentations.		
7.	Show the different ways to solve th	e same problem and enco	urage the students to co	ome up with
	their own creative ways to solve the	em.	-	_
8.	Discuss how every concept can be a improve the students' understanding	applied to the real world-a	and when that's possible	e, it helps to
9.	Use https://pythontutor.com/visuali Mod	ze.html#mode=edit in orde ule-1 (6 Hours of Pedage		tions of C Programs
Introdu progra	<b>luction to C:</b> Introduction to con uction to C, Structure of C program, ms, variables, constants, Input/output <b>ook: Chapter 1.1-1.9, 2.1-2.2, 8.1</b> –	Files used in a C progra t statements in C,		
Teach	ing-LearningProcess	Chalkandtalkmethod/I	PowerPointPresentation	l
	Mod	ule-2 (6 Hours of Pedage	ogy)	
Operat	tors in C, Type conversion and typeca	asting.		
iterativ	on control and Looping statements we statements, nested loops, break and ook: Chapter 9.15-9.16, 10.1-10.6	l continue statements, got	o statement.	C
Teach	ing-LearningProcess	Chalkandtalkmethod/I	PowerPointPresentation	l
I	Module	-3 (6 Hours of Pedagogy	)	
	ntroduction using functions, Function neters to functions, scope of variables			ll, return statemer
	aration of arrays, accessing the element			ns on arrays,

Passing arrays to functions,	
Textbook: Chapter 11.1-11.13, 12.1-12.6	
Teaching-LearningProcess	Chalkandtalkmethod/PowerPointPresentation
M	Iodule-4 (6 Hours of Pedagogy)
Two dimensional arrays, operations on two- arrays.	-dimensional arrays, two-dimensional arrays to functions, multidimensiona
Applications of arrays and introduction to	<b>b</b> strings: Applications of arrays, case study with sorting techinques.
<b>Introduction to strings:</b> Reading strings, Suppressing input using a Scanset.	writing strings, summary of functions used to read and write characters

Teaching-LearningProcess	Chalkandtalkmethod/PowerPointPresentation			
	odule-5 (6 Hours of Pedagogy)			
Strings: String taxonomy, operations on strin	ngs, Miscellaneous string and character functions, arrays of strings.			
Pointers: Understanding the Computers Memory, Introduction to Pointers, Declaring Pointer Variables				
Structures: Introduction to structures				
T 4 1 CI 4 101 10 C 141 140 15	1			
<u>Textbook: Chapter 13.1-13.6, 14.1-14.3,15.</u> Teaching-LearningProcess	.I Chalkandtalkmethod/PowerPointPresentation			
CourseOutcomes(CourseSkillSet)	1			
Attheendofthecoursethestudentwillbeableto:				
CO1. Elucidate the basic architecture and fu	unctionalities of a computer and also recognize			
the hardware parts.				
CO 2. Apply programming constructs of C	language to solve the real world problem			
CO 3.Explore user-defined data structures l	ike arrays in implementing solutions to			
problems like searching and sorting				
CO 4.Explore user-defined data structures limplementing solutions	ike structures, unions and pointers in			
CO5.Design and Develop Solutions to prob	elems using modular programming constructs			

### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation (CIE):

The CIE marks for the theory component of the IC shall be **30 marks** and for the laboratory component **20 Marks**.

CIE for the theory component of the IC

- Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.
- Two Assignments/two quizzes/ seminars/one field survey and report presentation/one-course project totaling 20 marks.

Total Marks scored (test + assignments) out of 80 shall be scaled down to **30 marks** 

### CIE for the practical component of the IC

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted at the end of the semester.
- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks.
   Marks of all experiments' write-ups are added and scaled down to 15 marks.
- The laboratory test **(duration 03 hours)** at the end of the 15<sup>th</sup> week of the semester /after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to **05 marks**.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

### Semester End Examination (SEE):

### SEE for IC

Theory SEE will be conducted by University as per the scheduled time table, with common question papers for the course (duration 03 hours)

- 1. The question paper will have ten questions. Each question is set for 20 marks.
- 2. There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.
- 3. The students have to answer 5 full questions, selecting one full question from each module.

The theory portion of the Integrated Course shall be for both CIE and SEE, whereas the practical portion

# will have a CIE component only. Questions mentioned in the SEE paper shall include questions from the practical component).

### Passing standard:

- The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks-30) in the theory component and 08 (40% of maximum marks -20) in the practical component. The laboratory component of the IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 04/05 questions to be set from the practical component of IPCC, the total marks of all questions should not be more than 30 marks.
- SEE will be conducted for 100 marks and students shall secure 35% of the maximum marks to qualify for the SEE. Marks secured will be scaled down to 50.

### Suggested Learning Resources:

### Textbooks

1. Computer fundamentals and programming in c, "Reema Thareja", Oxford University, Second edition, 2017.

### **Reference Books:**

- 1. E. Balaguruswamy, Programming in ANSI C, 7th Edition, Tata McGraw-Hill.
- 2. Brian W. Kernighan and Dennis M. Ritchie, The 'C' Programming Language, Prentice Hall of India.

### Web links and Video Lectures (e-Resources):

- 1. elearning.vtu.ac.in/econtent/courses/video/BS/15PCD23.html
- 2. https://nptel.ac.in/courses/106/105/106105171/ MOOC courses can be adopted for more clarity in understanding the topics and verities of problem solving methods.

### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- Quizzes
- Assignments
- Seminars

### Lab Assignments

1	C Program to find Mechanical Energy of a particle using $E = mgh+1/2 mv2$ .
2	C Program to convert Kilometers into Meters and Centimeters.
3	C Program To Check the Given Character is Lowercase or Uppercase or Special Character.
4	Program to balance the given Chemical Equation values x, y, p, q of a simple chemical equation of the
	type: The task is to find the values of constants $b_1$ , $b_2$ , $b_3$ such that the equation is balanced on both sides and it must be the reduced form.
5	

7	SortthegivensetofNnumbersusingBubblesort.	
8	Writefunctionstoimplementstringoperationssuchascompare,concatenate,stringlength.Convinceth eparameterpassingtechniques.	
9	Implementstructurestoread, writeand compute average- marks and the students scoring above and below the average marks for a class of N students.	
10	Developaprogramusingpointerstocompute the sum, mean and standard deviation of all elements stored in an array of Nreal numbers.	

Course Title:	Waste Managemen	t		
Course Code:		BETCK105F/205F	CIE Marks	50
Course Type (Theory/Practical		Theory	SEE Marks	50
/Integrated )			Total Marks	100
Teaching Hours/Week (L:T:P: S)		3:0:0:0	Exam Hours	3 hrs of Theory
Total Hours of Pedagogy		40 hours	Credits	03

#### **Course objectives**

- To learn broader understandings on various aspects of solid waste management practiced in industries.
- To learn recovery of products from solid waste to compost and biogas, incineration and energy recovery,
  - hazardous waste management and treatment, and integrated waste management.

#### **Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective

- 1. Include traditional teaching learning process such as Chalk and Talk using writing boards.
- 2. Construct graphical and pictorial representation of the subject in the form of Chart, hand-outs or PowerPoint presentations.
- 3. Collaborate with students how tools are applied to solve biological problems.
- 4. Integrate real time case studies in various scientific tools used.
- 5. Reflective approaches on analysing how and why the tools are used in self-reflected or published data.
- 6. Incorporate Inquiry based approach using demonstration, field study, experiments and project work

### Module-1 (08)

### INTRODUCTION TO SOLID WASTE MANAGEMENT:

Classification of solid wastes (source and type based), solid waste management (SWM), elements of SWM, ESSWM (environmentally sound solid waste management) and EST (environmentally sound technologies), factors affecting SWM, Indian scenario, progress in MSW (municipal solid waste) management in India.Indian and global scenario of e-waste,

### Module-2 (08)

### WASTE GENERATION ASPECTS:

Waste stream assessment (WSA), waste generation and composition, waste characteristics (physical and chemical), health and environmental effects (public health and environmental), comparative assessment of waste generation and composition of developing and developed nations, a case study results from an Indian city, handouts on solid waste compositions. E-waste generation.

#### Module-3 (08)

### COLLECTION, STORAGE, TRANSPORT AND DISPOSAL OF WASTES:

Waste Collection, Storage and Transport: Collection components, storage-containers/collection vehicles, collection operation, transfer station, waste collection system design, record keeping, control, inventory and monitoring, implementing collection and transfer system, a case study. Waste Disposal: key issues in waste disposal, disposal options and selection criteria, sanitary landfill, landfill gas emission, leachate formation, environmental effects of landfill, landfill operation issues, a case study.

#### Module-4 (08)

### WASTE PROCESSING TECHNIQUES & SOURCE REDUCTION, PRODUCT RECOVERY & RECYCLING:

Purpose of processing, mechanical volume and size reduction, component separation, drying and dewatering. Source Reduction, Product Recovery and Recycling: basics, purpose, implementation monitoring and evaluation of source reduction, significance of recycling, planning of a recycling programme, recycling programme elements, commonly recycled materials and processes, a case study.

#### Module-5 (08)

### HAZARDOUS WASTE MANAGEMENT AND TREATMENT:

Identification and classification of hazardous waste, hazardous waste treatment, pollution prevention and waste minimization, hazardous wastes management in India. E-waste recycling.

### Course outcome (Course Skill Set)

At the end of the course the student will be able to:

At the en	u of the course the student will be able to.
C01	Apply the basics of solid waste management towards sustainable development
CO2	Apply technologies to process waste and dispose the same.
CO3	Design working models to convert waste to energy
C04	Identify and classify hazardous waste and manage the hazard

### **Assessment Details (both CIE and SEE)**

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

### Continuous Internal Evaluation(CIE):

Three Tests each of 20 Marks;

• 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> tests shall be conducted after completion of the syllabus of 30-35%,

70-75%, and 90-100% of the course/s respectively.

 Assignments/Seminar/quiz/group discussion /field survey & report presentation/ course project/Skill development activities, suitably planned to attain the COs and POs for a total of 40 Marks.

If the nature of the courses requires assignments/Seminars/Quizzes/group discussion two evaluation components shall be conducted. If course project/field survey/skill development activities etc then the evaluation method shall be one.

### Total CIE marks (out of 100 marks) shall be scaled down to 50 marks

### Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks.
- Students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

### Suggested Learning Resources:

Books

### **Text Books:**

1. Tchobaanoglous, G., Theisen, H., and Samuel A Vigil, Integrated Solid Waste Management, McGraw-Hill Publishers, 1993.

2. Bilitewski B., Hard He G., Marek K., Weissbach A., and Boeddicker H., Waste Management, Springer, 1994.

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### **Reference Books:**

1. White, F. R., Franke P. R., & Hindle M., Integrated solid waste management: a life cycle inventory. McDougall, P. John Wiley & Sons. 2001

2. Nicholas, P., & Cheremisinoff, P. D., Handbook of solid waste management and waste minimization

technologies, Imprint of Elsevier Science. 2005

### Web links and Video Lectures (e-Resources):

- https://nptel.ac.in/courses/105103205
- https://www.youtube.com/watch?v=k0ktJRoRcOA
- https://nptel.ac.in/courses/103/107/103107125/
- https://onlinecourses.nptel.ac.in/noc22\_ce76/preview
- https://onlinecourses.swayam2.ac.in/cec20\_ge13/preview

### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- AV presentation by students (on specific topics).
- Discussion of case studies based on research findings.
- Model making and Poster presentations

#### COs and POs Mapping (Individual teacher has to fill up) COs POs 1 7 9 2 3 4 5 6 8 10 11 12 C01 3 3 3 3 3 **CO2** 3 **CO3** 3 3 3 **CO4** 3 3 3 Level 3- Highly Mapped, Level 2-Moderately Mapped, Level 1-Low Mapped, Level 0- Not Mapped

### I Semester

Learning

INNOVATION and DESIGN THINKING			
Course Code	<b>BIDTK158/258</b>	CIE Marks	50
Teaching Hours/Week (L: T:P: S)	1:0:0	SEE Marks	50
Total Hours of Pedagogy	15	Total Marks	100
Credits	01	Exam Hours	01

### Course Category: Foundation

**Preamble:** This course provides an introduction to the basic concepts and techniques of engineering and reverses engineering, the process of design, analytical thinking and ideas, basics and development of engineering drawing, application of engineering drawing with computer aide. **Course objectives:** 

- To explain the concept of design thinking for product and service development
- To explain the fundamental concept of innovation and design thinking
- To discuss the methods of implementing design thinking in the real world.

### **Teaching-Learning Process (General Instructions)**

These are sample Strategies; which teachers can use to accelerate the attainment of the various course outcomes.

- **1.** Lecturer method (L) does not mean only the traditional lecture method, but a different type of teaching method may be adopted to develop the outcomes.
- 2. Show Video/animation films to explain concepts
- 3. Encourage collaborative (Group Learning) Learning in the class
- **4.** Ask at least three HOTS (Higher-order Thinking) questions in the class, which promotes critical thinking
- **5.** Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develops thinking skills such as the ability to evaluate, generalize, and analyze information rather than simply recall it.
- **6.** Topics will be introduced in multiple representations.
- **7.** Show the different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.
- **8.** Discuss how every concept can be applied to the real world and when that's possible, it helps improve the students' understanding.

Module-1			
PROCESS OF DESIGN			
Understanding Design thinking			
Shared mode	el in team-based design – Theory and practice in Design thinking – Explore presentation		
signers across globe – MVP or Prototyping			
Teaching-	Introduction about the design thinking: Chalk and Talk method		
Learning	Theory and practice through presentation		
Process	MVP and Prototyping through live examples and videos		
Module-2			
Tools for Design Thinking			
Real-Time design interaction capture and analysis – Enabling efficient collaboration in digital space			
– Empathy for design – Collaboration in distributed Design			
<b>Teaching-</b> Case studies on design thinking for real-time interaction and analysis			

Process	Simulation exercises for collaborated enabled design thinki	nσ								
1100035	Live examples on the success of collaborated design thinkin	•								
	Module-3	6								
Design T	hinking in IT									
-	hinking to Business Process modelling – Agile in Virtual collaborati	on environment – Scenario								
_	ototyping									
Teaching	- Case studies on design thinking and business acceptance of the	e design								
Learning	Simulation on the role of virtual eco-system for collaborated p	prototyping								
Process										
	Module-4									
	rategic innovations									
	Story telling representation – Strategic Foresight - Change – S	-								
	e – Value redefinition - Extreme Competition – experience of	_								
Humaniza design.	tion - Creative Culture – Rapid prototyping, Strategy and Orga	anization – Business Mode								
Teaching	- Business model examples of successful designs									
Learning	Presentation by the students on the success of design									
Process	Live project on design thinking in a group of 4 students									
<b>D</b> 1 1	Module-5									
	nking workshop inking Work shop Empathize, Design, Ideate, Prototype and Test									
Teaching	- 8 hours design thinking workshop from the expect and then pro	esentation by the students								
Learning		5								
Process										
Course O	utcomes:									
Upon the	successful completion of the course, students will be able to:									
CO		Knowledge Level								
Nos.	Course Outcomes	(Based on revised								
		Bloom's Taxonomy)								
CO1	Appreciate various design process procedure	K2								
CO2	Generate and develop design ideas through different technique	K2								
CO3	Identify the significance of reverse Engineering toUnderstand products	К2								
C04	Draw technical drawing for design ideas	К3								

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### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together. **Continuous Internal Evaluation (CIE)**:

- Two Tests (preferably in MCQ pattern ) each of **30 Marks**; The first test after the completion of the 40 -50% syllabus of the course. A second test after the completion of 90-100% of the syllabus of the course.
- Two Assignments/two quizzes/two seminars/one field survey and report

presentation/one-course project totaling 40 marks

Total Marks scored (test + assignments) out of 100 shall be scaled down to 50 marks

At the beginning of the semester, the instructor/faculty teaching the course has to announce the methods of CIE for the course.

The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

### Semester-End Examination:

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for subject

SEE paper will be set for 50 questions of each of 01 marks. The pattern of the question paper is MCQ. The time allotted for SEE is **01 hour** 

### Suggested Learning Resources:

### **Text Books :**

- 1. John.R.Karsnitz, Stephen O'Brien and John P. Hutchinson, "Engineering Design", Cengage learning (International edition) Second Edition, 2013.
- 2. Roger Martin, "The Design of Business: Why Design Thinking is the Next Competitive Advantage", Harvard Business Press, 2009.
- 3. Hasso Plattner, Christoph Meinel and Larry Leifer (eds), "Design Thinking: Understand Improve Apply", Springer, 2011
- 4. Idris Mootee, "Design Thinking for Strategic Innovation: What They Can't Teach You at Business or Design School", John Wiley & Sons 2013.

**References**:

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5. Yousef Haik and Tamer M.Shahin, "Engineering Design Process", CengageLearning, Second
Edition, 2011.
6. Book - Solving Problems with Design Thinking - Ten Stories of What Works (Columbia Business
School Publishing) Hardcover – 20 Sep 2013 by Jeanne Liedtka (Author), Andrew King (Author),
Kevin Bennett (Author).
Web links and Video Lectures (e-Resources):
1. www.tutor2u.net/business/presentations/. /productlifecycle/default.html
2. https://docs.oracle.com/cd/E11108_02/otn/pdf/. /E11087_01.pdf
3. www.bizfilings.com > Home > Marketing > Product Developmen
4. <u>https://www.mindtools.com/brainstm.html</u>
5. https://www.quicksprout.com/. /how-to-reverse-engineer-your-competit
6. <u>www.vertabelo.com/blog/documentation/reverse-engineering</u>
https://support.microsoft.com/en-us/kb/273814
7. <u>https://support.google.com/docs/answer/179740?hl=en</u>
8. <u>https://www.youtube.com/watch?v=2mjSDIBaUlM</u>
thevirtualinstructor.com/foreshortening.html
https://dschool.stanford.edu//designresources//ModeGuideBOOTCAMP2010L.pdf
https://dschool.stanford.edu/use-our-methods/ 6. https://www.interaction-
design.org/literature/article/5-stages-in-the-design-thinking-process 7.
http://www.creativityatwork.com/design-thinking-strategy-for-innovation/ 49 8.
https://www.nngroup.com/articles/design-thinking/ 9.
https://designthinkingforeducators.com/design-thinking/ 10.
www.designthinkingformobility.org/wp-content//10/NapkinPitch_Worksheet.pdf
Activity Based Learning (Suggested Activities in Class)/ Practical Based learning
<ul> <li>http://dschool.stanford.edu/dgift/</li> </ul>

https://onlinecourses.nptel.ac.in/noc19\_mg60/preview

Theory - 01 Credit Course

### ಬಳಕೆ ಕನ್ನಡ - baLake Kannada (Kannada for Usage)

### ಕನ್ನಡ ಕಲಿಕೆಗಾಗಿ <u>ನಿಗದಿ</u>ಪಡಿಸಿದ ಪಠ್ಯಪುಸ್ತಕ - (Prescribed Textbook to Learn Kannada)

Course Title:	ಬಳಕೆ ಕನ್ನಡ							
Course Code:	BKBKK107-207	CIE Marks	50					
Course Type (Theory/Practical /Integrated	Theory	SEE Marks	50					
course Type (Theory) Plactical / Integrated		Total Marks	100					
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory					
Total Hours of Pedagogy	15 hours	Credits	01					

### Course objectives : ಬಳಕೆ ಕನ್ನಡ ಪಠ್ಯ ಕಲಿಕೆಯ ಉದ್ದೇಶಗಳು:

The course (22KBK17/27) will enable the students,

- 1. To Create the awareness regarding the necessity of learning local language for comfortable and healthy life.
- 2. To enable learners to Listen and understand the Kannada language properly.
- 3. To speak, read and write Kannada language as per requirement.
- 4. To train the learners for correct and polite conservation.
- 5. To know about Karnataka state and its language, literature and General information about this state.

### ಬೋಧನೆ ಮತ್ತು ಕಲಿಕಾ ವ್ಯವಸ್ಥೆ (Teaching-Learning Process - General Instructions) :

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

- ಬಳಕೆ ಕನ್ನಡವನ್ನು ತರಗತಿಯಲ್ಲಿ ಶಿಕ್ಷಕರು ಬೋಧಿಸಲು ವಿಟಿಯು ಸೂಚಿಸಿರುವ ಪಠ್ಯಪುಸ್ತಕವನ್ನು ಉಪಯೊಗಿಸಬೇಕು.
- ಪ್ರಮುಖ ಅಂಶಗಳ ಚಾರ್ಟ್ ಗಳನ್ನು ತಯಾರಿಸಲು ವಿದ್ಯಾರ್ಥಿಗಳನ್ನು ಉತ್ತೇಜಿಸುವುದು ಮತ್ತು ತರಗತಿಯಲ್ಲಿ ಅವುಗಳನ್ನು ಚರ್ಚಿಸಲು ಅವಕಾಶ ಮಾಡಿಕೊಡುವುದು.
- 3. ಪ್ರತಿ ವಿದ್ಯಾರ್ಥಿ ಪುಸ್ತಕವನ್ನು ತರಗತಿಯಲ್ಲಿ ಬಳಸುವಂತೆ ನೋಡಿಕೊಳ್ಳುವುದು ಮತ್ತು ಪ್ರತಿ ಪಾಠ ಮತ್ತು ಪ್ರವಚನಗಳ ಮೂಲ ಅಂಶಗಳಿಗೆ ಸಂಬಂಧಪಟ್ಟಂತೆ ಪೂರಕ ಚಟುವಟಿಕೆಗಳಿಗೆ ತೊಡಗಿಸತಕ್ಕದ್ದು.
- 4. ಡಿಜಿಟಲ್ ತಂತ್ರಜ್ಞಾನದ ಮುಖಾಂತರ ಇತ್ತೀಚೆಗೆ ಡಿಜಿಟಲೀಕರಣ ಗೊಂಡಿರುವ ಭಾಷೆ ಕಲಿಕೆಯ ವಿಧಾನಗಳನ್ನು ಪಿಪಿಟಿ ಮತ್ತು ದೃಶ್ಯ ಮಾಧ್ಯಮದ ಮುಖಾಂತರ ಚರ್ಚಿಸಲು ಕ್ರಮಕೈಗೊಳ್ಳುವುದು. ಇದರಿಂದ ವಿದ್ಯಾರ್ಥಿಗಳನ್ನು ತರಗತಿಯಲ್ಲಿ ಹೆಚ್ಚು ಏಕಾಗ್ರತೆಯಿಂದ ಪಾಠ ಕೇಳಲು ಮತ್ತು ಅಧ್ಯಯನದಲ್ಲಿ ತೊಡಗಲು ಅನುಕೂಲವಾಗುತ್ತದೆ.
- ಭಾಷಾಕಲಿಕೆಯ ಪ್ರಯೋಗಾಲಯದ ಮುಖಾಂತರ ಬಹುಬೇಗ ಕನ್ನಡ ಭಾಷೆಯನ್ನು ಕಲಿಯಲು ಅನುಕೂಲವಾಗುವಂತೆ ಕಾರ್ಯಚಟುವಟಿಕೆಗಳನ್ನು ಮತ್ತು ಕ್ರಿಯಾ ಯೋಜನೆಗಳನ್ನು ರೂಪಿಸುವುದು.

### Module - 1

### (03 hours of pedagogy)

- 1. Introduction, Necessity of learning a local language. Methods to learn the Kannada language.
- 2. Easy learning of a Kannada Language: A few tips. Hints for correct and polite conservation, Listening and Speaking Activities, Key to Transcription
- 3. ವೈಯಕ್ತಿಕ, ಸ್ವಾಮ್ಯಸೂಚಕ/ಸಂಬಂಧಿತ ಸಾರ್ವನಾಮಗಳು ಮತ್ತು ಪ್ರಶ್ನಾರ್ಥಕ ಪದಗಳು Personal Pronouns, Possessive Forms, Interrogative words

	Module - 2	(03 hours of pedagogy)
	<ol> <li>ನಾಮಪದಗಳ ಸಂಬಂಧಾರ್ಥಕ ರೂಪಗಳು, ಸಂದೇಹಾಸ್ಪದ ನಾಮಪದಗಳು - Possessive forms of nouns, dubitive</li> <li>ಗುಣ, ಪರಿಮಾಣ ಮತ್ತು ವರ್ಣಬಣ್ಣ ವಿಶೇಷಣಗಳು, ಸಂಖ್ಯಾ</li> </ol>	question and Relative nouns
=	Colour Adjectives, Numerals . ಕಾರಕ ರೂಪಗಳು ಮತ್ತು ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯಗಳು –ಸಪ್ತಮಿ ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯ – (ಆ, ಆ	
	Module - 3	(03 hours of pedagogy)
1. ะ	ಕತುರ್ಥಿ ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯದ ಬಳಕೆ ಮತ್ತು ಸಂಖ್ಯಾವಾಚಕಗಳು - Dative Cas	ses, and Numerals
2.	ಸಂಖ್ಯಾಗುಣವಾಚಕಗಳು ಮತ್ತು ಬಹುವಚನ ನಾಮರೂಪಗಳು  -Ordinal n	umerals and Plural markers
	ನ್ಯೂನ/ನಿಷೇಧಾರ್ಥಕ ಕ್ರಿಯಾಪದಗಳು & ವರ್ಣ ಗುಣವಾಚಕಗಳು –Defec	
	Module- 4	(03 hours of pedagogy)
1.	ಅಪ್ಪಣೆ / ಒಪ್ಪಿಗೆ, ನಿರ್ದೇಶನ, ಪ್ರೋತ್ಸಾಹ ಮತು ಒತ್ತಾಯ ಆರ್ಥ	ರೂಪ ಪದಗಳು ಮತ್ತು ವಾಕ್ಯಗಳು
	Permission, Commands, encouraging and Urging words (Imp	perative words and sentences)
2. 7	ಸಾಮಾನ್ಯ ಸಂಭಾಷಣೆಗಳಲ್ಲಿ ದ್ವಿತೀಯ ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯಗಳು ಮ	ತ್ತು ಸಂಭವನೀಯ ಪ್ರಕಾರಗಳು
A	Accusative Cases and Potential Forms used in General Commu	unication
3. "	'ಇರು ಮತ್ತು ಇರಲ್ಲ" ಸಹಾಯಕ ಕ್ರಿಯಾಪದಗಳು, ಸಂಭಾವ್ಯಸೂ	ಂಚಕ ಮತ್ತು ನಿಷೇಧಾರ್ಥಕ ಕ್ರಿಯಾ ಪದಗಳು -
	Helping Verbs "iru and iralla", Corresponding Future and Negati	ion Verbs
4.	ಹೋಲಿಕೆ (ತರತಮ) , ಸಂಬಂಧ ಸೂಚಕ, ವಸ್ತು ಸೂಚಕ ಪ್ರತ್ಯಂ	ಯಗಳು ಮತ್ತು ನಿಷೇಧಾರ್ಥಕ ಪದಗಳ ಬಳಕೆ-
	Comparitive, Relationship, Identification and Negation Words	
	Module - 5	(03 hours of pedagogy)
1. च	ಕಾಲ ಮತ್ತು ಸಮಯದ ಹಾಗೂ ಕ್ರಿಯಾಪದಗಳ ವಿವಿಧ ಪ್ರಕಾರಗ	ಳು -Different types of Tense, Time and Verbs
2. <del>c</del>	ನ್, -ತ್, - ತು, - ಇತು, - ಆಗಿ, - ಅಲ್ಲ, - ಗ್, -ಕ್, ಇದೆ, ಕ್ರಿಯಾ ಪ್ರತ್ಯ	್ಯಯಗಳೊಂದಿಗೆ ಭೂತ, ಭವಿಷ್ಯತ್ ಮತ್ತು
_	ರರ್ತಮಾನ ಕಾಲ ವಾಕ್ಯ ರಚನೆ - Formation of Past, Future and	d Present Tense Sentences with Verb Forms

3. Kannada Vocabulary List :ಸಂಭಾಷಣೆಯಲ್ಲಿ ದಿನೋಪಯೋಗಿ ಕನ್ನಡ ಪದಗಳು -Kannada Words in Conversation

### Course outcome (Course Skill Set)

### ಬಳಕೆ ಕನ್ನಡ ಪಠ್ಯ ಕಲಿಕೆಯಿಂದ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಆಗುವ ಅನುಕೂಲಗಳು ಮತ್ತು ಫಲಿತಾಂಶಗಳು:

At the end of the course the student will be able to:

C01	To understand the necessity of learning of local language for comfortable life.
CO2	To speak, read and write Kannada language as per requirement.
CO3	To communicate (converse) in Kannada language in their daily life with kannada speakers.
C04	To Listen and understand the Kannada language properly.
CO5	To speak in polite conservation.

### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than

35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

### Continuous Internal Evaluation(CIE):

Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration

### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others.. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

# The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks Semester End Examinations (SEE)

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

### **University Prescribed Textbook :**

### ಬಳಕೆ ಕನ್ನಡ

### ಡಾ. ಎಲ್. ತಿಮ್ಮೇಶ

ಪ್ರಕಟಣೆ : ಪ್ರಸಾರಾಂಗ,

### ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ.

ಸೂಚನೆ :

- 1. ಹೆಚ್ಚಿನ ಮಾಹಿತಿ ಮತ್ತು ವಿವರಣೆಗಳಿಗೆ ಡಾ. ಎಲ್. ತಿಮ್ಮೇಶ (9900832331) ಇವರನ್ನು ಸಂಪರ್ಕಿಸಿ.
- ಮಾದರಿ ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆ, ಕೋರ್ಸ್ ಆಯ್ಕೆ ಮಾಹಿತಿ, ಅಧ್ಯಯನ ಸಾಮಗ್ರಿ & ಬಹು ಆಯ್ಕೆ ಮಾದರಿಯ ಪ್ರಶ್ನೆಗಳ ಕೈಪಿಡಿಗಾಗಿ ವಿಶ್ವವಿದ್ಯಾಲಯದ ವೆಬ್ ಸೈಟ್ ನೋಡುವುದು.

### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- $\checkmark$  For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions,
- ✓ Seminars and assignments

### Theory - 01 Credit Course

course	e Title:	ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ		
Course	e Code:	-	CIE Marks	50
Course	The area (The area (Due stice) (Integrates	BKSKK107-207	SEE Marks	50
Course	e Type (Theory/Practical /Integrated	u	Total Marks	100
Teachi	ing Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total F	Hours of Pedagogy	15 hours	Credits	01
Cours	e objectives : ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ :	ಪಠ್ಯ ಕಲಿಕೆಯ ಉದ್ದೇಶಗ	ಗಳು:	
The co	ourse (22KSK17/27) will enable the stu	idents,		
1.	ವೃತ್ತಿಪರ ಪದವಿ ವಿದ್ಯಾರ್ಥಿಗಳಾಗಿರ ಮಾಡಿಕೊಡುವುದು.	<b>ುವುದರಿಂದ ಕನ್ನಡ ಭಾಷೆ</b>	, ಸಾಹಿತ್ಯ ಮತ್ತು ಕನ	ನ್ನಡದ ಸಂಸ್ಕೃತಿಯ ಪರಿಚಂ
2.	ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಪ್ರಧಾನ ಭಾಗ ಪರಿಚಯಿಸಿವುದು.	ವಾದ ಆಧುನಿಕ ಪೂರ್ವ	ಮತ್ತು ಆಧುನಿಕ ಕ	ಾವ್ಯಗಳನ್ನು ಸಾಂಕೇತಿಕವಾ
3.	ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ ಸಾಹಿತ್ಯ ಮತ್ತು ಸಂ	ಂಸ್ಕೃತಿಯ ಬಗ್ಗೆ ಅರಿವು ಹಾ	ಗೂ ಆಸಕ್ತಿಯನ್ನು ಪ	ಯೂಡಿಸುವುದು.
	ತಾಂತ್ರಿಕ ವ್ಯಕ್ತಿಗಳ ಪರಿಚಯವನ್ನು			
	ಸಾಂಸ್ಕೃತಿಕ, ಜನಪದ ಹಾಗೂ ಪ್ರವಾ			
	ಧನೆ ಮತ್ತು ಕಲಿಕಾ ವ್ಯವಸ್ಥೆ (Teacl	-		uctions) :
	are sample Strategies, which teach			
	ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡವನ್ನು ಬೋಧಿ			
1.	ವಿಧಾನವನ್ನು ಅನುಸರಿಸುವುದು.			
	ಪ್ರೇರೇಪಿಸುವುದು ಮತ್ತು ತರಗತಿಯ			
2	ಇತ್ತೀಚಿನ ತಂತ್ರಜ್ಞಾನದ ಅನುಕೂ			-
<b>_</b> .		ಂಗತನ್ನು ಬಳಗೆಯಿತ್ತುಂ		
	ಚಿತ್ರಣ ಮತ್ತು ಲೇಖನಗಳು ಮತ	ತು ಕಥೆ ಕಾವ್ಯಗಳ ಮೂ	-	
	ಚಿತ್ರಣ ಮತ್ತು ಲೇಖನಗಳು ಮತ ಸಂಭಾಷಣೆಗಳು ಈಗಾಗಲೇ ಇತಗ		ಂಲ ಅಂಶಗಳಿಗೆ ಸಂ	ಂಬಂಧಪಟ್ಟ ಧ್ವನಿ ಚಿತ್ರಗಳ
	ಸಂಭಾಷಣೆಗಳು, ಈಗಾಗಲೇ ಇತರ	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ	ಂಲ ಅಂಶಗಳಿಗೆ ಸಂ	ಂಬಂಧಪಟ್ಟ ಧ್ವನಿ ಚಿತ್ರಗಳ
3.	ಸಂಭಾಷಣೆಗಳು, ಈಗಾಗಲೇ ಇತರ ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು.	ಲ ಅಂಶಗಳಿಗೆ ಸಂ ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ	ುಬಂಧಪಟ್ಟ ಧ್ವನಿ ಚಿತ್ರಗಳ ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ
3.	ಸಂಭಾಷಣೆಗಳು, ಈಗಾಗಲೇ ಇತರ ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ಧನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧಾ	ಲ ಅಂಶಗಳಿಗೆ ಸಂ ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ	ುಬಂಧಪಟ್ಟ ಧ್ವನಿ ಚಿತ್ರಗಳ ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ
3.	ಸಂಭಾಷಣೆಗಳು, ಈಗಾಗಲೇ ಇತರ ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ, ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ	) ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ಧನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧಾ ಗವಡಿಸಿಕೊಳ್ಳಬಹುದು.	ಲ ಅಂಶಗಳಿಗೆ ಸಂ ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ ನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ	ಾಬಂಧಪಟ್ಟ ಧ್ವನಿ ಚಿತ್ರಗಳ ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ
	ಸಂಭಾಷಣೆಗಳು, ಈಗಾಗಲೇ ಇತರ ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ಧನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧಾ ಗವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾಷ	ಲ ಅಂಶಗಳಿಗೆ ಸಂ ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ ನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ	ಾಬಂಧಪಟ್ಟ ಧ್ವನಿ ಚಿತ್ರಗಳ ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ
1.	ಸಂಭಾಷಣೆಗಳು, ಈಗಾಗಲೇ ಇತರ ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ, ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗರ	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ಧನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧನ ಸವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾಷ ರಾಜಯ್ಯ	ಲ ಅಂಶಗಳಿಗೆ ಸಂ ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ ಎನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ	ಾಬಂಧಪಟ್ಟ ಧ್ವನಿ ಚಿತ್ರಗಳ ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ
1. 2.	ಸಂಭಾಷಣೆಗಳು, ಈಗಾಗಲೇ ಇತರ ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗದ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ಧನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧಾ ಸವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ನಾಜಯ್ಯ ಶಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ	ಲ ಅಂಶಗಳಿಗೆ ಸಂ ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ ಎನಗಳನ್ನು ಶಿಕ್ಷಕರು ಎ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ	ುಬಂಧಪಟ್ಟ ಧ್ವನಿ ಚಿತ್ರಗಳ ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagogy
1. 2.	ಸಂಭಾಷಣೆಗಳು, ಈಗಾಗಲೇ ಇತರ ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ, ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗರ	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ಧನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧಾ ಸವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ನಾಜಯ್ಯ ಶಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ	ಲ ಅಂಶಗಳಿಗೆ ಸಂ ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ ಎನಗಳನ್ನು ಶಿಕ್ಷಕರು ಎ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ	ಂಬಂಧಪಟ್ಟ ಧ್ವನಿ ಚಿತ್ರಗಳ ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagog
1. 2.	ಸಂಭಾಷಣೆಗಳು, ಈಗಾಗಲೇ ಇತರ ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ, ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಡ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗದ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ.	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ಧನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧಾ ಸವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ನಾಜಯ್ಯ ಶಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ	ಲ ಅಂಶಗಳಿಗೆ ಸಂ ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ ಎನಗಳನ್ನು ಶಿಕ್ಷಕರು ಎ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ (. ವಿ. ಕೇಶವಮೂರ್ತಿ	ಂಬಂಧಪಟ್ಟ ಧ್ವನಿ ಚಿತ್ರಗಳ ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagog
1. 2.	ಸಂಭಾಷಣೆಗಳು, ಈಗಾಗಲೇ ಇತರ ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ, ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗದ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಘಟಕ - 2 ರ	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ಧನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧನ ಸವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾಸ ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾಸ ರಾಜಯ್ಯ ಲಾಜಯ್ಯ ಲಾಜರ್ಯ ತಿಮ್ಮೇಶ ಮತ್ತು ಪ್ರೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ನ	ಲ ಅಂಶಗಳಿಗೆ ಸಂ ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ ಎನಗಳನ್ನು ಶಿಕ್ಷಕರು ಹ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ (. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03	ಂಬಂಧಪಟ್ಟ ಧ್ವನಿ ಚಿತ್ರಗಳ ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagog
1. 2. 3.	ಸಂಭಾಷಣೆಗಳು, ಈಗಾಗಲೇ ಇತರ ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗದ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಘಟಕ - 2	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ಧನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧನ ಶವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾಷ ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾಷ ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾಷ ವಾಜಯ್ಯ ವಾಜಯ್ಯ ವರ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ನ ಎದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಯ	ಲ ಅಂಶಗಳಿಗೆ ಸಂ ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ ಎನಗಳನ್ನು ಶಿಕ್ಷಕರು ಹ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ (. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03	ಂಬಂಧಪಟ್ಟ ಧ್ವನಿ ಚಿತ್ರಗಳ ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagog
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1. 2. 3. 1. 2.	ಸಂಭಾಷಣೆಗಳು, ಈಗಾಗಲೇ ಇತರ ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ, ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಡ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗದ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಘಟಕ - 2 ರ ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸು	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ಧನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧನ ಶವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾಷ ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾಷ ವ್ಯಾವ್ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕರ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪ್ರೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ನ ಂದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಯ ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂಪ ತಾಳು ಮನವೇ - ಕನಕದಾ	ಲ ಅಂಶಗಳಿಗೆ ಸಂ ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ ಎನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ ೧. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ರ್ದಾಕ್ಕಿ ಮಾರಯ್ಯ, ವರದಾಸರು ಸರು	ಂಬಂಧಪಟ್ಟ ಧ್ವನಿ ಚಿತ್ರಗಳ ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagog
1. 2. 3. 1. 2. 3.	ಸಂಭಾಷಣೆಗಳು, ಈಗಾಗಲೇ ಇತರ ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ, ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಡ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗದ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಘಟಕ - 2 ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸು ಘಟಕ -3	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ನನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧನ ಶವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾವ ವಾಜಯ್ಯ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕರ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪ್ರೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಇದರಿಂದೇನು ಫಲ – ಪುರಂಭ ತಾಳು ಮನವೇ - ಕನಕದಾ ಎಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ ಎದ ಅಯ್ದ ಕೆಲವು ಭಾಗಗಳ	ಲ ಅಂಶಗಳಿಗೆ ಸಂ ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ ಎನಗಳನ್ನು ಶಿಕ್ಷಕರು ಹ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ (. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ದ್ದವಾಸರು ಸರು	ುಬಂಧಪಟ್ಟ ಧ್ವನಿ ಚಿತ್ರಗಳ ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagogy
1. 2. 3. 1. 2. 3.	ಸಂಭಾಷಣೆಗಳು, ಈಗಾಗಲೇ ಇತರ ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ, ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಡ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗದ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಘಟಕ - 2 ಥ ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ ತತ್ತಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸು ಘಟಕ - 3	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ನನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧನ ಶವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾವ ವಾಜಯ್ಯ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕರ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪ್ರೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಇದರಿಂದೇನು ಫಲ – ಪುರಂಭ ತಾಳು ಮನವೇ - ಕನಕದಾ ಎಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ ಎದ ಅಯ್ದ ಕೆಲವು ಭಾಗಗಳ	ಲ ಅಂಶಗಳಿಗೆ ಸಂ ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ ಎನಗಳನ್ನು ಶಿಕ್ಷಕರು ಹ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ (. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ದ್ದವಾಸರು ಸರು	ುಬಂಧಪಟ್ಟ ಧ್ವನಿ ಚಿತ್ರಗಳ ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagogy
1. 2. 3. 1. 2. 3. 1. 2.	ಸಂಭಾಷಣೆಗಳು, ಈಗಾಗಲೇ ಇತರ ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ, ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಡ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗದ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಘಟಕ - 2 ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸು ಘಟಕ -3	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ನನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧನ ಶವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾವ ವಾಜಯ್ಯ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕರ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪ್ರೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಇದರಿಂದೇನು ಫಲ – ಪುರಂಭ ತಾಳು ಮನವೇ - ಕನಕದಾ ಎಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ ಎದ ಅಯ್ದ ಕೆಲವು ಭಾಗಗಳ	ಲ ಅಂಶಗಳಿಗೆ ಸಂ ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ ಎನಗಳನ್ನು ಶಿಕ್ಷಕರು ಹ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ (. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ದ್ದವಾಸರು ಸರು	ುಬಂಧಪಟ್ಟ ಧ್ವನಿ ಚಿತ್ರಗಳ ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagogy
1. 2. 3. 1. 2. 3. 1. 2.	ಸಂಭಾಷಣೆಗಳು, ಈಗಾಗಲೇ ಇತರ ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ, ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಡ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗದ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗದ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಘಟಕ - 2 ಡ ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸು ಘಟಕ -3 ಡಿವಿಜಿ ರವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗದಿಂ ಕುರುಡು ಕಾಂಚಾಣ : ದಾ.ರಾ. ಬೇಂ ಹೊಸಬಾಳಿನ ಗೀತೆ : ಕುವೆಂಪು	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ನನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧನ ಶವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾವ ವಾಜಯ್ಯ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕರ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪ್ರೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಇದರಿಂದೇನು ಫಲ – ಪುರಂಭ ತಾಳು ಮನವೇ - ಕನಕದಾ ಎಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ ಎದ ಅಯ್ದ ಕೆಲವು ಭಾಗಗಳ	ಲ ಅಂಶಗಳಿಗೆ ಸಂ ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ ಎನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ ೧. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ವರದಾಸರು ಸರು (03	ುಬಂಧಪಟ್ಟ ಧ್ವನಿ ಚಿತ್ರಗಳ ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagogy
1. 2. 3. 1. 2. 3. 1. 2. 3.	ಸಂಭಾಷಣೆಗಳು, ಈಗಾಗಲೇ ಇತರ ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ, ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗದ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಘಟಕ - 2 ರ ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ ತತ್ತಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸು ಘಟಕ -3 ಡಿವಿಜಿ ರವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗದಿಂ ಕುರುಡು ಕಾಂಚಾಣ : ದಾ.ರಾ. ಬೇಂ ಹೊಸಬಾಳಿನ ಗೀತೆ : ಕುವೆಂಪು	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ಧನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧನ ಶವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾವ ಸ್ಮಾಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾವ ಸ್ಮಾಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾವ ಸ್ಮಾಣವ್ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪ್ರೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಭ ಆದ್ದು ಕ್ರಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂತ ತಾಳು ಮನವೇ - ಕನಕದಾ ಎಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ ಎದ ಅಯ್ದ ಕೆಲವು ಭಾಗಗಳ ಹಿದ್ರೆ	ಲ ಅಂಶಗಳಿಗೆ ಸಂ ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ ಎನಗಳನ್ನು ಶಿಕ್ಷಕರು ಹ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ (. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ರ್ಧಾಕ್ಕಿ ಮಾರಯ್ಯ, ದರದಾಸರು ಸರು (03 ರು (03	oಬಂಧಪಟ್ಟ ಧ್ವನಿ ಚಿತ್ರಗಳ ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagogy hours of pedagogy)
1. 2. 3. 1. 2. 3. 1. 2. 3.	ಸಂಭಾಷಣೆಗಳು, ಈಗಾಗಲೇ ಇತರ ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ, ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಡ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗದ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಘಟಕ - 2 ಡ ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸು ಘಟಕ - 3 ಡಿವಿಜಿ ರವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗದಿಂ ಕುರುಡು ಕಾಂಚಾಣ : ದಾ.ರಾ. ಬೇಂ ಹೊಸಬಾಳಿನ ಗೀತೆ : ಕುವೆಂಪು ಘಟಕ - 4 ತ ಡಾ. ಸರ್. ಎಂ. ವಿಶ್ವೇಶ್ವರಯ್ಯ : ವ್ಯಕ್ತಿ	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ನನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧನ ಶವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾವ ಸ್ವಾಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾವ ಸ್ವಾಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾವ ಸ್ವಾಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾವ ಸ್ವಾಣ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಪ್ರೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಆದ್ದುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಆದ್ದುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಆದ್ದುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಆದ್ದುನಿಕ ಕಾವ್ಯಭಾಗ ನದ ಅಯ್ದ ಕೆಲವು ಭಾಗಗಳ ಸ್ರ	ಲ ಅಂಶಗಳಿಗೆ ಸಂ ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ ಎನಗಳನ್ನು ಶಿಕ್ಷಕರು ಹ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟೆಸುಬ್ಬಯ್ಯ ೧. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ರ್ಷ ಮಾರಯ್ಯ, ದರದಾಸರು ಸರು (03 ಮೂರ್ತಿರಾವ್	oಬಂಧಪಟ್ಟ ಧ್ವನಿ ಚಿತ್ರಗಳ ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagogy hours of pedagogy)
1. 2. 3. 1. 2. 3. 1. 2. 3.	ಸಂಭಾಷಣೆಗಳು, ಈಗಾಗಲೇ ಇತರ ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ, ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗದ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಘಟಕ - 2 ರ ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸು ಘಟಕ -3 ಡಿವಿಜಿ ರವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗದಿಂ ಕುರುಡು ಕಾಂಚಾಣ : ದಾ.ರಾ. ಬೇಂ ಹೊಸಬಾಳಿನ ಗೀತೆ : ಕುವೆಂಪು ಘಟಕ - 4 ತ ಡಾ. ಸರ್. ಎಂ. ವಿಶ್ವೇಶ್ವರಯ್ಯ : ವ್ಯಕ್ತಿ	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ನನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧನ ಶವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ಶಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪ್ರೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಸ ಂದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಯ ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂತ ತಾಳು ಮನವೇ - ಕನಕದಾ ಎಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ ಂದ ಅಯ್ದ ಕೆಲವು ಭಾಗಗಳ ಂದ್ರೆ	ಲ ಅಂಶಗಳಿಗೆ ಸಂ ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ ಎನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ (. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ರ್ವಾಕ್ಕಿ ಮಾರಯ್ಯ, ದರದಾಸರು ಸರು (03 ಮೂರ್ತಿರಾವ್ ದೀಚನಹಳ್ಳಿ	oಬಂಧಪಟ್ಟ ಧ್ವನಿ ಚಿತ್ರಗಳ ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagogy) hours of pedagogy)
1. 2. 3. 1. 2. 3. 1. 2. 3.	ಸಂಭಾಷಣೆಗಳು, ಈಗಾಗಲೇ ಇತರ ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ, ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಡ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗದ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಘಟಕ - 2 ಡ ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ ತತ್ತಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸು ಫ್ ಟಕ - 3 ಡಿವಿಜಿ ರವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗದಿಂ ಕುರುಡು ಕಾಂಚಾಣ : ದಾ.ರಾ. ಬೇಂ ಹೊಸಬಾಳಿನ ಗೀತೆ : ಕುವೆಂಪು ಘಟಕ - 4 ತ ಡಾ. ಸರ್. ಎಂ. ವಿಶ್ವೇಶ್ವರಯ್ಯ : ವ್ಯಕ್ತಿ ಕರಕುಶಲ ಕಲೆಗಳು ಮತ್ತು ಪರಂಪರ ಘಟಕ - 5 ಸು	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ಸುವುದು. ನನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧನ ಶವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾವ ಸ್ವಾಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾವ ಸ್ವಾಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾವ ಸ್ವಾಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾವ ಸ್ವಾಣ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಪ್ರೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಆದ್ದುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಆದ್ದುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಆದ್ದುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಆದ್ದುನಿಕ ಕಾವ್ಯಭಾಗ ನದ ಅಯ್ದ ಕೆಲವು ಭಾಗಗಳ ಸ್ರ	ಲ ಅಂಶಗಳಿಗೆ ಸಂ ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ ಎನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ (. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ರ್ವಾಕ್ಕಿ ಮಾರಯ್ಯ, ದರದಾಸರು ಸರು (03 ಮೂರ್ತಿರಾವ್ ದೀಚನಹಳ್ಳಿ	oಬಂಧಪಟ್ಟ ಧ್ವನಿ ಚಿತ್ರಗಳ ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಿ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagogy) hours of pedagogy)

### 26.10.2022

### Course outcome (Course Skill Set)

ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ (22KSK17/27) ಪಠ್ಯ ಕಲಿಕೆಯ ನಂತರ ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ :

At the end of the course the student will be able to:

	C01	ಕನ್ನಡ ಭಾಷೆ, ಸಾಹಿತ್ಯ ಮತ್ತು ಕನ್ನಡದ ಸಂಸ್ಕೃತಿಯ ಕುರಿತು ಅರಿವು ಮೂಡಿರುತ್ತದೆ.
	CO2	ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಪ್ರಧಾನ ಭಾಗವಾದ ಆಧುನಿಕ ಪೂರ್ವ ಮತ್ತು ಆಧುನಿಕ ಕಾವ್ಯಗಳನ್ನು ಸಾಂಕೇತಿಕವಾಗಿ
		ಕಲಿತು ಹೆಚ್ಚಿನ ಓದಿಗೆ ಮತ್ತು ಜ್ಞಾನಕ್ಕೆ ಸ್ಪೂರ್ತಿ ಮೂಡುತ್ತದೆ.
	CO3	ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ ಸಾಹಿತ್ಯ ಮತ್ತು ಸಂಸ್ಕೃತಿಯ ಬಗ್ಗೆ ಅರಿವು ಹಾಗೂ ಆಸಕ್ತಿಯನ್ನು ಹೆಚ್ಚಾಗುತ್ತದೆ.
	CO4	ತಾಂತ್ರಿಕ ವ್ಯಕ್ತಿಗಳ ಪರಿಚಯ ಹಾಗೂ ಅವರುಗಳ ಸಾಧಿಸಿದ ವಿಷಯಗಳನ್ನು ತಿಳಿದುಕೊಂಡು ನಾಡಿನ ಇನ್ನಿತರ
		ವ್ಯಕ್ತಿಗಳ ಬಗ್ಗೆ ತಿಳಿದುಕೊಳ್ಳಲು ಕೌತುಕತೆ ಹೆಚ್ಚಾಗುತ್ತದೆ.
	CO5	ಸಾಂಸ್ಕೃತಿಕ, ಜನಪದ ಹಾಗೂ ಪ್ರವಾಸ ಕಥನಗಳ ಪರಿಚಯ ಮಾಡಿಕೊಡುವುದು.
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### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

### **Continuous Internal Evaluation(CIE):**

Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration

### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

### The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks Semester End Examinations (SEE)

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

### **University Prescribed Textbook :**

### ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ

ಡಾ. ಹಿ.ಚಿ.ಬೋರಲಿಂಗಯ್ಯ ಮತ್ತು ಡಾ. ಎಲ್. ತಿಮ್ಮೇಶ,

ಪ್ರಕಟಣೆ : ಪ್ರಸಾರಾಂಗ,

ವಿಶ್ಯೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ.

### ಸೂಚನೆ :

- 1. ಹೆಚ್ಚಿನ ಮಾಹಿತಿ ಮತ್ತು ವಿವರಣೆಗಳಿಗೆ ಡಾ. ಎಲ್. ತಿಮ್ಮೇಶ (9900832331) ಇವರನ್ನು ಸಂಪರ್ಕಿಸಿ.
- ಮಾದರಿ ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆ, ಕೋರ್ಸ್ ಆಯ್ಕೆ ಮಾಹಿತಿ, ಅಧ್ಯಯನ ಸಾಮಗ್ರಿ & ಬಹು ಆಯ್ಕೆ ಮಾದರಿಯ ಪ್ರಶ್ನೆಗಳ ಕೈಪಿಡಿಗಾಗಿ ವಿಶ್ವವಿದ್ಯಾಲಯದ ವೆಬ್ ಸೈಟ್ ನೋಡುವುದು.

### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

✓ Contents related activities (Activity-based discussions)

- ✓ For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions, Seminars and assignments.

	nester (CSE	Streams)			(For stu	idents	who att	ended	1st seme	ester un	der Chei	nistry G	rour
n semester (est sucun						Teac	hing /Week		1 1st semester under Chemistry C Examination				
SI. No		nd Course de	Course Title	TD/PSB	Theory Lecture	Tutorial	Practical/ Drawing	VOS	Duration in hours	CIE Marks	SEE Marks	Total Marks	Pandles.
					L	Т	P	S	-				
1	*ASC(IC)	BMATS201	Mathematics-II for CSEStream	Maths	2	2	2	0	03	50	50	100	04
2	#ASC(IC)	BPHYS202	Applied Physics for CSE Stream	Physics	2	2	2	0	03	50	50	100	04
3	ESC	BPOPS203	Principles of Programming Using C	CSE	2	0	2	0	03	50	50	100	03
4	ESC-II	BESCK204x	Engineering Science Course-II	Respective Engg dept	3	0	0	0	03	50	50	100	03
	ETC-II	BPLCK205x	Programming Language Course-II		2	00	2	0	03			ос	
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	PLC-II	BETCK205x	Emerging Technology Course-II		3	0	0	0	03				
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		BICOK207	Indian Constitution				·					a - 18	
		BIDTK258	Innovation and Design Thinking	10 51 6	1	0	0	0	01	1004463	MDBREN	555256	5413
8	AEC/SDC		OR	Any Dept						50	50	100	01
	-	BSFHK258	Scientific Foundations of Health		1	0	0	0	01				

	(ESC-II) Engineering Science Courses-II					(ETC-II) Emerging Technology Courses-II			
Code	Title	L	T	P	Code	Title	L	T	P
BESCK204A	Introduction to Civil Engineering	3	0	0	BETCK205A	Smart materials and Systems	3	0	0
BESCK204B	Introduction to Electrical Engineering	3	0	0	BETCK205B	Green Buildings	3	0	0
BESCK204C	Introduction to Electronics Communication	3	0	0	BETCK205C	Introduction to Nano Technology	3	0	0
BESCK204D	Introduction to Mechanical Engineering	3	0	0	BETCK205D	Introduction to Sustainable Engineering	3	0	0
BESCK204E	Introduction to C Programming	2	0	2	BETCK205E	Renewable Energy Sources	3	0	0
	e decidi aldur				BETCK205F	Waste Management	3	0	0
		- 36 - 37			BETCK205G	Emerging Applications of Biosensors	3	0	0
					BETCK205H	Introduction to Internet of Things (IoT)	3	0	0
					BETCK2051	Introduction to Cyber Security	3	0	0
					BETCK205J	Introduction to Embedded System	3	0	0
(PLC-II) Prog	gramming Language Courses-II	40 - 1	a		12		20		
Code	Title	L	Т	Р			1		
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BPLCK205B	Introduction to Python Programming	2	0	2					
BPLCK205C	Basics of JAVA programming	2	0	2					
BPLCK205D	Introduction to C++ Programming	2	0	2			Se	S. 19	
The course DEPARTMEN		nmii	ng,	and	all courses	under PLC and ETC groups can be taug	ht by	y A	NY

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- To make students learn the scope of various specializations of civil engineering.
- To make students learn the concepts of sustainable infrastructure
- To develop students' ability to analyse the problems involving forces, moments with their applications.
- To develop the student's ability to find out the center of gravity and moment of inertia and their applications.
- To make the students learn about kinematics

### **Teaching-Learning Process**

These are sample Strategies; which teachers can use to accelerate the attainment of the various course outcomes.

- 1. Lecture method (L) does not mean only the traditional lecture method, but a different type of teaching method may be adopted to develop the outcomes.
- 2. Arrange visits to nearby sites to give brief information about the Civil Engineering structures.
- 3. Show Video/animation films to explain the infrastructures and the mechanism involved in the principle.
- 4. Encourage collaborative (Group) Learning in the class.
- 5. Ask at least three HOT (Higher-order Thinking) questions in the class, which promotes critical thinking.
- 6. Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develop thinking skills such as the ability to evaluate, generalize, and analyze information rather than simply recall it.
- 7. Topics will be introduced in multiple representations.
- 8. Show the different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.
- 9. Discuss how every concept can be applied to the real world and when that's possible, it helps improve the students' understanding.
- 10. Individual teachers can device innovative pedagogy to improve teaching-learning.

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Module-1 (10)
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### **Civil Engineering Disciplines and Building Science**

Introduction to Civil Engineering: Surveying, StructuralEngineering, Geotechnical Engineering, TransportationEngineering, Environmental Engineering, Hydraulics & Water Resources, Construction planning & Project management.

Basic Materials of Construction: Bricks, Cement & mortars, Plain, Reinforced & Pre-stressed Concrete, Structural steel, Construction Chemicals.

Structural elements of a building: foundation, plinth, lintel, chejja, Masonry wall, column, beam, slab and staircase

Module-2 (10)

### **Societal and Global Impact of Infrastructure**

Infrastructure: Introduction to sustainable development goals, Smart city concept, clean city concept,

Safe city concept

**Environment**: Water Supply and Sanitary systems, urban air pollution management, Solid waste management, identification of Landfill sites, urban flood control

**Built-environment:** Energy efficient buildings, recycling, Temperature andSound control in buildings, Security systems; Smart buildings.

### Module-3(10)

**Analysis of force systems:** Concept of idealization, system of forces, principles of superposition and transmissibility, Resolution and composition of forces, Law of Parallelogram of forces, Resultant of concurrent and non-concurrent coplanar force systems, moment of forces, couple, Varignon's theorem, free body diagram, equations of equilibrium, equilibrium of concurrent and non-concurrent coplanar force systems

### Module-4(10)

**Centroid:**Importance of centroid and centre of gravity, methods of determining the centroid, locating the centroid of plane laminae from first principles, centroid of built-up sections. Numerical examples

### Module-5 (10)

**Moment of inertia:**Importance of Moment of Inertia, method of determining the second moment of area (moment of inertia) of plane sections from first principles, parallel axis theorem and perpendicular axis theorem, section modulus, radius of gyration, moment of inertia of built-up sections, Numerical Examples.

Course outcome (Course Skill Set)

At the end of the course the student will be able to:

C01	Underst	and the vario	us disciplines	of civil engineering
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CO2 Understand the infrastructure requirement for sustainable development

CO3 Compute the resultant and equilibrium of force systems.

CO4 Locate the centroid of plane and built-up sections

CO5 Compute the moment of inertia of plane and built-up sections.

### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

### Continuous Internal Evaluation(CIE):

Three Tests each of 20 Marks;

- 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> tests shall be conducted after completion of the syllabus of 30-35%, 70-75%, and 90-100% of the course/s respectively.
- Assignments/Seminar/quiz/group discussion /field survey & report presentation/ course project/Skill development activities, suitably planned to attain the COs and POs for a total of 40 Marks.
  - If the nature of the courses requires assignments/Seminars/Quizzes/group discussion two evaluation components shall be conducted. If course project/field survey/skill development activities etc then the evaluation method shall be one.

Total CIE marks (out of 100 marks) shall be scaled down to 50 marks

### Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

### Suggested Learning Resources:

- Text Books
- 1. Bansal R. K., Rakesh Ranjan Beohar and Ahmad Ali Khan, Basic Civil Engineering and Engineering Mechanics, 2015,Laxmi Publications.

2. Kolhapure B K, Elements of Civil Engineering and Engineering Mechanics, 2014, EBPB

### **Reference Books:**

1. Beer F.P. and Johnston E. R., Mechanics for Engineers, Statics and Dynamics, 1987, McGraw Hill.

2. Irving H. Shames, Engineering Mechanics, 2019, Prentice-Hall.

- 3. Hibbler R. C., Engineering Mechanics: Principles of Statics and Dynamics, 2017, Pearson Press.
- 4. Timoshenko S, Young D. H., Rao J. V., Engineering Mechanics, 5th Edition, 2017, Pearson Press.

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Course Title:	Applied Physics for CSE Stream		
Course Code:	BPHYS102/202	CIE Marks	50
Course Type	Integrated	SEE Marks	50
(Theory/Practical/Integrated)	Integrated	Total Marks	100
Teaching Hours/Week (L:T:P: S)	2:2:2:0	Exam Hours	03
Total Hours of Pedagogy	40 hours Theory + 10-12 Lab slots	Credits	04

#### **Course objectives**

- To study the essentials of photonics and its application in computer science.
- To study the principles of quantum mechanics and its application in quantum computing.
- To study the electrical properties of materials
- To study the essentials of physics for computational aspects like design and data analysis.

#### **Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective

- 1. Flipped Class
- 2. Chalk and Talk
- 3. Blended Mode of Teaching and Learning
- 4. Simulations, Interactive Simulations and Animations
- 5. NPTEL and Other Videos for theory topics
- 6. Smart Class Room
- 7. Lab Experiment Videos

#### Module-1 (8 Hours)

#### Laser and Optical Fibers:

**LASER**: Characteristic properties of a LASER beam, Interaction of Radiation with Matter, Einstein's A and B Coefficients and Expression for Energy Density (Derivation), Laser Action, Population Inversion, Metastable State, Requisites of a laser system, Semiconductor Diode Laser, Applications: Bar code scanner, Laser Printer, Laser Cooling(Qualitative), Numerical Problems.

**Optical Fiber**: Principle and Structure, Propagation of Light, Acceptance angle and Numerical Aperture (NA), Derivation of Expression for NA, Modes of Propagation, RI Profile, Classification of Optical Fibers, Attenuation and Fiber Losses, Applications: Fiber Optic networking, Fiber Optic Communication. Numerical Problems

### Pre requisite:Properties of light Self-learning: Total Internal Reflection

Module-2 (8 Hours)

### **Quantum Mechanics:**

de Broglie Hypothesis and Matter Waves, de Broglie wavelength and derivation of expression by analogy, Phase Velocity and Group Velocity, Heisenberg's Uncertainty Principle and its application (Non existence of electron inside the nucleus - Non Relativistic), Principle of Complementarity, Wave Function, Time independent Schrödinger wave equation (Derivation), Physical Significance of a wave function and Born Interpretation, Expectation value, Eigen functions and Eigen Values, Particle inside one dimensional infinite potential well, Quantization of Energy States, Waveforms and Probabilities. Numerical Problems.

#### Pre requisite:Wave–Particle dualism Self-learning: de Broglie Hypothesis

Module-3 (8 Hours)

### **Quantum Computing:**

#### **Principles of Quantum Information & Quantum Computing:**

Introduction to Quantum Computing, Moore's law & its end, Differences between Classical & Quantum computing. Concept of qubit and its properties. Representation of qubit by Bloch sphere. Single and Two qubits. Extension to N qubits.

### Dirac representation and matrix operations:

Matrix representation of 0 and 1 States, Identity Operator I, Applying I to  $|0\rangle$  and  $|1\rangle$  states, Pauli Matrices and its

operations on  $|0\rangle$  and  $|1\rangle$  states, Explanation of i) Conjugate of a matrix and ii) Transpose of a matrix. Unitary matrix U, Examples: Row and Column Matrices and their multiplication (Inner Product), Probability, and Quantum Superposition, normalization rule. Orthogonality, Orthonormality. Numerical Problems

### Quantum Gates:

Single Qubit Gates: Quantum Not Gate, Pauli – X, Y and Z Gates, Hadamard Gate, Phase Gate (or S Gate), T Gate Multiple Qubit Gates: Controlled gate, CNOT Gate, (Discussion for 4 different input states). Representation of Swap gate, Controlled -Z gate, Toffoli gate.

## Pre requisites: Matrices

Self-learning: Moore's law

#### Module-4 (8 Hours)

### **Electrical Properties of Materials and Applications**

#### **Electrical Conductivity in metals**

Resistivity and Mobility, Concept of Phonon, Matheissen's rule, Failures of Classical Free Electron Theory, Assumptions of Quantum Free Electron Theory, Fermi Energy, Density of States, Fermi Factor, Variation of Fermi Factor With Temperature and Energy. Numerical Problems.

#### Superconductivity

Introduction to Super Conductors, Temperature dependence of resistivity, Meissner's Effect, Critical Field, Temperature dependence of Critical field, Types of Super Conductors, BCS theory (Qualitative), Quantum Tunnelling, High Temperature superconductivity, Josephson Junctions (Qualitative), DC and RF SQUIDs (Qualitative), Applications in Quantum Computing: Charge, Phase and Flux qubits, Numerical Problems.

### Pre requisites:Basics of Electrical conductivity

Self-learning: Resistivity and Mobility

#### Module-5 (8 hours)

### **Applications of Physics in computing:**

#### **Physics of Animation**:

Taxonomy of physics based animation methods, Frames, Frames per Second, Size and Scale, Weight and Strength, Motion and Timing in Animations, Constant Force and Acceleration, The Odd rule, Odd-rule Scenarios, Motion Graphs, Examples of Character Animation: Jumping, Parts of Jump, Jump Magnification, Stop Time, Walking: Strides and Steps, Walk Timing. Numerical Problems

Statistical Physics for Computing: Descriptive statistics and inferential statistics, Poisson distribution and modeling the probability of proton decay, Normal Distributions (Bell Curves), Monte Carlo Method: Determination of Value of  $\pi$ . Numerical Problems.

### Pre requisites: Motion in one dimension, Probability

#### Self-learning: Frames, Frames per Second

#### Course outcome (Course Skill Set)

At the end of the course the student will be able to:

CO1	Describe the principles of LASERS and Optical fibers and their relevant applications.
CO2	Discuss the basic principles of the Quantum Mechanics and its application in Quantum Computing.
CO3	Summarize the essential properties of superconductors and its applications in qubits.
CO4	<b>Illustrate</b> the application of physics in design and data analysis.
CO5	Practice working in groups to conduct experiments in physics and perform precise and honest measurements.

### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

16-2-2023

#### **Continuous Internal Evaluation(CIE):**

The CIE marks for the theory component of the IC shall be 30 marks and for the laboratory component 20 Marks.

#### CIE for the theory component of the IC

- Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.
- Two Assignments/two quizzes/ seminars/one field survey and report presentation/one-course project totalling 20 marks.

Total Marks scored (test + assignments) out of 80 shall be scaled down to 30 marks

#### CIE for the practical component of the IC

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted at the end of the semester.
- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.
- The laboratory test (**duration 03 hours**) at the end of the 15<sup>th</sup> week of the semester /after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to **05 marks**.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

• The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

### Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English/Kannada). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.

There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 subquestions), **should have a mix of topics** under that module.

### Suggested Learning Resources:

### Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year)

- 1. Solid State Physics, S O Pillai, New Age International Private Limited, 8<sup>th</sup> Edition, 2018.
- 2. Engineering Physics by Gupta and Gour, Dhanpat Rai Publications, 2016 (Reprint).
- 3. A Textbook of Engineering Physics- M.N. Avadhanulu and P.G. Kshirsagar, 10th revised Ed, S. Chand. & Company Ltd, New Delhi.
- 4. Concepts of Modern Physics, Aurthur Beiser, McGrawhill, 6<sup>th</sup> Edition, 2009.
- 5. Lasers and Non Linear Optics, B B Loud, New age international, 2011 edition.
- 6. A Textbook of Engineering Physics by M.N. Avadhanulu, P G. Kshirsagar and T V S Arun Murthy, Eleventh edition, S Chand and Company Ltd. New Delhi-110055.
- 7. Quantum Computation and Quantum Information, Michael A. Nielsen & Isaac L. Chuang, Cambridge Universities Press, 2010 Edition.

- 8. Quantum Computing, Vishal Sahani, McGraw Hill Education, 2007 Edition.
- 9. Quantum Computing A Beginner's Introduction, Parag K Lala, Indian Edition, Mc GrawHill, Reprint 2020.
- 10. Engineering Physics, S P Basavaraj, 2005 Edition, Subhash Stores.
- 11. Physics for Animators, Michele Bousquet with Alejandro Garcia, CRC Press, Taylor & Francis, 2016.
- 12. Quantum Computation and Logic: How Quantum Computers Have Inspired Logical Investigations, Maria Luisa Dalla Chiara, Roberto Giuntini, Roberto Leporini, Giuseppe Sergioli, TrendsinLogic, Volume 48, Springer.
- 13. Statistical Physics: Berkely Physics Course, Volume 5, F. Reif, McGraw Hill.
- 14. Introduction to Superconductivity, Michael Tinkham, McGraw Hill, INC, II Edition

Web links and Video Lectures (e-Resources):

LASER: <u>https://www.youtube.com/watch?v=WgzynezPiyc</u>

Superconductivity : <u>https://www.youtube.com/watch?v=MT5Xl5ppn48</u>

**Optical Fiber :** <u>https://www.youtube.com/watch?v=N\_kA8EpCUQo</u>

**Quantum Mechanics** : <u>https://www.youtube.com/watch?v=p7bzE1E5PMY&t=136s</u>

Quantum Computing : <u>https://www.youtube.com/watch?v=jHoEjvuPoB8</u>

Quantum Computing :<u>https://www.youtube.com/watch?v=ZuvCUU2jD30</u>

Physics of Animation : <u>https://www.youtube.com/watch?v=kj1kaA\_8Fu4</u>

Statistical Physics Simulation : https://phet.colorado.edu/sims/html/plinko-probability/latest/plinko-

probability\_en.html

NPTEL Supercoductivity: https://archive.nptel.ac.in/courses/115/103/115103108/

NPTEL Quantum Computing : <u>https://archive.nptel.ac.in/courses/115/101/115101092</u>

Virtual LAB :https://www.vlab.co.in/participating-institute-amrita-vishwa-vidyapeetham

Virtual LAB : https://vlab.amrita.edu/index.php?sub=1&brch=189&sim=343&cnt=1

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

http://nptel.ac.in

https://swayam.gov.in

https://virtuallabs.merlot.org/vl\_physics.html

https://phet.colorado.edu

https://www.myphysicslab.com

### Laboratory Component:

Any Ten Experiments have to be completed from the list of experiments

Note: The experiments have to be classified into

- a) Exercise
- b) Demonstration
- c) Structured Inquiry
- d) Open Ended

Based on the convenience classify the following experiments into above categories. Select at least one simulation/spreadsheet activity.

#### List of Experiments

- 1. Determination of wavelength of LASER using Diffraction Grating.
- 2. Determination of acceptance angle and numerical aperture of the given Optical Fiber.
- 3. Determination of Magnetic Flux Density at any point along the axis of a circular coil.
- 4. Determination of resistivity of a semiconductor by Four Probe Method
- 5. Study the I-V Characteristics of the Given Bipolar Junction Transistor.
- 6. Determination of dielectric constant of the material of capacitor by Charging and Discharging method.
- 7. Study the Characteristics of a Photo-Diode and to determine the power responsivity / Verification of Inverse Square Law of Intensity of Light.
- 8. Study the frequency response of Series & Parallel LCR circuits.
- 9. Determination of Planck's Constant using LEDs.
- 10. Determination of Fermi Energy of Copper.
- 11. Identification of circuit elements in a Black Box and determination of values of the components.
- 12. Determination of Energy gap of the given Semiconductor.
- 13. Step Interactive Physical Simulations.
- 14. Study of motion using spread Sheets
- 15. Study of Application of Statistics using spread sheets
- 16. PHET Interactive Simulations/filter?subjects=physics&type=html.prototype)

COs and POs Mapping (Individual teacher has to fill up)												
COs	POs											
COS	1	2	3	4	5	6	7	8	9	10	11	12
CO1	3	2	-	-	-	-	-	-	-	-	-	2
CO2	3	3	-	-	-	-	-	-	-	-	-	2
CO3	3	3	-	-	-	-	-	-	-	-	-	2
CO4	3	2	1	-	1	-	-	-	-	-	-	2
CO5	3	2	1	-	2	-	-	3	3	-	-	2
Level 3- Highly Mapped, Level 2-Moderately Mapped, Level 1-Low Mapped,												

**Note :** The CO-PO mapping values are indicative. The course coordinator can alter the mapping using **Competency and Performance Indicators** mentioned in the **AICTE Exam reforms.** 

### II Semester

Course Title: Mathematics-II for Computer Science and Engineering stream					
Course Code:	BMATS201	CIE Marks	50		
Course Type	Integrated	SEE Marks	50		
(Theory/Practical/Integrated)		Total Marks	100		
Teaching Hours/Week (L:T:P: S)	2:2:2:0	Exam Hours	03		
Total Hours of Pedagogy	40 hours Theory + 10 to 12 Lab slots	Credits	04		

Course objectives: The goal of the course Mathematics-II for Computer Science and Engineering stream(22MATS21) is to

- Familiarize the importance of Integral calculus and Vector calculus.
- Learn vector spaces and linear transformations.
- **Develop** the knowledge of numerical methods and apply them to solvetranscendental and differential equations.

### **Teaching-Learning Process**

### Pedagogy (General Instructions):

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

- 1. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted so that the delivered lessons shall develop students' theoretical and applied mathematical skills.
- 2. State the need for Mathematics with Engineering Studies and Provide real-life examples.
- 3. Support and guide the students for self-study.
- 4. You will also be responsible for assigning homework, grading assignments and quizzes, and documenting students' progress.
- 5. Encourage the students to group learning to improve their creative and analytical skills.
- 6. Show short related video lectures in the following ways:
  - As an introduction to new topics (pre-lecture activity).
  - As a revision of topics (post-lecture activity).
  - As additional examples (post-lecture activity).
  - As an additional material of challenging topics (pre-and post-lecture activity).
  - As a model solution of some exercises (post-lecture activity).

### Module-1Integral Calculus (8 hours)

### Introduction to Integral Calculus in Computer Science & Engineering.

**Multiple Integrals:** Evaluation of double and triple integrals, evaluation of double integrals by change of order of integration, changing into polar coordinates. Applications to find Area and Volume by double integral.Problems.

**Beta and Gamma functions:** Definitions, properties, relation between Beta and Gamma functions. Problems.

**Self-Study:** Center of gravity, Duplication formula.

**Applications:** Antenna and wave propagation, Calculation of optimum value in various geometries. Analysis of probabilistic models.

(RBT Levels: L1, L2 and L3)

### Module-2 Vector Calculus(8 hours)

Introduction to Vector Calculus in Computer Science & Engineering.

Scalar and vector fields. Gradient, directional derivative, curl and divergence - physical interpretation, solenoidal and irrotational vector fields. Problems.

**Curvilinear coordinates:**Scale factors, base vectors, Cylindrical polar coordinates, Spherical polar coordinates, transformation between cartesian and curvilinear systems, orthogonality. Problems.

Self-Study: Vector integration and Vector line integral.

Applications: Conservation of laws, Electrostatics, Analysis of streamlines.

Module-3Vector Space and Linear Transformations(8 hours)

Importance of Vector Space and Linear Transformations in the field of Computer Science & Engineering.

**Vector spaces:** Definition and examples, subspace, linear span, Linearly independent and dependent sets, Basis and dimension. Problems.

**Linear transformations**: Definition and examples, Algebra of transformations, Matrix of a linear transformation. Change of coordinates, Rank and nullity of a linear operator, rank-nullity theorem. Inner product spaces and orthogonality. Problems.

Self-study: Angles and Projections.Rotation, Reflection, Contraction and Expansion. Applications: Image processing, AI & ML, Graphs and networks, Computer graphics. (RBT Levels: L1, L2 and L3)

Module-4Numerical Methods -1(8 hours)

Importance of numerical methods for discrete data in the field of computer science & engineering.

Solution of algebraic and transcendental equations - Regula-Falsi and Newton-Raphson methods (only formulae). Problems.

Finite differences, Interpolation using Newton's forward and backward difference formulae, Newton's divided difference formula and Lagrange's interpolation formula (All formulae without proof). Problems.

**Numerical integration**: Trapezoidal, Simpson's (1/3)<sup>rd</sup> and (3/8)<sup>th</sup> rules(without proof). Problems.

Self-Study: Bisection method, Lagrange's inverse Interpolation.

**Applications:** Estimating the approximate roots, extremum values, Area, volume, and surface area. Errors in finite precision.

(RBT Levels: L1, L2 and L3)

Module-5Numerical Methods -2(8 hours)

Introduction to various numerical techniques for handling Computer Science & Engineering applications.

**Numerical Solution of Ordinary Differential Equations (ODE's):** Numerical solution of ordinary differential equations of first order and first degree - Taylor's series method, Modified Euler's method, Runge-Kutta method of fourth order and Milne's predictor-corrector formula (No derivations of formulae). Problems.

Self-Study: Adam-Bashforth method. Applications: Estimating the approximate solutions of ODE. (RBT Levels: L1, L2 and L3).

List of	Laboratory experiments (2 hours/week per batch/ batch strength 15)				
10 lab	sessions + 1 repetition class + 1 Lab Assessment				
1	Program to compute area, surface area, volume and centre of gravity				
2	Evaluation of improper integrals				
3	Finding gradient, divergent, curl and their geometrical interpretation				
4	Computation of basis and dimension for a vector space and Graphical representation of				
	linear transformation				
5	Computing the inner product and orthogonality				
6	Solution of algebraic and transcendental equations by Ramanujan's, Regula-Falsi and				
	Newton-Raphson method				
7	Interpolation/Extrapolation using Newton's forward and backward difference formula				
8	Computation of area under the curve using Trapezoidal, Simpson's (1/3) <sup>rd</sup> and (3/8) <sup>th</sup> rule				
9	Solution of ODE of first order and first degree by Taylor's series and Modified Euler's				
	method				
10	Solution of ODE of first order and first degree by Runge-Kutta 4 <sup>th</sup> order and Milne's				
	predictor-corrector method				
Sugges	ted software's: Mathematica/MatLab/Python/Scilab				
	e outcome (Course Skill Set)				
	end of the course the student will be able to:				
CO1	Apply the concept of change of order of integration and variables to evaluate multiple				
<u></u>	integrals and their usage in computing area and volume.				
CO2	Understand the applications of vector calculus refer to solenoidal, and irrotational vectors.Orthogonal curvilinear coordinates.				
CO3	Demonstrate the idea of Linear dependence and independence of sets in the vector space,				
	and linear transformation				
CO4	Apply the knowledge of numerical methods in analysing the discrete data and solving the				
	physical and engineering problems.				
CO5	Get familiarize with modern mathematical tools namely				
	MATHEMATICA/ MATLAB /PYTHON/ SCILAB				
Assessi	nent Details (both CIE and SEE)				

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in thetotal of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

**Continuous Internal Evaluation(CIE):** 

The CIE marks for the theory component of the IC shall be 30 marks and for the laboratory component 20 Marks.

### **CIE** for the theory component of the IC

Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.

Two Assignments/two quizzes/ seminars/one field survey and report presentation/one-course project totalling 20 marks.

Total Marks scored (test + assignments) out of 80 shall be scaled down to 30 marks

CIE for the practical component of the IC

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted at the end of the semester.
- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.
- The laboratory test (duration 03 hours) at the end of the 15<sup>th</sup> week of the semester/after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to 05 marks.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

# Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English/Kannada). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

# Suggested Learning Resources:

Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year) Text Books

- 1. **B. S. Grewal**: "Higher Engineering Mathematics", Khanna Publishers, 44<sup>th</sup>Ed., 2021.
- 2. E. Kreyszig: "Advanced Engineering Mathematics", John Wiley & Sons, 10<sup>th</sup>Ed., 2018.

# **Reference Books**

- 1. **V. Ramana:** "Higher Engineering Mathematics" McGraw-Hill Education, 11<sup>th</sup> Ed., 2017
- 2. Srimanta Pal & Subodh C.Bhunia: "Engineering Mathematics" Oxford University Press, 3<sup>rd</sup> Ed., 2016.
- 3. **N.P Bali and Manish Goyal**: "A Textbook of Engineering Mathematics" Laxmi Publications, 10<sup>th</sup> Ed., 2022.
- 4. **C. Ray Wylie, Louis C. Barrett:** "Advanced Engineering Mathematics" McGraw Hill Book Co., New York, 6<sup>th</sup> Ed., 2017.
- 5. **Gupta C.B, Sing S.R and Mukesh Kumar:** "Engineering Mathematic for Semester I and II", Mc-Graw Hill Education(India) Pvt. Ltd 2015.
- 6. **H. K. Dass and Er. Rajnish Verma:** "Higher Engineering Mathematics" S. Chand Publication, 3<sup>rd</sup> Ed., 2014.
- 7. James Stewart: "Calculus" Cengage Publications, 7<sup>th</sup>Ed., 2019.
- 8. David C Lay: "Linear Algebra and its Applications", Pearson Publishers, 4<sup>th</sup> Ed., 2018.
- 9. **Gareth Williams:** "Linear Algebra with applications", Jones Bartlett Publishers Inc., 6<sup>th</sup> Ed., 2017.

10. Gilbert Strang: "Linear Algebra and its Applications", Cengage Publications, 4<sup>th</sup> Ed., 2022.

# Web links and Video Lectures (e-Resources):

- <u>http://nptel.ac.in/courses.php?disciplineID=111</u>
- <u>http://www.class-central.com/subject/math(MOOCs)</u>
- http://academicearth.org/
- VTU e-Shikshana Program
- VTU EDUSAT Program

# Activity-Based Learning (Suggested Activities in Class)/ Practical-Based Learning

- Quizzes
- Assignments
- Seminar

## COs and POs Mapping (Individual teacher has to fill up)

COs	POs						
	1	2	3	4	5	6	7
CO1							
CO2							
CO3							
CO4							
CO5							
Level 3- Hi	ghly Mapped,	Level 2-Mo	derately Map	ped, Le	vel 1-Low Mapp	ed, Level 0- N	Not Mapped

Course Title:	Communicative Engl	ish	
Course Code:	BENGK106-206	CIE Marks	50
	Theory	SEE Marks	50
Course Type (Theory/Practical /Integrated	-	Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01
<b>Course objectives:</b> The course Communicat 1. To know about Fundamentals of Cor			
<ol> <li>To know about Fundamentals of Col</li> <li>To train to identify the nuances of ph</li> </ol>			
<ol> <li>To train to identify the numbers of pr</li> <li>To impart basic English grammar an</li> </ol>			s for better Communication ski
4. To enhance with English vocabulary	-		on skills
5. To learn about Techniques of Inform			on skins.
Teaching-Learning Process :	ation Hunster through pres		
These are sample Strategies, which teacher can	use to accelerate the attainm	ent of the various cour	se outcomes and make
Teaching –Learning more effective:			
Teachers shall adopt suitable pedagogy for effectiv			
methodologies which suit modern technological to			
(i) Direct instructional method ( Low/0 Blended learning (Combination of both			ted Technological tools), (111)
(v) Personalized learning, (vi) Problem		÷	ne method of expeditionary
learning Tools and techniques, (viii) U	6 6		· ·
Apart from conventional lecture methods, various			
adapted so that the delivered lesson can progress th			
skills in general.			
Language Lab: To augment LSRW, gramm			
Grammar, Vocabulary) through tests, activitie can be referred as per the AICTE / VTU guide		isive web-based learn	ing and assessment systems
	Iodule-1		(03 hours of pedagog
Introduction to Communicative English : (		damantala of Comm	
	_		-
Communication, Barriers to Effective Commu	integrive English Different	styles and levels in C	
	inteative English, Different	-	ommunicative English.
	•		ommunicative English.
Interpersonal and Intrapersonal Communication	•	·	
Interpersonal and Intrapersonal Communication	on Skills. Iodule-2	iation, Pronunciation	(03 hours of pedagog
Interpersonal and Intrapersonal Communication M Introduction to Phonetics : Phonetic Tran	on Skills. Iodule-2 nscription, English Pronunc		<b>(03 hours of pedagog</b> ) Guidelines to consonants a
Interpersonal and Intrapersonal Communication M Introduction to Phonetics : Phonetic Tran vowels, Sounds Mispronounced, Silent and N	on Skills. Iodule-2 nscription, English Pronunc on silent Letters, Syllables a	and Structure. Word A	<b>(03 hours of pedagog</b> ) Guidelines to consonants a
Interpersonal and Intrapersonal Communication M Introduction to Phonetics : Phonetic Tran vowels, Sounds Mispronounced, Silent and N Intonation, Spelling Rules and Words often M	on Skills. Iodule-2 Inscription, English Pronunc on silent Letters, Syllables a Iisspelt. Common Errors i	and Structure. Word A	<b>(03 hours of pedagog</b> ) Guidelines to consonants at Accent, Stress Shift and
Interpersonal and Intrapersonal Communication M Introduction to Phonetics : Phonetic Tran vowels, Sounds Mispronounced, Silent and N Intonation, Spelling Rules and Words often M	on Skills. Iodule-2 nscription, English Pronunc on silent Letters, Syllables a	and Structure. Word A	<b>(03 hours of pedagog</b> ) Guidelines to consonants at Accent, Stress Shift and
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Interpersonal and Intrapersonal Communication  Introduction to Phonetics : Phonetic Transvowels, Sounds Mispronounced, Silent and N Intonation, Spelling Rules and Words often M  Basic English Communicative Gramm Parts of Speech, Articles and Preposition. Que Introduction to Vocabulary, All Types of Voc	on Skills. Iodule-2 Inscription, English Pronunce on silent Letters, Syllables a lisspelt. Common Errors i Iodule-3 ar and Vocabulary PA estion Tags, One Word Subs	and Structure. Word Ann Pronunciation. RT - I :Grammar: Ba	(03 hours of pedagog Guidelines to consonants at Accent, Stress Shift and (03 hours of pedagogy asic English Grammar and Yeak forms of words,
Interpersonal and Intrapersonal Communication M Introduction to Phonetics : Phonetic Transvowels, Sounds Mispronounced, Silent and N Intonation, Spelling Rules and Words often M M Basic English Communicative Gramm Parts of Speech, Articles and Preposition. Que Introduction to Vocabulary, All Types of Voc Mo	on Skills. Iodule-2 Inscription, English Pronunce on silent Letters, Syllables a Iisspelt. Common Errors i Iodule-3 ar and Vocabulary PA estion Tags, One Word Subs abulary – Exercises on it. Iodule-4	and Structure. Word A n Pronunciation. <b>RT - I :</b> Grammar: Ba stitutes, Strong and W	(03 hours of pedagogy Guidelines to consonants an Accent, Stress Shift and (03 hours of pedagogy asic English Grammar and Yeak forms of words, (03 hours of pedagogy)
Interpersonal and Intrapersonal Communication  Introduction to Phonetics : Phonetic Transvowels, Sounds Mispronounced, Silent and N Intonation, Spelling Rules and Words often M  Basic English Communicative Gramm Parts of Speech, Articles and Preposition. Que Introduction to Vocabulary, All Types of Voc Mathematicative Grammar a	on Skills. Iodule-2 Inscription, English Pronunce on silent Letters, Syllables a Iisspelt. Common Errors i Iodule-3 ar and Vocabulary PA estion Tags, One Word Subs abulary – Exercises on it. Iodule-4 Ind Vocabulary PART - II	and Structure. Word A n Pronunciation. <b>RT - I :</b> Grammar: Ba stitutes, Strong and W	(03 hours of pedagogy Guidelines to consonants an Accent, Stress Shift and (03 hours of pedagogy asic English Grammar and 'eak forms of words, (03 hours of pedagogy) Prefixes and Suffixes,
Interpersonal and Intrapersonal Communication M Introduction to Phonetics : Phonetic Transvowels, Sounds Mispronounced, Silent and N Intonation, Spelling Rules and Words often N M Basic English Communicative Gramm Parts of Speech, Articles and Preposition. Que Introduction to Vocabulary, All Types of Voc M Basic English Communicative Grammar a Contractions and Abbreviations. Word Pairs (	on Skills. Iodule-2 Inscription, English Pronunce on silent Letters, Syllables a lisspelt. Common Errors i Iodule-3 ar and Vocabulary PA estion Tags, One Word Subse abulary – Exercises on it. Iodule-4 Ind Vocabulary PART - II Minimal Pairs) – Exercises,	and Structure. Word A n Pronunciation. <b>RT - I :</b> Grammar: Ba stitutes, Strong and W	(03 hours of pedagog Guidelines to consonants at Accent, Stress Shift and (03 hours of pedagogy asic English Grammar and 'eak forms of words, (03 hours of pedagogy Prefixes and Suffixes,
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Interpersonal and Intrapersonal Communication  Introduction to Phonetics : Phonetic Tran vowels, Sounds Mispronounced, Silent and N Intonation, Spelling Rules and Words often M  Basic English Communicative Gramm Parts of Speech, Articles and Preposition. Que Introduction to Vocabulary, All Types of Voc Mc Basic English Communicative Grammar a Contractions and Abbreviations. Word Pairs ( Tenses (Rules in use of Tenses) and Exercises Mo Communication Skills for Employment : In	on Skills. Iodule-2 inscription, English Pronunce on silent Letters, Syllables a lisspelt. Common Errors i Iodule-3 ar and Vocabulary PA estion Tags, One Word Subse abulary – Exercises on it. odule-4 nd Vocabulary PART - II Minimal Pairs) – Exercises, s on it. dule-5 information Transfer:Oral Pr	and Structure. Word A n Pronunciation. <b>RT - I :</b> Grammar: Bastitutes, Strong and W I:Words formation - H Tense and Types of t	(03 hours of pedagog Guidelines to consonants a Accent, Stress Shift and (03 hours of pedagogy asic English Grammar and 'eak forms of words, (03 hours of pedagogy Prefixes and Suffixes, tenses, The Sequence of (03 hours of pedagogy ctice. Difference between
Interpersonal and Intrapersonal Communication M Introduction to Phonetics : Phonetic Transvowels, Sounds Mispronounced, Silent and N Intonation, Spelling Rules and Words often M M Basic English Communicative Gramm Parts of Speech, Articles and Preposition. Que Introduction to Vocabulary, All Types of Voc M Basic English Communicative Grammar a Contractions and Abbreviations. Word Pairs ( Tenses (Rules in use of Tenses) and Exercises Mo	on Skills. Iodule-2 inscription, English Pronunce on silent Letters, Syllables a lisspelt. Common Errors i Iodule-3 ar and Vocabulary PA estion Tags, One Word Subse abulary – Exercises on it. odule-4 nd Vocabulary PART - II Minimal Pairs) – Exercises, s on it. dule-5 information Transfer:Oral Pr	and Structure. Word A n Pronunciation. <b>RT - I :</b> Grammar: Bastitutes, Strong and W I:Words formation - H Tense and Types of t	(03 hours of pedagogy Guidelines to consonants an Accent, Stress Shift and (03 hours of pedagogy asic English Grammar and 'eak forms of words, (03 hours of pedagogy) Prefixes and Suffixes, tenses, The Sequence of (03 hours of pedagogy) ctice. Difference between

## 26.10.2022

Course o	outcome (Course Skill Set)
At the en	d of the course Communicative English (22ENG16) the student will be able to:
C01	Understand and apply the Fundamentals of Communication Skills in their communication skills.
C02	Identify the nuances of phonetics, intonation and enhance pronunciation skills.
600	

CO3 To impart basic English grammar and essentials of language skills as per present requirement.

CO4 Understand and use all types of English vocabulary and language proficiency.

CO5 Adopt the Techniques of Information Transfer through presentation.

# Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### **Continuous Internal Evaluation(CIE):**

#### Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration

#### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others.. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks

#### Semester End Examinations (SEE)

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

#### Suggested Learning Resources:

#### Textbook:

- 1) Communication Skills by Sanjay Kumar & Pushp Lata, Oxford University Press India Pvt Ltd 2019.
- 2) A Textbook of English Language Communication Skills, (ISBN-978-81-955465-2-7), Published by Infinite Learning Solutions, Bengaluru 2022.

#### **Reference Books:**

- 1. **Technical Communication** by Gajendra Singh Chauhan and Et al, (ISBN-978-93-5350-050-4), Cengage learning India Pvt Limited [Latest Revised Edition] 2019.
- 2. English for Engineers by N.P.Sudharshana and C.Savitha, Cambridge University Press 2018.
- English Language Communication Skills Lab Manual cum Workbook, Cengage learning India Pvt Limited [Latest Revised Edition] – (ISBN-978-93-86668-45-5), 2019.
- 4. A Course in Technical English D Praveen Sam, KN Shoba, Cambridge University Press 2020.
- 5. **Practical English Usage** by Michael Swan, Oxford University Press 2016.

#### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- $\checkmark$  For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions, Seminars and assignments

Course Title:	Waste Managemen	t		
Course Code:		BETCK105F/205F	CIE Marks	50
Course Type (Theory/Practical		Theory	SEE Marks	50
/Integrated)			Total Marks	100
Teaching Hours/Week (L:T:P: S)		3:0:0:0	Exam Hours	3 hrs of Theory
Total Hours of Pedagogy		40 hours	Credits	03

#### **Course objectives**

- To learn broader understandings on various aspects of solid waste management practiced in industries.
- To learn recovery of products from solid waste to compost and biogas, incineration and energy recovery,
  - hazardous waste management and treatment, and integrated waste management.

#### **Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective

- 1. Include traditional teaching learning process such as Chalk and Talk using writing boards.
- 2. Construct graphical and pictorial representation of the subject in the form of Chart, hand-outs or PowerPoint presentations.
- 3. Collaborate with students how tools are applied to solve biological problems.
- 4. Integrate real time case studies in various scientific tools used.
- 5. Reflective approaches on analysing how and why the tools are used in self-reflected or published data.
- 6. Incorporate Inquiry based approach using demonstration, field study, experiments and project work

### Module-1 (08)

#### INTRODUCTION TO SOLID WASTE MANAGEMENT:

Classification of solid wastes (source and type based), solid waste management (SWM), elements of SWM, ESSWM (environmentally sound solid waste management) and EST (environmentally sound technologies), factors affecting SWM, Indian scenario, progress in MSW (municipal solid waste) management in India.Indian and global scenario of e-waste,

#### Module-2 (08)

#### WASTE GENERATION ASPECTS:

Waste stream assessment (WSA), waste generation and composition, waste characteristics (physical and chemical), health and environmental effects (public health and environmental), comparative assessment of waste generation and composition of developing and developed nations, a case study results from an Indian city, handouts on solid waste compositions. E-waste generation.

#### Module-3 (08)

#### COLLECTION, STORAGE, TRANSPORT AND DISPOSAL OF WASTES:

Waste Collection, Storage and Transport: Collection components, storage-containers/collection vehicles, collection operation, transfer station, waste collection system design, record keeping, control, inventory and monitoring, implementing collection and transfer system, a case study. Waste Disposal: key issues in waste disposal, disposal options and selection criteria, sanitary landfill, landfill gas emission, leachate formation, environmental effects of landfill, landfill operation issues, a case study.

#### Module-4 (08)

#### WASTE PROCESSING TECHNIQUES & SOURCE REDUCTION, PRODUCT RECOVERY & RECYCLING:

Purpose of processing, mechanical volume and size reduction, component separation, drying and dewatering. Source Reduction, Product Recovery and Recycling: basics, purpose, implementation monitoring and evaluation of source reduction, significance of recycling, planning of a recycling programme, recycling programme elements, commonly recycled materials and processes, a case study.

#### Module-5 (08)

#### HAZARDOUS WASTE MANAGEMENT AND TREATMENT:

Identification and classification of hazardous waste, hazardous waste treatment, pollution prevention and waste minimization, hazardous wastes management in India. E-waste recycling.

#### Course outcome (Course Skill Set)

At the end of the course the student will be able to:

At the en	d of the course the student will be able to.
C01	Apply the basics of solid waste management towards sustainable development
CO2	Apply technologies to process waste and dispose the same.
CO3	Design working models to convert waste to energy
C04	Identify and classify hazardous waste and manage the hazard

## **Assessment Details (both CIE and SEE)**

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

## Continuous Internal Evaluation(CIE):

Three Tests each of 20 Marks;

• 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> tests shall be conducted after completion of the syllabus of 30-35%,

70-75%, and 90-100% of the course/s respectively.

 Assignments/Seminar/quiz/group discussion /field survey & report presentation/ course project/Skill development activities, suitably planned to attain the COs and POs for a total of 40 Marks.

If the nature of the courses requires assignments/Seminars/Quizzes/group discussion two evaluation components shall be conducted. If course project/field survey/skill development activities etc then the evaluation method shall be one.

# Total CIE marks (out of 100 marks) shall be scaled down to 50 marks

#### Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks.
- Students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

#### Suggested Learning Resources:

Books

## **Text Books:**

1. Tchobaanoglous, G., Theisen, H., and Samuel A Vigil, Integrated Solid Waste Management, McGraw-Hill Publishers, 1993.

2. Bilitewski B., Hard He G., Marek K., Weissbach A., and Boeddicker H., Waste Management, Springer, 1994.

#### **Reference Books:**

1. White, F. R., Franke P. R., & Hindle M., Integrated solid waste management: a life cycle inventory. McDougall, P. John Wiley & Sons. 2001

2. Nicholas, P., & Cheremisinoff, P. D., Handbook of solid waste management and waste minimization

technologies, Imprint of Elsevier Science. 2005

#### Web links and Video Lectures (e-Resources):

- https://nptel.ac.in/courses/105103205
- https://www.youtube.com/watch?v=k0ktJRoRcOA
- https://nptel.ac.in/courses/103/107/103107125/
- https://onlinecourses.nptel.ac.in/noc22\_ce76/preview
- https://onlinecourses.swayam2.ac.in/cec20\_ge13/preview

#### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- AV presentation by students (on specific topics).
- Discussion of case studies based on research findings.
- Model making and Poster presentations

#### COs and POs Mapping (Individual teacher has to fill up) COs POs 1 7 9 2 3 4 5 6 8 10 11 12 C01 3 3 3 3 3 **CO2** 3 **CO3** 3 3 3 **CO4** 3 3 3 Level 3- Highly Mapped, Level 2-Moderately Mapped, Level 1-Low Mapped, Level 0- Not Mapped

# I Semester

Learning

INNOVATION and DESIGN THINKING					
Course Code BIDTK158/258 CIE Marks 50					
Teaching Hours/Week (L: T:P: S)	1:0:0 SEE Marks		50		
Total Hours of Pedagogy	15	Total Marks	100		
Credits 01 Exam Hours 01					

# Course Category: Foundation

**Preamble:** This course provides an introduction to the basic concepts and techniques of engineering and reverses engineering, the process of design, analytical thinking and ideas, basics and development of engineering drawing, application of engineering drawing with computer aide. **Course objectives:** 

- To explain the concept of design thinking for product and service development
- To explain the fundamental concept of innovation and design thinking
- To discuss the methods of implementing design thinking in the real world.

# Teaching-Learning Process (General Instructions)

These are sample Strategies; which teachers can use to accelerate the attainment of the various course outcomes.

- **1.** Lecturer method (L) does not mean only the traditional lecture method, but a different type of teaching method may be adopted to develop the outcomes.
- **2.** Show Video/animation films to explain concepts
- 3. Encourage collaborative (Group Learning) Learning in the class
- **4.** Ask at least three HOTS (Higher-order Thinking) questions in the class, which promotes critical thinking
- **5.** Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develops thinking skills such as the ability to evaluate, generalize, and analyze information rather than simply recall it.
- **6.** Topics will be introduced in multiple representations.
- **7.** Show the different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.
- **8.** Discuss how every concept can be applied to the real world and when that's possible, it helps improve the students' understanding.

Module-1				
PROCESS OF DESIGN				
Understanding Design thinking				
Shared mode	el in team-based design – Theory and practice in Design thinking – Explore presentation			
signers acros	signers across globe – MVP or Prototyping			
Teaching-	Introduction about the design thinking: Chalk and Talk method			
Learning	Theory and practice through presentation			
Process	MVP and Prototyping through live examples and videos			
Module-2				
Tools for Design Thinking				
Real-Time design interaction capture and analysis – Enabling efficient collaboration in digital space				
– Empathy for design – Collaboration in distributed Design				
Teaching-	Case studies on design thinking for real-time interaction and analysis			

CO3	Identify the significance of reverse Engineering toUnderstand	К2			
CO2	Generate and develop design ideas through different technique	К2			
C01	Appreciate various design process procedure	К2			
		Bloom's Taxonomy)			
CO Nos.	Course Outcomes	(Based on revised			
	successful completion of the course, students will be able to:	Knowledge Level			
<b>Course O</b>					
Process					
Learning	on the learning from the workshop				
Teaching	- 8 hours design thinking workshop from the expect and then pre-	esentation by the students			
Design Th	inking Work shop Empathize, Design, Ideate, Prototype and Test				
Design th	inking workshop				
Process	Live project on design thinking in a group of 4 students Module-5				
Learning					
Teaching					
design.					
Humaniza	ation - Creative Culture – Rapid prototyping, Strategy and Orga	anization – Business Model			
	e – Value redefinition - Extreme Competition – experience of	_			
	Story telling representation – Strategic Foresight - Change – St	ense Making - Maintenance			
DT For st	rategic innovations				
1100033	Module-4				
Process		nototypnig			
Teaching Learning					
-	ototyping	on environment – Stenario			
-	` <b>hinking in IT</b> hinking to Business Process modelling – Agile in Virtual collaborati	on onvironment Sconario			
D! 7	Module-3				
	Live examples on the success of collaborated design thinkin	g			
	Simulation exercises for collaborated enabled design thinking				

## Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together. **Continuous Internal Evaluation (CIE):** 

- Two Tests (preferably in MCQ pattern ) each of **30 Marks**; The first test after the completion of the 40 -50% syllabus of the course. A second test after the completion of 90-100% of the syllabus of the course.
- Two Assignments/two quizzes/two seminars/one field survey and report

presentation/one-course project totaling 40 marks

Total Marks scored (test + assignments) out of 100 shall be scaled down to 50 marks

At the beginning of the semester, the instructor/faculty teaching the course has to announce the methods of CIE for the course.

The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

## Semester-End Examination:

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for subject

SEE paper will be set for 50 questions of each of 01 marks. The pattern of the question paper is MCQ. The time allotted for SEE is **01 hour** 

## Suggested Learning Resources:

#### **Text Books :**

- 1. John.R.Karsnitz, Stephen O'Brien and John P. Hutchinson, "Engineering Design", Cengage learning (International edition) Second Edition, 2013.
- 2. Roger Martin, "The Design of Business: Why Design Thinking is the Next Competitive Advantage", Harvard Business Press, 2009.
- 3. Hasso Plattner, Christoph Meinel and Larry Leifer (eds), "Design Thinking: Understand Improve Apply", Springer, 2011
- 4. Idris Mootee, "Design Thinking for Strategic Innovation: What They Can't Teach You at Business or Design School", John Wiley & Sons 2013.

**References**:

5.	Yousef Haik and Tamer M.Shahin, "Engineering Design Process", CengageLearning, Second
	Edition, 2011.
6.	Book - Solving Problems with Design Thinking - Ten Stories of What Works (Columbia Business
	School Publishing) Hardcover – 20 Sep 2013 by Jeanne Liedtka (Author), Andrew King (Author),
	Kevin Bennett (Author).
Web li	nks and Video Lectures (e-Resources):
1.	www.tutor2u.net/business/presentations/. / <b>productlifecycle</b> /default.html
2.	https://docs.oracle.com/cd/E11108_02/otn/pdf/. /E11087_01.pdf
3.	www.bizfilings.com > Home > Marketing > Product Developmen
4.	https://www.mindtools.com/brainstm.html
5.	https://www.quicksprout.com/. /how-to- <b>reverse-engineer</b> -your-competit
6.	www.vertabelo.com/blog/documentation/reverse-engineering

https://support.microsoft.com/en-us/kb/273814 7. https://support.google.com/docs/answer/179740?hl=en

8. <u>https://www.youtube.com/watch?v=2mjSDIBaUlM</u> thevirtualinstructor.com/foreshortening.html

http://dschool.stanford.edu/dgift/

https://onlinecourses.nptel.ac.in/noc19\_mg60/preview

https://www.nngroup.com/articles/design-thinking/ 9. https://designthinkingforeducators.com/design-thinking/ 10.

https://dschool.stanford.edu/.../designresources/.../ModeGuideBOOTCAMP2010L.pdf

https://dschool.stanford.edu/use-our-methods/ 6. https://www.interactiondesign.org/literature/article/5-stages-in-the-design-thinking-process 7.

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

http://www.creativityatwork.com/design-thinking-strategy-for-innovation/498.

www.designthinkingformobility.org/wp-content/.../10/NapkinPitch\_Worksheet.pdf

4/3

Course Title:	Principles of Program	ming using C			
Course Code:	BPOPS103/203	CIE Marks 50			
Course Type	Integrated	SEE Marks 50			
(Theory/Practical /Integrated )		Total Marks100			
Teaching Hours/Week (L:T:P: S)	2:0:2	Exam Hours 3+2			
Total Hours of Pedagogy	40 hours	Credits 03			
Cours	eObjectives:				
CLO CLO	<ol> <li>Elucidate the basic architecture and functionality</li> <li>Apply programming constructs of C languproblems</li> <li>Explore user-defined data structures like arringlementing solutions to problems</li> <li>Design and Develop Solutions to problems u constructs such as functions and procedures</li> </ol>	uage to solve the real-world rays, structures and pointers in			
Teach	ing-LearningProcess(GeneralInstructions)				
outcon	Lecturer method (L) need not to be only traditional ternative effective teaching methods could be adout use of Video/Animation to explain functioning of variable and the effective teaching methods could be adout use of Video/Animation to explain functioning of variable and the effective teaching (Group Learning) Learning Askatle as three HOT (Higher order Thinking) questical thinking. Adopt Problem Based Learning (PBL), which foster provide the problem Based Learning (PBL), which foster provide the traditional teaching skills such as the ability to design analyze information rather than simply recall it. Introduce Topics in manifold representations. Show the different ways to solve the same problem and up with their own creative ways to solve them. Discuss how every concept can be applied to the real ways to improve the students' understanding. Use https://pythontutor.com/visualize.html#mod operations of C Programs	onal lecture method, but optedtoattaintheoutcomes. ariousconcepts. ngintheclass. stionsintheclass,whichpromotescri rsstudents'Analyticalskills,develo gn, evaluate, generalize, and ndencouragethestudentstocome world-andwhenthat'spossible,ithelps le=edit in order to visualize the			
	Module-1 (6 Hours of Pedagogy)				
progra Compi	<b>uction to C:</b> Introduction to computers, input and ms. Introduction to C, Structure of C progra lers, Compiling and executing C programs, ents in C,				
	ook: Chapter 1.1-1.9, 2.1-2.2, 8.1 - 8.6, 9.1-9.14 rocess Chalkandtalkmethod/PowerPointPresenta	ation/ Web Content:			
Louining Louining	https://tinyurl.com/4xmrexre				

	Module-2 (6 Hours of Pedagogy)
	Operators in C, Type conversion and typecasting.
	<b>Decision control and Looping statements:</b> Introduction to decision control, Conditiona branching statements, iterative statements, nested loops, break and continue statements goto statement.
	Textbook: Chapter 9.15-9.16, 10.1-10.6
Teaching-Le	earningProcess Chalkandtalkmethod/PowerPointPresentation
	Module-3 (8 Hours of Pedagogy)
atement, pass rrays: Declara rrays, Passing imensional arr	roduction using functions, Function definition, function declaration, function call, return sing parameters to functions, scope of variables, storage classes, recursive functions. ation of arrays, accessing the elements of an array, storing values in arrays, Operations on g arrays to functions, two dimensional arrays, operations on two-dimensional arrays, two- rays to functions, multidimensional arrays, applications of arrays.
	pter 11.1-11.10, 12.1-12.10,12.12
Teaching-Lea	arningProcess Chalkandtalkmethod/PowerPointPresentation
	Module-4 (6 Hours of Pedagogy)
character func	<b>Pointers:</b> Introduction, string taxonomy, operations on strings, Miscellaneous string a ctions, arrays of strings. Pointers: Introduction to pointers, declaring pointer variables, Types sing arguments to functions using pointers
character func pointers, Pass <b>Textbook: C</b> l	<b>Pointers:</b> Introduction, string taxonomy, operations on strings, Miscellaneous string a ctions, arrays of strings. Pointers: Introduction to pointers, declaring pointer variables, Types
character func pointers, Pass <b>Textbook: C</b> l	<b>Pointers:</b> Introduction, string taxonomy, operations on strings, Miscellaneous string a ctions, arrays of strings. Pointers: Introduction to pointers, declaring pointer variables, Types sing arguments to functions using pointers hapter 13.1-13.6, 14-14.7
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character func pointers, Pass Textbook: Cl Teaching-Le: Structure, U inside structur Files: Introdu Textbook: Cl Teaching-Le: CourseOutco Attheendofthe CO1. Elucid the hardware	Pointers: Introduction, string taxonomy, operations on strings, Miscellaneous string a ctions, arrays of strings. Pointers: Introduction to pointers, declaring pointer variables, Types ing arguments to functions using pointers         hapter 13.1-13.6, 14-14.7         arningProcess       Chalkandtalkmethod/PowerPointPresentation         Module-5 (6 Hours of Pedagogy)         Union, and Enumerated Data Type: Introduction, structures and functions, Unions, uni res, Enumerated data type.         totion to files, using files in C, reading and writing data files. , Detecting end of file         hapter 15.1 – 15.10, 16.1-16.5         arningProcess       Chalkandtalkmethod/PowerPointPresentation         omes(CourseSkillSet)         ecoursethestudentwillbeableto:         late the basic architecture and functionalities of a computer and also recognize
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character func pointers, Pass Textbook: Cl Teaching-Le: Structure, U inside structur Files: Introdu Textbook: Cl Teaching-Le: CourseOutco Attheendofthe CO1. Elucid the hardward CO 2. Apply CO 3.Explor	Pointers: Introduction, string taxonomy, operations on strings, Miscellaneous string a ctions, arrays of strings. Pointers: Introduction to pointers, declaring pointer variables, Types ing arguments to functions using pointers         hapter 13.1-13.6, 14-14.7         arningProcess       Chalkandtalkmethod/PowerPointPresentation         Module-5 (6 Hours of Pedagogy)         Inion, and Enumerated Data Type: Introduction, structures and functions, Unions, uni res, Enumerated data type.         Iction to files, using files in C, reading and writing data files. , Detecting end of file         hapter 15.1 – 15.10, 16.1-16.5         arningProcess       Chalkandtalkmethod/PowerPointPresentation         omes(CourseSkillSet)       Ecoursethestudentwillbeableto:         date the basic architecture and functionalities of a computer and also recognize       e parts.         y programming constructs of C language to solve the real world problem       Poblem

CO5.Design and Develop Solutions to problems using modular programming constructs using functions

#### **Programming Assignments**

1 Simulation of a SimpleCalculator.

2 Compute the roots of a quadratic equation by accepting the coefficients. Print appropriate messages.

3 An electricity board charges the following rates for the use of electricity: for the first 200 units 80 paise per unit: for the next 100 units 90 paise per unit: beyond 300 units Rs 1 per unit. All users are charged a minimum of Rs. 100 as meter charge. If the total amount is more than Rs 400, then an additional surcharge of 15% of total amount is charged. Write a program to read the name of the user, number of units consumed and print out the charges.

4. Write a C Program to display the following by reading the number of rows as input,

n<sup>th</sup> row

5 Implement Binary Search on Integers.

6 Implement Matrix multiplication and validate the rules of multiplication.

7 Compute sin(x)/cos(x) using Taylor series approximation. Compare your result with the built-in library function. Print both the results with appropriate inferences.

8 Sort the given set of N numbers using Bubble sort.

9 Write functions to implement string operations such as compare, concatenate, and find string length. Use the parameter passing techniques.

10 Implement structures to read, write and compute average- marks of the students, list the students scoring above and below the average marks for a class of N students.

11 Develop a program using pointers to compute the sum, mean and standard deviation of all elements stored in an array of N real numbers.

12. Write a C program to copy a text file to another, read both the input file name and target file name.

Note:

SEE marks for the practical course is 50 Marks.

SEE shall be conducted jointly by the two examiners of the same institute, examiners are appointed by the University

All laboratory experiments are to be included for practical examination.

(Rubrics) Breakup of marks and the instructions printed on the cover page of the answer script to be strictly adhered to by the examiners. OR based on the course requirement evaluation rubrics shall be decided jointly by examiners.

Students can pick one question (experiment) from the questions lot prepared by the internal /external examiners jointly.

Evaluation of test write-up/ conduction procedure and result/viva will be conducted jointly by examiners.

General rubrics suggested for SEE are mentioned here, writeup-20%, Conduction procedure and result in -60%, Viva-voce 20% of maximum marks. SEE for practical shall be evaluated for 100 marks and scored marks shall be scaled down to 50 marks (however, based on course type, rubrics shall be decided by the examiners)

Students can pick one experiment from the questions lot with equal choice to all the students in a batch. Student should develop an algorithm, program, execute and demonstrate the results with appropriate output for the given problem.

Change of experiment is allowed only once and 15% Marks allotted to the procedure part to be made zero.

#### The duration of SEE is 02 hours

#### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### Continuous Internal Evaluation(CIE):

The CIE marks for the theory component of the IC shall be **30 marks** and for the laboratory component **20 Marks**.

#### CIE for the theory component of the IC

- Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.
- Two Assignments/two quizzes/ seminars/one field survey and report presentation/one-

course project totaling 20 marks.

Total Marks scored (test + assignments) out of 80 shall be scaled down to **30 marks** 

## CIE for the practical component of the IC

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for** the test conducted at the end of the semester.
- The CIE marks awarded in the case of the Practical component shall be based on the

continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.

• The laboratory test **(duration 03 hours)** at the end of the 15<sup>th</sup> week of the semester /after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to **05 marks**.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

• The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

## Semester End Examination:

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (duration 03 hours)

- 1. The question paper will have ten questions. Each question is set for 20 marks. Marks scored shall be proportionally reduced to 50 marks.
- 2. There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), should have a mix of topics under that module.
- 3. The students have to answer 5 full questions, selecting one full question from each module

### Suggested Learning Resources:

## Textbooks

1. Computer fundamentals and programming in c, "Reema Thareja", Oxford University, Second edition, 2017.

#### **Reference Books:**

- 1. E. Balaguruswamy, Programming in ANSI C, 7th Edition, Tata McGraw-Hill.
- 2. Brian W. Kernighan and Dennis M. Ritchie, The 'C' Programming Language, Prentice Hall of India.

#### Web links and Video Lectures (e-Resources):

- 1. elearning.vtu.ac.in/econtent/courses/video/BS/15PCD23.html
- 2. https://nptel.ac.in/courses/106/105/106105171/ MOOC courses can be adopted for more clarity in understanding the topics and verities of problem solving methods.

3. https://tinyurl.com/4xmrexre

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- Quizzes
- Assignments
- Seminars

Theory - 01 Credit Course

# ಬಳಕೆ ಕನ್ನಡ - baLake Kannada (Kannada for Usage)

## ಕನ್ನಡ ಕಲಿಕೆಗಾಗಿ <u>ನಿಗದಿ</u>ಪಡಿಸಿದ ಪಠ್ಯಪುಸ್ತಕ - (Prescribed Textbook to Learn Kannada)

Course Title:	ಬಳಕೆ ಕನ್ನಡ			
Course Code:	BKBKK107-207	CIE Marks	50	
Course Type (Theory/Practical /Integrated	Theory	SEE Marks	50	
course Type (Theory) Plactical / Integrated		Total Marks	100	
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory	
Total Hours of Pedagogy	15 hours	Credits	01	

#### Course objectives : ಬಳಕೆ ಕನ್ನಡ ಪಠ್ಯ ಕಲಿಕೆಯ ಉದ್ದೇಶಗಳು:

The course (22KBK17/27) will enable the students,

- 1. To Create the awareness regarding the necessity of learning local language for comfortable and healthy life.
- 2. To enable learners to Listen and understand the Kannada language properly.
- 3. To speak, read and write Kannada language as per requirement.
- 4. To train the learners for correct and polite conservation.
- 5. To know about Karnataka state and its language, literature and General information about this state.

## ಬೋಧನೆ ಮತ್ತು ಕಲಿಕಾ ವ್ಯವಸ್ಥೆ (Teaching-Learning Process - General Instructions) :

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

- ಬಳಕೆ ಕನ್ನಡವನ್ನು ತರಗತಿಯಲ್ಲಿ ಶಿಕ್ಷಕರು ಬೋಧಿಸಲು ವಿಟಿಯು ಸೂಚಿಸಿರುವ ಪಠ್ಯಪುಸ್ತಕವನ್ನು ಉಪಯೊಗಿಸಬೇಕು.
- ಪ್ರಮುಖ ಅಂಶಗಳ ಚಾರ್ಟ್ ಗಳನ್ನು ತಯಾರಿಸಲು ವಿದ್ಯಾರ್ಥಿಗಳನ್ನು ಉತ್ತೇಜಿಸುವುದು ಮತ್ತು ತರಗತಿಯಲ್ಲಿ ಅವುಗಳನ್ನು ಚರ್ಚಿಸಲು ಅವಕಾಶ ಮಾಡಿಕೊಡುವುದು.
- 3. ಪ್ರತಿ ವಿದ್ಯಾರ್ಥಿ ಪುಸ್ತಕವನ್ನು ತರಗತಿಯಲ್ಲಿ ಬಳಸುವಂತೆ ನೋಡಿಕೊಳ್ಳುವುದು ಮತ್ತು ಪ್ರತಿ ಪಾಠ ಮತ್ತು ಪ್ರವಚನಗಳ ಮೂಲ ಅಂಶಗಳಿಗೆ ಸಂಬಂಧಪಟ್ಟಂತೆ ಪೂರಕ ಚಟುವಟಿಕೆಗಳಿಗೆ ತೊಡಗಿಸತಕ್ಕದ್ದು.
- 4. ಡಿಜಿಟಲ್ ತಂತ್ರಜ್ಞಾನದ ಮುಖಾಂತರ ಇತ್ತೀಚೆಗೆ ಡಿಜಿಟಲೀಕರಣ ಗೊಂಡಿರುವ ಭಾಷೆ ಕಲಿಕೆಯ ವಿಧಾನಗಳನ್ನು ಪಿಪಿಟಿ ಮತ್ತು ದೃಶ್ಯ ಮಾಧ್ಯಮದ ಮುಖಾಂತರ ಚರ್ಚಿಸಲು ಕ್ರಮಕೈಗೊಳ್ಳುವುದು. ಇದರಿಂದ ವಿದ್ಯಾರ್ಥಿಗಳನ್ನು ತರಗತಿಯಲ್ಲಿ ಹೆಚ್ಚು ಏಕಾಗ್ರತೆಯಿಂದ ಪಾಠ ಕೇಳಲು ಮತ್ತು ಅಧ್ಯಯನದಲ್ಲಿ ತೊಡಗಲು ಅನುಕೂಲವಾಗುತ್ತದೆ.
- ಭಾಷಾಕಲಿಕೆಯ ಪ್ರಯೋಗಾಲಯದ ಮುಖಾಂತರ ಬಹುಬೇಗ ಕನ್ನಡ ಭಾಷೆಯನ್ನು ಕಲಿಯಲು ಅನುಕೂಲವಾಗುವಂತೆ ಕಾರ್ಯಚಟುವಟಿಕೆಗಳನ್ನು ಮತ್ತು ಕ್ರಿಯಾ ಯೋಜನೆಗಳನ್ನು ರೂಪಿಸುವುದು.

# Module - 1

#### (03 hours of pedagogy)

- 1. Introduction, Necessity of learning a local language. Methods to learn the Kannada language.
- 2. Easy learning of a Kannada Language: A few tips. Hints for correct and polite conservation, Listening and Speaking Activities, Key to Transcription
- 3. ವೈಯಕ್ತಿಕ, ಸ್ವಾಮ್ಯಸೂಚಕ/ಸಂಬಂಧಿತ ಸಾರ್ವನಾಮಗಳು ಮತ್ತು ಪ್ರಶ್ನಾರ್ಥಕ ಪದಗಳು Personal Pronouns, Possessive Forms, Interrogative words

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Module - 2	(03 hours of pedagogy)
<ol> <li>ನಾಮಪದಗಳ ಸಂಬಂಧಾರ್ಥಕ ರೂಪಗಳು, ಸಂದೇಹಾಸ್ಪದ ಪ ನಾಮಪದಗಳು - Possessive forms of nouns, dubitive q</li> <li>ಗುಣ, ಪರಿಮಾಣ ಮತ್ತು ವರ್ಣಬಣ್ಣ ವಿಶೇಷಣಗಳು, ಸಂಖ್ಯಾವ Colour Adjectives, Numerals</li> </ol>	uestion and Relative nouns
3. ಕಾರಕ ರೂಪಗಳು ಮತ್ತು ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯಗಳು –ಸಪ್ತಮಿ ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯ – (ಆ, ಅದ	ಮ, ಅವು, ಅಲ್ಲಿ) –Predictive Forms, Locative Case
Module - 3	(03 hours of pedagogy)
1. ಚತುರ್ಥಿ ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯದ ಬಳಕೆ ಮತ್ತು ಸಂಖ್ಯಾವಾಚಕಗಳು - Dative Cases	s, and Numerals
2. ಸಂಖ್ಯಾಗುಣವಾಚಕಗಳು ಮತ್ತು ಬಹುವಚನ ನಾಮರೂಪಗಳು -Ordinal nur	merals and Plural markers
3. ನ್ಯೂನ/ನಿಷೇಧಾರ್ಥಕ ಕ್ರಿಯಾಪದಗಳು & ವರ್ಣ ಗುಣವಾಚಕಗಳು –Defectiv	
Module- 4	(03 hours of pedagogy
1. ಅಪ್ಪಣೆ / ಒಪ್ಪಿಗೆ, ನಿರ್ದೇಶನ, ಪ್ರೋತ್ಸಾಹ ಮತು ಒತ್ತಾಯ ಆರ್ಥರ	ೂಪ ಪದಗಳು ಮತ್ತು ವಾಕ್ಯಗಳು
Permission, Commands, encouraging and Urging words (Imper	rative words and sentences)
2. ಸಾಮಾನ್ಯ ಸಂಭಾಷಣೆಗಳಲ್ಲಿ ದ್ವಿತೀಯ ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯಗಳು ಮತ್ತ	್ತು ಸಂಭವನೀಯ ಪ್ರಕಾರಗಳು
Accusative Cases and Potential Forms used in General Communi	ication
3. "ಇರು ಮತ್ತು ಇರಲ್ಲ" ಸಹಾಯಕ ಕ್ರಿಯಾಪದಗಳು, ಸಂಭಾವ್ಯಸೂಚ	ಕಕ ಮತ್ತು ನಿಷೇಧಾರ್ಥಕ ಕ್ರಿಯಾ ಪದಗಳು -
Helping Verbs "iru and iralla", Corresponding Future and Negation	n Verbs
4. ಹೋಲಿಕೆ (ತರತಮ) , ಸಂಬಂಧ ಸೂಚಕ, ವಸ್ತು ಸೂಚಕ ಪ್ರತ್ಯಯ	ಗಳು ಮತ್ತು ನಿಷೇಧಾರ್ಥಕ ಪದಗಳ ಬಳಕೆ-
Comparitive, Relationship, Identification and Negation Words	
Module - 5	(03 hours of pedagogy)
1. ಕಾಲ ಮತ್ತು ಸಮಯದ ಹಾಗೂ ಕ್ರಿಯಾಪದಗಳ ವಿವಿಧ ಪ್ರಕಾರಗಳು	-Different types of Tense, Time and Verbs
2. ದ್, -ತ್, - ತು, - ಇತು, - ಆಗಿ, - ಅಲ್ಲ, - ಗ್, -ಕ್, ಇದೆ, ಕ್ರಿಯಾ ಪ್ರತ್ಯಂ	ಯಗಳೊಂದಿಗೆ ಭೂತ, ಭವಿಷ್ಯತ್ ಮತ್ತು
ವರ್ತಮಾನ ಕಾಲ ವಾಕ್ಯ ರಚನೆ - Formation of Past, Future and F	

3. Kannada Vocabulary List :ಸಂಭಾಷಣೆಯಲ್ಲಿ ದಿನೋಪಯೋಗಿ ಕನ್ನಡ ಪದಗಳು -Kannada Words in Conversation

## Course outcome (Course Skill Set)

# ಬಳಕೆ ಕನ್ನಡ ಪಠ್ಯ ಕಲಿಕೆಯಿಂದ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಆಗುವ ಅನುಕೂಲಗಳು ಮತ್ತು ಫಲಿತಾಂಶಗಳು:

At the end of the course the student will be able to:

C01	To understand the necessity of learning of local language for comfortable life.
C02	To speak, read and write Kannada language as per requirement.
C03	To communicate (converse) in Kannada language in their daily life with kannada speakers.
C04	To Listen and understand the Kannada language properly.
C05	To speak in polite conservation.

## Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than

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35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

## Continuous Internal Evaluation(CIE):

Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration

## Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others.. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

# The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks Semester End Examinations (SEE)

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

# **University Prescribed Textbook :**

ಬಳಕೆ ಕನ್ನಡ

ಡಾ. ಎಲ್. ತಿಮ್ಮೇಶ

ಪ್ರಕಟಣೆ : ಪ್ರಸಾರಾಂಗ,

## ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ.

ಸೂಚನೆ :

- 1. ಹೆಚ್ಚಿನ ಮಾಹಿತಿ ಮತ್ತು ವಿವರಣೆಗಳಿಗೆ ಡಾ. ಎಲ್. ತಿಮ್ಮೇಶ (9900832331) ಇವರನ್ನು ಸಂಪರ್ಕಿಸಿ.
- ಮಾದರಿ ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆ, ಕೋರ್ಸ್ ಆಯ್ಕೆ ಮಾಹಿತಿ, ಅಧ್ಯಯನ ಸಾಮಗ್ರಿ & ಬಹು ಆಯ್ಕೆ ಮಾದರಿಯ ಪ್ರಶ್ನೆಗಳ ಕೈಪಿಡಿಗಾಗಿ ವಿಶ್ವವಿದ್ಯಾಲಯದ ವೆಬ್ ಸೈಟ್ ನೋಡುವುದು.

#### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- ✓ For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions,
- ✓ Seminars and assignments

# Theory - 01 Credit Course

0	e Title:	ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ		
Course	e Code:		CIE Marks	50
Course	e Type (Theory/Practical /Integra	BKSKK107-207	SEE Marks	50
Course	e Type (Theory/Practical/Integra	leu	Total Marks	100
Teachi	ng Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total H	Iours of Pedagogy	15 hours	Credits	01
Cours	e objectives : ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ	ತ ಪಠ್ಯ ಕಲಿಕೆಯ ಉದ್ದೇಶ	ಗಳು:	
The co	urse (22KSK17/27) will enable the s	students,		
1.	ವೃತ್ತಿಪರ ಪದವಿ ವಿದ್ಯಾರ್ಥಿಗಳಾಗ ಮಾಡಿಕೊಡುವುದು.	ಗಿರುವುದರಿಂದ ಕನ್ನಡ ಭಾಷ	, ಸಾಹಿತ್ಯ ಮತ್ತು ಕನ್ನ	್ನಡದ ಸಂಸ್ಕೃತಿಯ ಪರಿಚಂ
2.	ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಪ್ರಧಾನ ಭಾ ಪರಿಚಯಿಸಿವುದು.	ಗವಾದ ಆಧುನಿಕ ಪೂರ್ವ	ಮತ್ತು ಆಧುನಿಕ ಕಾ	ವ್ಯಗಳನ್ನು ಸಾಂಕೇತಿಕವಾ
3.	ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ ಸಾಹಿತ್ಯ ಮತ್ತು	ಸಂಸ್ಕೃತಿಯ ಬಗ್ಗೆ ಅರಿವು ಹ	ಾಗೂ ಆಸಕ್ತಿಯನ್ನು ಮ	ೂಡಿಸುವುದು.
	ತಾಂತ್ರಿಕ ವ್ಯಕ್ತಿಗಳ ಪರಿಚಯವನ			-
	ಸಾಂಸ್ಕೃತಿಕ, ಜನಪದ ಹಾಗೂ ಪ್ರ			<b>U</b>
	ಧನೆ ಮತ್ತು ಕಲಿಕಾ ವ್ಯವಸ್ಥೆ (Tea			ctions) ·
		•		
	are sample Strategies, which tead			
1.	ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡವನ್ನು ಬೊಂ			
	ವಿಧಾನವನ್ನು ಅನುಸರಿಸುವುದ			
•	ಪ್ರೇರೇಪಿಸುವುದು ಮತ್ತು ತರಗತಿಂ			-
2.	ಇತ್ತೀಚಿನ ತಂತ್ರಜ್ಞಾನದ ಅನುಕ		-	
	ಚಿತ್ರಣ ಮತ್ತು ಲೇಖನಗಳು ವ			
	ಸಂಭಾಷಣೆಗಳು, ಈಗಾಗಲೇ ಇತ		ವಿಮರ್ಶಾತ್ಮಕ ವಿಷಂ	ರುಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ
-	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇ	•		
3.	ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೊ		ಾನಗಳನ್ನು ಶಿಕ್ಷಕರು ವಿ	ದ್ಯಾರ್ಥಗಳಿಗ
	ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಆ	9ಳವಡಿಸಿಕೊಳ್ಳಬಹುದು.		
		•		
	ಫ್ಟಕ -1	ಕನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ	ಷೆ ಕುರಿತಾದ ಲೇಖನಗ	ಳು (03 hours of pedagog
1.	ಘಟಕ -1 ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗ	ಕನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ	ಷೆ ಕುರಿತಾದ ಲೇಖನಗ	ಳು (03 hours of pedagog
	-	ಕನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ಗರಾಜಯ್ಯ		ಳು (03 hours of pedagog
2.	ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಣ	ಕನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ಗರಾಜಯ್ಯ ಅಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ	ಟಸುಬ್ಬಯ್ಯ	ಳು (03 hours of pedagog
2.	ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ	ಕನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ಗರಾಜಯ್ಯ ಅಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ	ಟಸುಬ್ಬಯ್ಯ <sub>1</sub> (. ವಿ. ಕೇಶವಮೂರ್ತಿ	ಳು (03 hours of pedagog hours of pedagogy)
2.	ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ ಘಟಕ - 2 ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಡ	ಕನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ಗರಾಜಯ್ಯ ಅಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎ. ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಹಾದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆರ	ಟಸುಬ್ಬಯ್ಯ ९. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03)	
2. 3.	ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ ಘಟಕ - 2 ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮನ ಜೇಡರದಾಸಿಮಯ	ಕನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ಗರಾಜಯ್ಯ ಅಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎ. ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಕಾದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಯ್ಯ ್ಯ, ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ.	ಟಸುಬ್ಬಯ್ಯ .(. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03) ಬ್ದಕ್ಕಿ ಮಾರಯ್ಯ,	
2. 3.	ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ ಘಟಕ - 2 ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಡ ಜೇಡರದಾಸಿಮಯ ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ	ಕನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ಗರಾಜಯ್ಯ ಅಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎ. ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಕಾದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಯ್ಯ , ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂ	ಟಸುಬ್ಬಯ್ಯ ೕ. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03) ಬ್ದಕ್ಕಿ ಮಾರಯ್ಯ, ದರದಾಸರು	
2. 3. 1.	ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ ಘಟಕ - 2 ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಡ ಜೇಡರದಾಸಿಮಯ ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ತಲ್ಲಣಿಸದಿರು ಕಂಡ	ಕನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ಗರಾಜಯ್ಯ ಅಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎ. ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಹಾದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆದ ್ಯ, ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಎ ಇದರಿಂದೇನು ಫಲ – ಪುರಂ ತ್ಯ ತಾಳು ಮನವೇ - ಕನಕದಾ	ಟಸುಬ್ಬಯ್ಯ ೕ. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03) ಬ್ದಕ್ಕಿ ಮಾರಯ್ಯ, ದರದಾಸರು	
2. 3. 1.	ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ ಘಟಕ - 2 ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮನ ಜೇಡರದಾಸಿಮಯ ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ತಲ್ಲಣಿಸದಿರು ಕಂಡ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ	ಕನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ಗರಾಜಯ್ಯ ಅಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎ. ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಹಾದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಂ ್ಯ, ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂ ತ್ಯ ತಾಳು ಮನವೇ - ಕನಕದಾ ಸುಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ	ಟಸುಬ್ಬಯ್ಯ ೧. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03) ಶ್ದುಕ್ಕಿ ಮಾರಯ್ಯ, ದರದಾಸರು ಸರು	hours of pedagogy)
2. 3. 1. 2.	ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ ಘಟಕ - 2 ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಡ ಜೇಡರದಾಸಿಮಯ ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ತಲ್ಲಣಿಸದಿರು ಕಂಡ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಘಟಕ -3	ಕನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ಗರಾಜಯ್ಯ ಅಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎ. ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಕಾದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಂ ್ಯ, ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂ ತ್ಯ ತಾಳು ಮನವೇ - ಕನಕದಾ ಸುಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ	ಟಸುಬ್ಬಯ್ಯ ್ಯ. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03) ಬ್ದಕ್ಕಿ ಮಾರಯ್ಯ, ದರದಾಸರು ಸರು (03 h	
2. 3. 1. 2.	ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ ಘಟಕ - 2 ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಡ ಜೇಡರದಾಸಿಮಯ ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ತಲ್ಲಣಿಸದಿರು ಕಂಡ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಫೆಟಕ - 3	ಕನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ಗರಾಜಯ್ಯ ಅಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎ. ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಕಾದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಂ ್ಯ, ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂ ತ್ಯ ತಾಳು ಮನವೇ - ಕನಕದಾ ಸುಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ	ಟಸುಬ್ಬಯ್ಯ ್ಯ. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03) ಬ್ದಕ್ಕಿ ಮಾರಯ್ಯ, ದರದಾಸರು ಸರು (03 h	hours of pedagogy)
2. 3. 1. 2. 3.	ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಡ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ ಘಟಕ - 2 ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮನ ಜೇಡರದಾಸಿಮಯ ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ತಲ್ಲಣಿಸದಿರು ಕಂಡ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಫೆಟಕ -3 ಡಿವಿಜಿ ರವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗೆ	ಕನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ಗರಾಜಯ್ಯ ಅಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎ. ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಕಾದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆದ ್ಯ, ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂ ತ್ಯ ತಾಳು ಮನವೇ - ಕನಕದಾ ಸುಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ ದಿಂದ ಅಯ್ದ ಕೆಲವು ಭಾಗಗಳ	ಟಸುಬ್ಬಯ್ಯ ್ಯ. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03) ಬ್ದಕ್ಕಿ ಮಾರಯ್ಯ, ದರದಾಸರು ಸರು (03 h	hours of pedagogy)
2. 3. 1. 2. 3. 1. 2.	ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ ಘಟಕ - 2 ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮನ ಜೇಡರದಾಸಿಮಯ ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ತಲ್ಲಣಿಸದಿರು ಕಂಡ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಘಟಕ -3 ಡಿವಿಜಿ ರವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗೆ	ಕನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ಗರಾಜಯ್ಯ ಅಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎ. ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಕಾದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆದ ್ಯ, ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂ ತ್ಯ ತಾಳು ಮನವೇ - ಕನಕದಾ ಸುಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ ದಿಂದ ಅಯ್ದ ಕೆಲವು ಭಾಗಗಳ	ಟಸುಬ್ಬಯ್ಯ ್ಯ. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03) ಬ್ದಕ್ಕಿ ಮಾರಯ್ಯ, ದರದಾಸರು ಸರು (03 h	hours of pedagogy)
2. 3. 1. 2. 3. 1. 2.	ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ ಘಟಕ - 2 ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮನ ಜೇಡರದಾಸಿಮಯ ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ತಲ್ಲಣಿಸದಿರು ಕಂಡ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಘಟಕ -3 ಡಿವಿಜಿ ರವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗ ಕುರುಡು ಕಾಂಚಾಣ : ದಾ.ರಾ. ಬೆ ಹೊಸಬಾಳಿನ ಗೀತೆ : ಕುವೆಂಪು	ಕನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ಗರಾಜಯ್ಯ ಅಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎ. ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಕಾದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆದ ್ಯ, ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂ ತ್ಯ ತಾಳು ಮನವೇ - ಕನಕದಾ ಸುಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ ದಿಂದ ಅಯ್ದ ಕೆಲವು ಭಾಗಗಳ	ಟಸುಬ್ಬಯ್ಯ ್ಯೀ. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03) ಶ್ದುಕ್ಕಿ ಮಾರಯ್ಯ, ದರದಾಸರು ಸರು (03 h	hours of pedagogy)
2. 3. 1. 2. 3. 1. 2.	ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಡ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ ಘಟಕ - 2 ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಡ ಜೇಡರದಾಸಿಮಯ ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ತಲ್ಲಣಿಸದಿರು ಕಂಡ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಘಟಕ - 3 ಡಿವಿಜಿ ರವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗ ಕುರುಡು ಕಾಂಚಾಣ : ದಾ.ರಾ. ಬೆಂ ಹೊಸಬಾಳಿನ ಗೀತೆ : ಕುವೆಂಪು ಘಟಕ - 4	ಕನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ಗರಾಜಯ್ಯ ಅಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎ. ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಕಾದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಂ , ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂ ತ್ಯ ತಾಳು ಮನವೇ - ಕನಕದಾ ಸುಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ ದಿಂದ ಅಯ್ದ ಕೆಲವು ಭಾಗಗಳ ನಿಂದ್ರೆ	ಟಸುಬ್ಬಯ್ಯ ್ಯೇ. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03) ಸ್ದುಕ್ಕಿ ಮಾರಯ್ಯ, ದರದಾಸರು ಸರು (03 h ಕು (03)	hours of pedagogy) ours of pedagogy)
2. 3. 1. 2. 3. 1. 2. 3.	ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ ಘಟಕ - 2 ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮನ ಜೇಡರದಾಸಿಮಯ ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ತಲ್ಲಣಿಸದಿರು ಕಂಡ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಘಟಕ -3 ಡಿವಿಜಿ ರವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗ ಕುರುಡು ಕಾಂಚಾಣ : ದಾ.ರಾ. ಬೆ ಹೊಸಬಾಳಿನ ಗೀತೆ : ಕುವೆಂಪು ಘಟಕ - 4 ಡಾ. ಸರ್. ಎಂ. ವಿಶ್ವೇಶ್ವರಯ್ಯ : ವ	ಕನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ಗರಾಜಯ್ಯ ಅಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕ ಎ. ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಕಾದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಂ ್ಯ, ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂ ತ್ಯ ತಾಳು ಮನವೇ - ಕನಕದಾ ಸುಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ ದಿಂದ ಅಯ್ದ ಕೆಲವು ಭಾಗಗಳ ನಿಂದ್ರೆ ತಾಂತ್ರಿಕ ವ್ಯಕ್ತಿಗಳ ಪರಿಚಂದ ್ಯಕ್ತಿ ಮತ್ತು ಐತಿಹ್ಯ – ಎ. ಎನ್	ಟಸುಬ್ಬಯ್ಯ ನೀ. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03) ಶ್ದುಕ್ಕಿ ಮಾರಯ್ಯ, ದರದಾಸರು ಸರು (03 h ಸು (03 h ಸು	hours of pedagogy) ours of pedagogy)
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# 26.10.2022

## Course outcome (Course Skill Set)

ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ (22KSK17/27) ಪಠ್ಯ ಕಲಿಕೆಯ ನಂತರ ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ :

At the end of the course the student will be able to:

	C01	ಕನ್ನಡ ಭಾಷೆ, ಸಾಹಿತ್ಯ ಮತ್ತು ಕನ್ನಡದ ಸಂಸ್ಕೃತಿಯ ಕುರಿತು ಅರಿವು ಮೂಡಿರುತ್ತದೆ.
	CO2	ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಪ್ರಧಾನ ಭಾಗವಾದ ಆಧುನಿಕ ಪೂರ್ವ ಮತ್ತು ಆಧುನಿಕ ಕಾವ್ಯಗಳನ್ನು ಸಾಂಕೇತಿಕವಾಗಿ
		ಕಲಿತು ಹೆಚ್ಚಿನ ಓದಿಗೆ ಮತ್ತು ಜ್ಞಾನಕ್ಕೆ ಸ್ಪೂರ್ತಿ ಮೂಡುತ್ತದೆ.
	CO3	ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ ಸಾಹಿತ್ಯ ಮತ್ತು ಸಂಸ್ಕೃತಿಯ ಬಗ್ಗೆ ಅರಿವು ಹಾಗೂ ಆಸಕ್ತಿಯನ್ನು ಹೆಚ್ಚಾಗುತ್ತದೆ.
	CO4	ತಾಂತ್ರಿಕ ವ್ಯಕ್ತಿಗಳ ಪರಿಚಯ ಹಾಗೂ ಅವರುಗಳ ಸಾಧಿಸಿದ ವಿಷಯಗಳನ್ನು ತಿಳಿದುಕೊಂಡು ನಾಡಿನ ಇನ್ನಿತರ
		ವ್ಯಕ್ತಿಗಳ ಬಗ್ಗೆ ತಿಳಿದುಕೊಳ್ಳಲು ಕೌತುಕತೆ ಹೆಚ್ಚಾಗುತ್ತದೆ.
	CO5	ಸಾಂಸ್ಕೃತಿಕ, ಜನಪದ ಹಾಗೂ ಪ್ರವಾಸ ಕಥನಗಳ ಪರಿಚಯ ಮಾಡಿಕೊಡುವುದು.
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## Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### **Continuous Internal Evaluation(CIE):**

Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration

#### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

# The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks Semester End Examinations (SEE)

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

# **University Prescribed Textbook :**

# ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ

ಡಾ. ಹಿ.ಚಿ.ಬೋರಲಿಂಗಯ್ಯ ಮತ್ತು ಡಾ. ಎಲ್. ತಿಮ್ಮೇಶ,

ಪ್ರಕಟಣೆ : ಪ್ರಸಾರಾಂಗ,

# ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ.

## ಸೂಚನೆ :

- 1. ಹೆಚ್ಚಿನ ಮಾಹಿತಿ ಮತ್ತು ವಿವರಣೆಗಳಿಗೆ ಡಾ. ಎಲ್. ತಿಮ್ಮೇಶ (9900832331) ಇವರನ್ನು ಸಂಪರ್ಕಿಸಿ.
- ಮಾದರಿ ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆ, ಕೋರ್ಸ್ ಆಯ್ಕೆ ಮಾಹಿತಿ, ಅಧ್ಯಯನ ಸಾಮಗ್ರಿ & ಬಹು ಆಯ್ಕೆ ಮಾದರಿಯ ಪ್ರಶ್ನೆಗಳ ಕೈಪಿಡಿಗಾಗಿ ವಿಶ್ವವಿದ್ಯಾಲಯದ ವೆಬ್ ಸೈಟ್ ನೋಡುವುದು.

### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

✓ Contents related activities (Activity-based discussions)

- ✓ For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions, Seminars and assignments.

II Sei	nester (Elect	rical & Electro	onics Engineering Stream)	(	For stud				st semes	ter unde	er Chemi	istry Gr	oup)
				1		Teachin	gHours/\	Veek	3	Exami	ation		-
SL No		and Course ode	Course Title	TD/PSB	Theory Lecture	Tutorial	Practical/ Drawing	SDA	Duration in bours	CLE Marks	SEE Marks	Total Marks	Condito
					L	T	Р	S	-				
1	*ASC(IC)	BMATE201	Mathematics-II for EES	Maths	2	2	2	0	03	50	50	100	04
2	#ASC(IC)	BPHYE202	Applied Physics for EES	РНҮ	2	2	2	0	03	50	50	100	04
	ESC	BEEE203	# Elements of Electrical Engineering		2	2	0	0		50	50	100	03
3		ž.	OR	EEE/ECE/TCE	2	4	U	U	03				
		BBEE203	## Basic Electronics		3	0	0	0	8				
4	ESC-II	BESCK204x	Engineering Science Course-II	Respective Engg Dept.	3	0	0	0	03	50	50	100	03
	PLC-II	BPLCK205x	Programming language Course-II		2	0	2	0	03		5 (C		
5	8	OR		Any Dept				3		50	50	100	03
	ETC-II	BETCK205x	Emerging Technology Course-II	and the street	3	0	0	0	03				
		BENGK206	Communicative English					1	а <del>с – э</del>	3	50	100	01
6	AEC		OR	Humanities	1	0	0	0	01	50			
		BPWSK206	Professional Writing Skills in English										
	-	BKSKK207/ BKBKK207	Samskrutika Kannada/ Balake Kannada		1	0	0	0	01 5		÷		01
7	HSMC		OR	Humanities						50	50	100	
		BICOK207	Indian Constitution		1	0	0	0					
	e.	BIDTK258	Innovation and Design Thinking	3	1	0	0	0	01		· · · ·		01
8	AEC/SDC	<u>[</u>	OR	Any				<u></u>		50	50	100	
		BSFHK258	Scientific Foundations of Health	Dept	1	0	0	0	01				
				TOTAL				2	0 0	400	400	800	20

	(ESC-II) Engineering Science Courses-II	- 74 - 74	2 0		0	(ETC-II) Emerging Technology Courses-II	49		-
Code	Title	L	T	P	Code	Title	L	T	F
BESCK204A	Introduction to Civil Engineering	3	0	0	BETCK205A	Smart materials and Systems	3	0	0
BESCK204B	Introduction to Electrical Engineering	3	0	0	BETCK205B	Green Buildings	3	0	0
BESCK204C	Introduction to Electronics Communication	3	0	0	BETCK205C	Introduction to Nano Technology	3	0	0
BESCK204D	Introduction to Mechanical Engineering	3	0	0	BETCK205D	Introduction to Sustainable Engineering	3	0	0
BESCK204E	Introduction to C Programming	2	0	2	BETCK205E	Renewable Energy Sources	3	0	0
		_			BETCK205F	Waste Management	3	0	0
8					BETCK205G	Emerging Applications of Biosensors	3	0	0
8				<u> </u>	BETCK205H	Introduction to Internet of Things(IoT)	3	0	0
8					BETCK2051	Introduction to Cyber Security	3	0	0
					BETCK205J	Introduction to Embedded System	3	0	0
(PLC-II) Prop	gramming Language Courses-II								
Code	Title	L	Т	Р	¢ X		-83	6	8-
BPLCK205A	Introduction to Web Programming	2	0	2	2 2		8	6	8
BPLCK205B	Introduction to Python Programming	2	0	2				Č.	1
BPLCK205C	Basics of JAVA programming	2	0	2			- <u>)</u>		1
BPLCK205D	Introduction to C++ Programming	2	0	2				1	1

DEPARTMENT

- The student has to select one course from the ESC-II group.
- EEE Students shall opt for any one of the courses from the ESC-I group except, BESCK204B-Introduction to Electrical Engineering and ECE/ETC/BM/ML students shall opt any one of the courses from ESC-I except BESCK204CIntroduction to Electronics Engineering
- The students have to opt for the courses from ESC group without repeating the course in either 1st or 2nd semester
- The students must select one course from either ETC-II or PLC-II group.
- If students study the subject from ETC-I in 1<sup>st</sup> semester he/she has to select the course from PLC-II in the 2<sup>nd</sup> semester and vice-versa

Course Title: Basic Electronics (For ECE and Allied Branches)								
Course Code:	BBEE103/203	CIE Marks	50					
Course Type (Theory/Practical	Theory	SEE Marks	50					
/Integrated )		Total Marks	100					
Teaching Hours/Week (L:T:P: S)	3:0:0:0	Exam Hours	03					
Total Hours of Pedagogy	40 hours	Credits	03					

**Course objectives:** Students will be taught

- Operation of Semiconductor diode, Zener diode and Special purpose diodes and their applications.
- Biasing circuits for transistor (BJT) as an amplifier.
- Study of linear Op-amps and its applications.
- Logic circuits and their optimization.
- Principles of Transducers and Communication.

## **Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective

- 1. Lecture method (L) does not mean only the traditional lecture method, but a different type of teaching method may be adopted to develop the outcomes.
- 2. Show Video/animation films to explain the functioning of various analog and digital circuits.
- 3. Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develop thinking skills such as the ability to evaluate, generalize, and analyse information rather than simply recall it.
- 4. Show the different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.
- **5.** Discuss how every concept can be applied to the real world and when that's possible, it helps improve the students' understanding.

## Module-1 (8 Hours)

**Semiconductor Diodes:**Introduction, PN Junction diode, Characteristics and Parameters, Diode Approximations, DC Load Line analysis (Text 1: 2.1,2.2,2.3,2.4)

**Diode Applications:** Introduction, Half Wave Rectification, Full Wave Rectification,Full Wave Rectifier Power Supply: Capacitor Filter Circuit, RC  $\pi$  Filter (includes numerical)

(Text 1: 3.1,3.2,3.4,3.5)

**Zener Diodes:** Junction Breakdown, Circuit Symbol and Package, Characteristics and Parameters, Equivalent Circuit, Zener Diode Voltage Regulator. (Text1:2.9, 3.7)

## Module-2(8 Hours)

**Bipolar Junction Transistors:** IntroductionBJT Voltages & Currents, BJT Amplification, Common Base Characteristics, Common Emitter Characteristics, Common Collector Characteristics, BJT Biasing: Introduction, DC Load line and Bias point

(Text 1: 4.2, 4.3, 4.5, 4.6, 5.1)

**Field Effect Transistor:** Junction Field Effect Transistor, JFET Characteristics, MOSFETs: Enhancement MOSFETs, Depletion Enhancement MOSFETs (Text 1: 9.1,9.2,9.5)

## Module-3(8 Hours)

**Operational Amplifiers**: Introduction, The Operational Amplifier, Block Diagram Representation of Typical Op-Amp, Schematic Symbol, Op-Amp parameters - Gain, input resistance, Output resistance, CMRR, Slew rate, Bandwidth, input offset voltage, Input bias Current and Input offset Current, The Ideal Op-Amp, Equivalent Circuit of Op-Amp, Open Loop Op-Amp configurations, Differential Amplifier, Inverting & Non Inverting Amplifier

**Op-Amp Applications:** Inverting Configuration, Non-Inverting Configuration, Differential Configuration, Voltage Follower, Integrator, Differentiator(Text 2: 1.1, 1.2, 1.3, 1.5, 2.2, 2.3, 2.4, 2.6, 6.5.1, 6.5.2, 6.5.3, 6.12, 6.13).

#### Module-4(8 Hours)

**Boolean Algebra and Logic Circuits:**Binary numbers, Number Base Conversion, octal & Hexa Decimal Numbers, Complements, Basic definitions, Axiomatic Definition of Boolean Algebra, Basic Theorems and Properties of Boolean Algebra, Boolean Functions, Canonical and Standard Forms, Other Logic Operations, Digital Logic Gates (Text 3: 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7)

**Combinational logic**: Introduction, Design procedure, Adders- Half adder, Full adder (Text 3:4.1, 4.2, 4.3)

Module-5(8 Hours)

**Introduction to Transducers:** Introduction, Resistive Transducers, Inductive Transducers, Capacitive Transducers, Thermal transducers, Optoelectronic transducer, and Piezoelectric transducers (Text 4: Chapter 18: 18.1, 18.2, 18.3, 18.4, 18.5)

**Communications:** Introduction to communication, Communication System, Modulation (Text book 5: 1.1, 1.2, 1.3

# Course outcome (Course Skill Set)

At the end of the course the student will be able to:

**CO1:**Develop the basic knowledge on construction, operation and characteristics of semiconductor devices.(Level: C3)

**CO2:**Apply the acquired knowledge to construct small scale circuits consisting of semiconductor devices (Level: C3)

**CO3:**Develop competence knowledge to constructbasic digital circuitby make use of basic gate and its function.(Level: C3)

**CO4:** Construct the conceptual blocks for basic communication system. (Level: C3)

**CO5:** Apply the knowledge of various transducers principle in sensor system. (Level: C3)

Cos/P Os	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1 0	PO1 1	PO1 2
CO1	3	3	2	-	2	2						
CO2	3	2	3	-	2	1						
CO3	3	2	3	-	3				1			
CO4	2	1	1	-	2	1			1			1
CO5	2	1	1	-	2	1			1			1

# A. CO v/s PO Mapping Table

# Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

## **Continuous Internal Evaluation(CIE):**

Three Tests each of 20 Marks;

• 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> tests shall be conducted after completion of the syllabus of 30-35%,

70-75%, and 90-100% of the course/s respectively.

• Assignments/Seminar/quiz/group discussion /field survey & report presentation/ course project/Skill development activities, suitably planned to attain the COs and POs for a total of

40 Marks.

If the nature of the courses requires assignments/Seminars/Quizzes/group discussion two

evaluation components shall be conducted. If course project/field survey/skill development

activities etc then the evaluation method shall be one.

Total CIE marks (out of 100 marks) shall be scaled down to 50 marks

## Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

## Suggested Learning Resources:

Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year)

1. Electronic Devices and Circuits, David A Bell, 5th Edition, Oxford, 2016

2. Op-amps and Linear Integrated Circuits, Ramakanth A Gayakwad, Pearson Education, 4th Edition

3. Digital Logic and Computer Design, M. Morris Mano, PHI Learning, 2008 ISBN-978-81-203-0417-8

4. Electronic Instrumentation and Measurements (3rd Edition) – David A. Bell, Oxford University Press, 2013

5. Electronic Communication Systems, George Kennedy, 4th Edition, TMH

## Web links and Video Lectures (e-Resources):

- https://nptel.ac.in/courses/122106025
- https://nptel.ac.in/courses/108105132
- https://nptel.ac.in/courses/117104072

6-2-2022

16-2-2022 Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

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## II Semester

16-2-2023

Course Title: Mathematics-II for Electrical & Electronics Engineering Stream									
Course Code:	BMATE201	CIE Marks	50						
Course Type	Integrated	SEE Marks	50						
(Theory/Practical/Integrated)		Total Marks	100						
Teaching Hours/Week (L:T:P: S)	2:2:2:0	Exam Hours	03						
Total Hours of Pedagogy	40 hours Theory + 10 to12 Lab slots	Credits	04						

Course objectives: The goal of the course Mathematics-II for Electrical & Electronics Engineering Stream(22MATE21) is to

- **Familiarize** the importance of Vector calculus, Vector Space and Linear transformation for electronics and electrical engineering.
- **Have an insight** into solving ordinary differential equations by using Laplace transform techniques.
- **Develop** the knowledge of solving electronics and electrical engineering problems numerically.

# **Teaching-Learning Process**

# **Pedagogy** (General Instructions):

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

- 1. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted so that the delivered lessons shall develop students' theoretical and applied mathematical skills.
- 2. State the need for Mathematics with Engineering Studies and Provide real-life examples.
- 3. Support and guide the students for self-study.
- 4. You will also be responsible for assigning homework, grading assignments and quizzes, and documenting students' progress.
- 5. Encourage the students to group learning to improve their creative and analytical skills.
- 6. Show short related video lectures in the following ways:
  - As an introduction to new topics (pre-lecture activity).
  - As a revision of topics (post-lecture activity).
  - As additional examples (post-lecture activity).
  - As an additional material of challenging topics (pre-and post-lecture activity).
  - As a model solution of some exercises (post-lecture activity).

# Module-1:Vector Calculus (8 hours)

# Introduction to Vector Calculus in EC & EE engineering applications.

**Vector Differentiation:** Scalar and vector fields. Gradient, directional derivative, curl and divergence - physical interpretation, solenoidal and irrotational vector fields. Problems.

**Vector Integration:** Line integrals, Surface integrals. Applications to work done by a force and flux. Statement of Green's theorem and Stoke's theorem. Problems.

Self-Study: Volume integral and Gauss divergence theorem.

Applications: Conservation of laws, Electrostatics, Analysis of streamlines and electric potentials.

(RBT Levels: L1, L2 and L3)

## Module-2:Vector Space and Linear Transformations(8 hours)

Importance of Vector Space and Linear Transformations in the field of EC & EE engineering applications.

**Vector spaces:** Definition and examples, subspace, linear span, Linearly independent and dependent sets, Basis and dimension.

**Linear transformations**: Definition and examples, Algebra of transformations, Matrix of a linear transformation. Change of coordinates, Rank and nullity of a linear operator, Rank-Nullity theorem. Inner product spaces and orthogonality.

Self-study: Angles and Projections.Rotation, reflection, contraction and expansion. Applications: Image processing, AI & ML, Graphs and networks, Computer graphics. (RBT Levels: L1, L2 and L3)

# Module-3:Laplace Transform(8 hours)

## Importance of Laplace Transform for EC & EE engineering applications.

Existence and Uniqueness of Laplace transform (LT), transform of elementary functions, region of convergence. Properties–Linearity, Scaling, t-shift property, s-domain shift, differentiation in the sdomain, division by t, differentiation and integration in the time domain. LT of special functionsperiodic functions (square wave, saw-tooth wave, triangular wave, full & half wave rectifier), Heaviside Unit step function, Unit impulse function.

## **Inverse Laplace Transforms:**

Definition, properties, evaluation using different methods, convolution theorem (without proof), problems, and applications to solve ordinary differential equations.

Self-Study: Verification of convolution theorem.

Applications: Signals and systems, Control systems, LR, CR & LCR circuits.

(RBT Levels: L1, L2 and L3)

Module-4:Numerical Methods -1(8 hours)

Importance of numerical methods for discrete data in the field of EC & EE engineering applications.

Solution of algebraic and transcendental equations: Regula-Falsi method and Newton-Raphson method (only formulae). Problems.

Finite differences, Interpolation using Newton's forward and backward difference formulae, Newton's divided difference formula and Lagrange's interpolation formula (All formulae without proof). Problems.

Numerical integration: Trapezoidal, Simpson's  $(1/3)^{rd}$  and  $(3/8)^{th}$  rules(without proof). Problems.

Self-Study: Bisection method, Lagrange's inverse Interpolation, Weddle's rule.

	ations: Estimating the approximate roots, extremum values, area, volume, and surface area. Levels: L1, L2 and L3)
Tra 4 mo al	Module-5:Numerical Methods -2(8 hours)
	uction to various numerical techniques for handling EC & EE applications. rical Solution of Ordinary Differential Equations (ODEs):
	ical solution of ordinary differential equations of first order and first degree - Taylor's series
	I, Modified Euler's method, Runge-Kutta method of fourth order and Milne's predictor-
correct	or formula (No derivations of formulae). Problems.
	udy: Adam-Bashforth method.
	<b>ations:</b> Estimating the approximate solutions of ODE for electric circuits. Levels: L1, L2 and L3)
List of	f Laboratory experiments (2 hours/week per batch/ batch strength 15)
10 lab	sessions + 1 repetition class + 1 Lab Assessment
1	Finding gradient, divergent, curl and their geometrical interpretation and Verification of
	Green's theorem
2	Computation of basis and dimension for a vector space and Graphical representation of
	linear transformation
3	Visualization in time and frequency domain of standard functions
4	Computing inverse Laplace transform of standard functions
5	Laplace transform of convolution of two functions
6	Solution of algebraic and transcendental equations by Regula-Falsi and Newton-Raphson
	method
7	Interpolation/Extrapolation using Newton's forward and backward difference formula
8	Computation of area under the curve using Trapezoidal, Simpson's (1/3) <sup>rd</sup> and (3/8) <sup>th</sup> rule
9	Solution of ODE of first order and first degree by Taylor's series and Modified Euler's
	method
10	Solution of ODE of first order and first degree by Runge-Kutta 4 <sup>th</sup> order and Milne's
	predictor-corrector method
Sugges	ted software's: Mathematica/MatLab/Python/Scilab
	e outcome (Course Skill Set)
	end of the course the student will be able to:
CO1	Understand the applications of vector calculus refer to solenoidal, irrotational vectors,
	lineintegral and surface integral.
CO2	Demonstrate the idea of Linear dependence and independence of sets in the vector space,
002	and linear transformation
CO3	To understand the concept of Laplace transform and to solve initial value problems.
CO4	Apply the knowledge of numerical methods in solving physical and engineering
COF	phenomena.
CO5	Get familiarize with modern mathematical tools namely
	MATHEMATICA/MATLAB/PYTHON/ SCILAB

# Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

# **Continuous Internal Evaluation(CIE):**

The CIE marks for the theory component of the IC shall be **30 marks** and for the laboratory component **20 Marks**.

# CIE for the theory component of the IC

- Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.
- Two Assignments/two quizzes/ seminars/one field survey and report presentation/one-course project totalling 20 marks.

Total Marks scored (test + assignments) out of 80 shall be scaled down to 30 marks

# CIE for the practical component of the IC

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted at the end of the semester.
- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.
- The laboratory test (duration 03 hours) at the end of the 15<sup>th</sup> week of the semester /after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to 05 marks.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is

to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

# Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English/Kannada). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

## Suggested Learning Resources:

Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year) Text Books

- 1. **B. S. Grewal**: "Higher Engineering Mathematics", Khanna Publishers, 44<sup>th</sup>Ed., 2021.
- 2. E. Kreyszig: "Advanced Engineering Mathematics", John Wiley & Sons, 10<sup>th</sup>Ed., 2018.

# **Reference Books**

- 1. V. Ramana: "Higher Engineering Mathematics" McGraw-Hill Education, 11<sup>th</sup> Ed., 2017
- 2. Srimanta Pal & Subodh C.Bhunia: "Engineering Mathematics" Oxford University Press, 3<sup>rd</sup>Ed., 2016.
- 3. **N.P Bali and Manish Goyal**: "A Textbook of Engineering Mathematics" Laxmi Publications, 10<sup>th</sup>Ed., 2022.
- 4. **C. Ray Wylie, Louis C. Barrett:** "Advanced Engineering Mathematics" McGraw Hill Book Co., New York, 6<sup>th</sup> Ed., 2017.
- 5. **Gupta C.B, Sing S.R and Mukesh Kumar:** "Engineering Mathematic for Semester I and II", Mc-Graw Hill Education(India) Pvt. Ltd 2015.
- 6. **H.K. Dass and Er. Rajnish Verma:** "Higher Engineering Mathematics" S.Chand Publication, 3<sup>rd</sup> Ed.,2014.
- 7. James Stewart: "Calculus" Cengage Publications, 7<sup>th</sup>Ed., 2019.
- 8. **David C Lay:** "Linear Algebra and its Applications", Pearson Publishers, 4<sup>th</sup> Ed., 2018.
- 9. **Gareth Williams:** "Linear Algebra with applications", Jones Bartlett Publishers Inc., 6<sup>th</sup> Ed., 2017.

10. Gilbert Strang: "Linear Algebra and its Applications", Cengage Publications, 4<sup>th</sup> Ed., 2022.

Web links and Video Lectures (e-Resources):

- <u>http://nptel.ac.in/courses.php?disciplineID=111</u>
- <u>http://www.class-central.com/subject/math(MOOCs)</u>
- http://academicearth.org/
- VTU e-Shikshana Program
- VTU EDUSAT Program

Activity-Based Learning (Suggested Activities in Class)/Practical-Based Learning

- Quizzes
- Assignments
- Seminar

# COs and POs Mapping (Individual teacher has to fill up)

COs	POs								
	1	2	3	4	5	6	7		
CO1									
CO2									
CO3									
CO4									
CO5									
Level 3- Hi	ighly Mapped,	Level 2-Mo	derately Map	ped, Lev	el 1-Low Mappe	l, Level 0- N	ot Mapped		

Course Title:	Applied Physics for EEE Stream		
Course Code:	BPHYE102/202	CIE Marks	50
Course Type (Theory/Practical/Integrated)	Integrated	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	2:2:2:0	Exam Hours	03
Total Hours of Pedagogy	40 hours+10-12 Lab Slots	Credits	04
Course objectives			

- To study the principles of quantum mechanics
- To understand the properties of dielectrics and superconductors
- To study the essentials of photonics for engineering applications.
- To understand fundamentals of vector calculus and EM waves.
- To study the knowledge about semiconductors and devices.

#### **Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective

- 1. Flipped Class
- 2. Chalk and Talk
- 3. Blended Mode of Learning
- 4. Simulations, Interactive Simulations and Animations
- 5. NPTEL and Other Videos for theory topics
- 6. Smart Class Room
- 7. Lab Experiment Videos

#### Module-1 (08 Hours)

#### **Quantum Mechanics:**

de Broglie Hypothesis and Matter Waves, de Broglie wavelength and derivation of expression by analogy, Phase Velocity and Group Velocity, Heisenberg's Uncertainty Principle and its application (Non existence of electron inside the nucleus-Non Relativistic), Principle of Complementarity, Wave Function, Time independent Schrödinger wave equation, Physical Significance of a wave function and Born Interpretation, Expectation value, Eigen functions and Eigen Values, Particle inside one dimensional infinite potential well, Waveforms and Probabilities. Numerical Problems

#### Pre-requisite: Wave–Particle dualism Self-learning: de Broglie Hypothesis

Module-2 (08 hours)

#### **Electrical Properties of Solids:**

#### **Conductors:**

Quantum Free Electron Theory of Metals: Assumptions, Fermi-energy, Fermi factor, Variation of Fermi Factor with Temperature and Energy, Mention of expression for electrical conductivity.

**Dielectric Properties:** Polar and non-polar dielectrics, Electrical Polarization Mechanisms, internal fields in solids, Clausius-Mossotti equation (Derivation), Solid, Liquid and Gaseous dielectrics. Application of dielectrics in transformers, Capacitors, Electrical Insulation. Numerical Problems.

#### Superconductivity:

Introduction to Superconductors, Temperature dependence of resistivity, Meissner Effect, Critical Field, Temperature dependence of Critical field, Types of Super Conductors, BCS theory (Qualitative), High Temperature superconductivity, SQUID, MAGLEV, Numerical problems.

#### **Pre-requisites: Classical Free Electron Theory Self-learning: Dielectrics Basics**

#### Module-3 (08 hours)

#### Lasers and Optical Fibers:

Lasers: Characteristics of LASER, Interaction of radiation with matter, Expression for Energy Density and its significance. Requisites of a Laser System. Conditions for Laser action. Principle, Construction and Working of Carbon Dioxide Laser. Application of Lasers in Defense (Laser range finder) and Laser Printing. Numerical

#### Problems

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**Optical Fibers:** Total Internal Reflection, Propagation mechanism, Angle of Acceptance, Numerical Aperture, Fractional Index Change, Modes of Propagation, Number of Modes and V Number, Types of Optical Fibers. Attenuation and Mention of Expression for Attenuation coefficient, Attenuation Spectrum of an Optical Fiber with Optical Windows. Discussion of Block Diagram of Point to Point Communication, Intensity based Fiber Optic Displacement Sensor, Merits and Demerits, Numerical problems.

#### Pre-requisite: Properties of light Self-learning: Total Internal Reflection

Module-4 (08 hours)

#### Maxwell's Equations and EM waves:

**Maxwell's Equations:** Fundamentals of Vector Calculus. Divergence and Curl of Electric field and Magnetic field (static), Gauss' divergence theorem and Stoke's theorem. Description of laws of Electrostatics, Magnetism, Faraday's laws of EMI, Current Density, Equation of Continuity, Displacement Current (with derivation), Maxwell's equations in vacuum, Numerical Problems

**EM Waves**: The wave equation in differential form in free space (Derivation of the equation using Maxwell's equations), Plane Electromagnetic Waves in vacuum, their transverse nature.

#### Pre-requisite:Electricity & Magnetism

#### Self-learning: Fundamentals of vector calculus.

Module-5 (08 hours)

#### Semiconductors and Devices:

Fermi level in Intrinsic & Extrinsic Semiconductor, Expression for concentration of electrons in conduction band & holes concentration in valance band (only mention the expression),Relation between Fermi energy & Energy gap in intrinsic semiconductors(derivation), Law of mass action, Electrical conductivity of a semiconductor (derivation), Hall effect, Expression for Hall coefficient (derivation) and its application. Photo-diode and Power responsivity, Construction and working of Semiconducting Laser, Four probe method to determine resistivity, Phototransistor, Numerical problems.

#### **Pre-requisite: Basics of Semiconductors**

#### Self-learning: Fermi level in Intrinsic & Extrinsic Semiconductor

Course outcome (Course Skill Set)

At the end of the course the student will be able to:

CO1	D1 <b>Describe</b> the fundamental principles of the Quantum Mechanics and the essentials of Photonics.	
CO2	Elucidate the concepts of conductors, dielectrics and superconductivity	
CO3	Discuss the fundamentals of vector calculus and their applications in Maxwell's Equations and EM Waves.	
CO4	Summarize the properties of semiconductors and the working principles of semiconductor devices.	
CO5	Practice working in groups to conduct experiments in physics and Perform precise and honest measurements.	

#### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### Continuous Internal Evaluation(CIE):

The CIE marks for the theory component of the IC shall be 30 marks and for the laboratory component 20 Marks.

#### CIE for the theory component of the IC

- Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.
- Two Assignments/two quizzes/ seminars/one field survey and report presentation/one-course project totalling 20 marks.

### 7 16-2-2023

Total Marks scored (test + assignments) out of 80 shall be scaled down to **30 marks CIE for the practical component of the IC** 

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted at the end of the semester.
- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.
- The laboratory test (duration 03 hours) at the end of the 15<sup>th</sup> week of the semester /after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to 05 marks.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

• The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

#### Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English/Kannada). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.

There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 subquestions), **should have a mix of topics** under that module.

#### Suggested Learning Resources:

#### Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year)

- 1. A Textbook of Engineering Physics- M.N. Avadhanulu and P.G. Kshirsagar, 10th revised Ed, S. Chand. & Company Ltd, New Delhi.
- 2. An Introduction to Lasers theory and applications by M.N.Avadhanulu and P.S. Hemne revised Edition 2012. S. Chand and Company Ltd -New Delhi.
- 3. Engineering Physics-Gaur and Gupta-Dhanpat Rai Publications-2017.
- 4. Concepts of Modern Physics-Arthur Beiser: 6th Ed;Tata McGraw Hill Edu Pvt Ltd- New Delhi 2006.
- 5. Fundamentals of Fibre Optics in Telecommunication & Sensor Systems, B.P. Pal, New Age International Publishers.
- 6. Introduction to Electrodynamics, David Griffith, 4<sup>th</sup> Edition, Cambridge University Press 2017.
- 7. Lasers and Non Linear Optics B.B. Laud, 3rd Ed, New Age International Publishers 2011.
- 8. LASERS Principles, Types and Applications by K.R. Nambiar-New Age International Publishers.
- 9. Solid State Physics-S O Pillai, 8th Ed- New Age International Publishers-2018.

#### Web links and Video Lectures (e-Resources):

Laser:https://www.britannica.com/technology/laser,k Laser:https://nptel.ac.in/courses/115/102/115102124/ Quantum mechanics:https://nptel.ac.in/courses/115/104/115104096/ Physics:http://hyperphysics.phy-astr.gsu.edu/hbase/hframe.html Numerical Aperture of fiber:https://bop-iitk.vlabs.ac.in/exp/numerical-aperture-measurement

### 16-2-2023

#### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

http://nptel.ac.in

https://swayam.gov.in

https://www.vlab.co.in/participating-institute-amrita-vishwa-vidyapeetham

https://vlab.amrita.edu/index.php?sub=1&brch=189&sim=343&cnt=1

https://virtuallabs.merlot.org/vl\_physics.html

https://phet.colorado.edu https://www.myphysicslab.com

https://www.htyphysicsiab.c

#### Laboratory Component:

Any Ten Experiments have to be completed from the list of experiments

Note: The experiments have to be classified into

a) Exercise

b) Demonstration

c) Structured Inquiry

d) Open Ended

Based on the convenience classify the following experiments into above categories selecting at least three experiments for each type. Select at least one simulation/spreadsheet activity.

#### List of Experiments

- 1. Determination of wavelength of LASER using Diffraction Grating.
- 2. Determination of acceptance angle and numerical aperture of the given Optical Fiber.
- 3. Determination of Magnetic Flux Density at any point along the axis of a circular coil.
- 4. Determination of resistivity of a semiconductor by Four Probe Method
- 5. Study the I-V Characteristics of the Given Bipolar Junction Transistor.
- 6. Determination of dielectric constant of the material of capacitor by Charging and Discharging method.
- 7. Study the Characteristics of a Photo-Diode and to determine the power responsivity / Verification of Inverse Square Law of Intensity of Light.
- 8. Study the frequency response of Series & Parallel LCR circuits.
- 9. Determination of Plank's Constant using LEDs.
- 10. Determination of Fermi Energy of Copper.
- 11. Identification of circuit elements in a Black Box and determination of values of the components.
- 12. Determination of Energy gap of the given Semiconductor.
- 13. Step Interactive Physical Simulations.
- 14. Study of motion using spread Sheets
- 15. Study of Application of Statistics using spread sheets
- 16. PHET Interactive

Simulations(https://phet.colorado.edu/en/simulations/filter?subjects=physics&type=html,prototype)

COs	POs											
	1	2	3	4	5	6	7	8	9	10	11	12
CO1	3	2	-	-	-	-	-	-	-	-	-	2
CO2	3	2	-	-	-	-	-	-	-	-	-	2
CO3	3	2	-	-	-	-	-	-	-	-	-	2
CO4	3	2	-	-	1	-	-	-	-	-	-	2
CO5	3	2	1	-	2	-	-	3	3	-	-	2

**Note :** The CO-PO mapping values are indicative. The course coordinator can alter the mapping using **Competency and Performance Indicators** mentioned in the **AICTE Exam reforms.** 

Communicative English		_	
Course Title:	Communicative Englis		50
Course Code:	Theory	CIE Marks SEE Marks	<u> </u>
Course Type (Theory/Practical /Integrated)	Theory	Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01
Course objectives: The course Communicativ			
1. To know about Fundamentals of Com	e		e
2. To train to identify the nuances of pho			ls for better Communication skill
3. To impart basic English grammar and		-	tion abilla
<ol> <li>To enhance with English vocabulary a</li> <li>To learn about Techniques of Informa</li> </ol>			uon skins.
Teaching-Learning Process :	tion Transfer unough presen		
These are sample Strategies, which teacher can us	se to accelerate the attainmen	it of the various cou	rse outcomes and make
Teaching –Learning more effective:			
Teachers shall adopt suitable pedagogy for effective			
methodologies which suit modern technological tool			
(i) Direct instructional method ( Low/Ol Blended learning (Combination of both)			iced Technological tools), (111)
(v) Personalized learning, (vi) Problems			the method of expeditionary
learning Tools and techniques, (viii) Use			
Apart from conventional lecture methods, various ty			
adapted so that the delivered lesson can progress the	students In theoretical applied	and practical skills in	n teaching of communicative
skills in general. Language Lab : To augment LSRW, grammar		·	
			anding Writing and
Grammar, Vocabulary) through tests, activities can be referred as per the AICTE / VTU guidel	, exercises etc., comprehensi		
Grammar, Vocabulary) through tests, activities can be referred as per the AICTE / VTU guidel	, exercises etc., comprehensi		
Grammar, Vocabulary) through tests, activities can be referred as per the AICTE / VTU guidel	, exercises etc., comprehensi ines. odule-1	ive web-based lear	ning and assessment systems (03 hours of pedagogy
Grammar, Vocabulary) through tests, activities can be referred as per the AICTE / VTU guidel Mo	, exercises etc., comprehensi ines. <b>odule-1</b> mmunicative English, Fund	ive web-based lear amentals of Comm	ning and assessment systems (03 hours of pedagogy nunicative English, Process of
Grammar, Vocabulary) through tests, activities can be referred as per the AICTE / VTU guidel Mo Introduction to Communicative English : Co Communication, Barriers to Effective Commun	, exercises etc., comprehensi ines. <b>Ddule-1</b> mmunicative English, Fund licative English, Different st	ive web-based lear amentals of Comm	ning and assessment systems (03 hours of pedagogy nunicative English, Process of
Grammar, Vocabulary) through tests, activities can be referred as per the AICTE / VTU guidel Mo Introduction to Communicative English : Co Communication, Barriers to Effective Communi Interpersonal and Intrapersonal Communication	, exercises etc., comprehensi ines. <b>Ddule-1</b> mmunicative English, Fund licative English, Different st	ive web-based lear amentals of Comm	ning and assessment systems (03 hours of pedagogy nunicative English, Process of Communicative English.
Grammar, Vocabulary) through tests, activities can be referred as per the AICTE / VTU guidel Mo Introduction to Communicative English : Co Communication, Barriers to Effective Communi Interpersonal and Intrapersonal Communication	, exercises etc., comprehensi ines. odule-1 mmunicative English, Fund nicative English, Different st n Skills. odule-2	ive web-based lear amentals of Comm yles and levels in (	ning and assessment systems (03 hours of pedagogy nunicative English, Process of Communicative English. (03 hours of pedagogy
Grammar, Vocabulary) through tests, activities can be referred as per the AICTE / VTU guidel Mo Introduction to Communicative English : Co Communication, Barriers to Effective Commun Interpersonal and Intrapersonal Communication Mo	exercises etc., comprehensions. odule-1 ommunicative English, Fund hicative English, Different st n Skills. odule-2 cription, English Pronuncia	amentals of Comm yles and levels in ( tion, Pronunciation	ning and assessment systems (03 hours of pedagogy nunicative English, Process of Communicative English. (03 hours of pedagogy n Guidelines to consonants an
Grammar, Vocabulary) through tests, activities can be referred as per the AICTE / VTU guidel Mo Introduction to Communicative English : Co Communication, Barriers to Effective Communication Interpersonal and Intrapersonal Communication Mo Introduction to Phonetics : Phonetic Trans vowels, Sounds Mispronounced, Silent and Not	, exercises etc., comprehensions. <b>odule-1</b> ommunicative English, Fund nicative English, Different st n Skills. <b>odule-2</b> cription, English Pronuncia n silent Letters, Syllables and	ive web-based lear amentals of Comm yles and levels in ( tion, Pronunciation d Structure. Word	ning and assessment systems (03 hours of pedagogy nunicative English, Process of Communicative English. (03 hours of pedagogy n Guidelines to consonants an
Grammar, Vocabulary) through tests, activities can be referred as per the AICTE / VTU guidel Mo Introduction to Communicative English : Co Communication, Barriers to Effective Communication Interpersonal and Intrapersonal Communication Mo Introduction to Phonetics : Phonetic Trans vowels, Sounds Mispronounced, Silent and Nov Intonation, Spelling Rules and Words often Mi	, exercises etc., comprehensions. <b>odule-1</b> ommunicative English, Fund hicative English, Different st n Skills. <b>odule-2</b> cription, English Pronuncia n silent Letters, Syllables and sspelt. Common Errors in	ive web-based lear amentals of Comm yles and levels in ( tion, Pronunciation d Structure. Word	ning and assessment systems (03 hours of pedagogy nunicative English, Process of Communicative English. (03 hours of pedagogy n Guidelines to consonants an Accent, Stress Shift and
Grammar, Vocabulary) through tests, activities can be referred as per the AICTE / VTU guidel Mo Introduction to Communicative English : Co Communication, Barriers to Effective Communication Interpersonal and Intrapersonal Communication Mo Introduction to Phonetics : Phonetic Trans vowels, Sounds Mispronounced, Silent and No Intonation, Spelling Rules and Words often Mi Mo	, exercises etc., comprehensiones. <b>odule-1</b> ommunicative English, Fund hicative English, Different st n Skills. <b>odule-2</b> cription, English Pronuncia n silent Letters, Syllables and sspelt. Common Errors in <b>odule-3</b>	amentals of Comm yles and levels in ( tion, Pronunciation d Structure. Word Pronunciation.	ning and assessment systems (03 hours of pedagogy nunicative English, Process of Communicative English. (03 hours of pedagogy n Guidelines to consonants an Accent, Stress Shift and (03 hours of pedagogy)
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Grammar, Vocabulary) through tests, activities can be referred as per the AICTE / VTU guidel Mo Introduction to Communicative English : Co Communication, Barriers to Effective Communication Interpersonal and Intrapersonal Communication Mo Introduction to Phonetics : Phonetic Trans vowels, Sounds Mispronounced, Silent and No Intonation, Spelling Rules and Words often Mi Mo Basic English Communicative Gramma Parts of Speech, Articles and Preposition. Ques Introduction to Vocabulary, All Types of Voca	, exercises etc., comprehensiones. odule-1 ommunicative English, Fund icative English, Different st a Skills. odule-2 cription, English Pronuncia an silent Letters, Syllables and sspelt. Common Errors in odule-3 r and Vocabulary PAR' tion Tags, One Word Substi- bulary – Exercises on it. lule-4	ive web-based lear amentals of Comm yles and levels in ( tion, Pronunciation d Structure. Word Pronunciation. <b>T - I :</b> Grammar: E tutes, Strong and V	ning and assessment systems (03 hours of pedagogy nunicative English, Process of Communicative English. (03 hours of pedagogy n Guidelines to consonants an Accent, Stress Shift and (03 hours of pedagogy) Basic English Grammar and Veak forms of words, (03 hours of pedagogy)
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Grammar, Vocabulary) through tests, activities can be referred as per the AICTE / VTU guidel Mo Introduction to Communicative English : Co Communication, Barriers to Effective Communication Interpersonal and Intrapersonal Communication Mo Introduction to Phonetics : Phonetic Trans vowels, Sounds Mispronounced, Silent and Nov Intonation, Spelling Rules and Words often Mi Mo Basic English Communicative Gramma Parts of Speech, Articles and Preposition. Ques Introduction to Vocabulary, All Types of Vocal Moo Basic English Communicative Grammar an	exercises etc., comprehensions. odule-1 ommunicative English, Fund incative English, Different st in Skills. odule-2 cription, English Pronuncia in silent Letters, Syllables and sspelt. Common Errors in odule-3 r and Vocabulary PAR' tion Tags, One Word Substi- bulary – Exercises on it. lule-4 d Vocabulary PART - II: V finimal Pairs) – Exercises, T	ive web-based lear amentals of Comm yles and levels in ( tion, Pronunciation d Structure. Word Pronunciation. <b>T - I :</b> Grammar: E tutes, Strong and V Words formation -	ning and assessment systems (03 hours of pedagogy nunicative English, Process of Communicative English. (03 hours of pedagogy) n Guidelines to consonants an Accent, Stress Shift and (03 hours of pedagogy) Basic English Grammar and Weak forms of words, (03 hours of pedagogy) Prefixes and Suffixes,
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Grammar, Vocabulary) through tests, activities can be referred as per the AICTE / VTU guidel Mo Introduction to Communicative English : Co Communication, Barriers to Effective Communication Interpersonal and Intrapersonal Communication Mo Introduction to Phonetics : Phonetic Trans vowels, Sounds Mispronounced, Silent and No Intonation, Spelling Rules and Words often Mi Mo Basic English Communicative Gramma Parts of Speech, Articles and Preposition. Ques Introduction to Vocabulary, All Types of Voca Moo Basic English Communicative Grammar an Contractions and Abbreviations. Word Pairs (M Tenses (Rules in use of Tenses) and Exercises of Mod	, exercises etc., comprehensions. odule-1 ommunicative English, Fund inicative English, Different stan Skills. odule-2 cription, English Pronuncia In silent Letters, Syllables and sspelt. Common Errors in odule-3 r and Vocabulary PAR' tion Tags, One Word Substi- bulary – Exercises on it. Iule-4 d Vocabulary PART - II: V finimal Pairs) – Exercises, T on it. ule-5 Formation Transfer:Oral Pres	ive web-based lear amentals of Comm yles and levels in G tion, Pronunciation d Structure. Word Pronunciation. <b>T - I :</b> Grammar: E tutes, Strong and W Words formation - `ense and Types of sentation and its Pr	ning and assessment systems          (03 hours of pedagogy         nunicative English, Process of         Communicative English, Process of         (03 hours of pedagogy         n Guidelines to consonants an         Accent, Stress Shift and         (03 hours of pedagogy)         Basic English Grammar and         Weak forms of words,         (03 hours of pedagogy)         Prefixes and Suffixes,         `tenses, The Sequence of         (03 hours of pedagogy)         actice. Difference between

#### 26.10.2022

(	Course outcome (Course Skill Set)			
	At the end of the course Communicative English (22ENG16) the student will be able to:			
	CO1 Understand and apply the Fundamentals of Communication Skills in their communication skills.			
	CO2 Identify the nuances of phonetics, intonation and enhance pronunciation skills.			
	CO3 To impart basic English grammar and essentials of language skills as per present requirement.			
	CO4	Understand and use all types of English vocabulary and language proficiency.		

CO5 Adopt the Techniques of Information Transfer through presentation.

### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

### Continuous Internal Evaluation(CIE):

#### Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration

### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others.. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks

### Semester End Examinations (SEE)

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

### Suggested Learning Resources:

### Textbook:

- 1) Communication Skills by Sanjay Kumar & Pushp Lata, Oxford University Press India Pvt Ltd 2019.
- 2) A Textbook of English Language Communication Skills, (ISBN-978-81-955465-2-7), Published by Infinite Learning Solutions, Bengaluru 2022.

### **Reference Books:**

- Technical Communication by Gajendra Singh Chauhan and Et al, (ISBN-978-93-5350-050-4), Cengage learning India Pvt Limited [Latest Revised Edition] - 2019.
- 2. English for Engineers by N.P.Sudharshana and C.Savitha, Cambridge University Press 2018.
- English Language Communication Skills Lab Manual cum Workbook, Cengage learning India Pvt Limited [Latest Revised Edition] – (ISBN-978-93-86668-45-5), 2019.
- 4. A Course in Technical English D Praveen Sam, KN Shoba, Cambridge University Press 2020.
- 5. **Practical English Usage** by Michael Swan, Oxford University Press 2016.

### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- $\checkmark$  For active participation of students instruct the students to prepare Flowcharts and Handouts
- $\checkmark$  Organising Group wise discussions Connecting to placement activities
- $\checkmark$  Quizzes and Discussions, Seminars and assignments

Course Title	Introduction to C I	<u> </u>		Fo
Course Code:		BESCK104E/204E	CIE Marks SEE Marks	<u> </u>
ourse Type (7	Theory/Practical /Integrated )	Integrated	Total Marks	100
eaching Hour	rs/Week (L:T:P: S)	2:0:2:0	Exam Hours	03
'otal Hours of		40 hours	Credits	03
	seObjectives:	10 110410	of curto	00
CLO CLO	<ol> <li>Elucidate the basic architecture an</li> <li>Apply programming constructs of</li> <li>Explore user-defined data structure problems</li> <li>Design and Develop Solutions to functions and procedures</li> </ol>	C language to solve the re- es like arrays, structures an	al-world problems d pointers in implemen	-
	ning-LearningProcess(GeneralInstr			
These	aresampleStrategies,whichteachersca	nusetoacceleratetheattainm	entofthevariouscourse	outcomes.
1.	Lecturer method (L) need not to be	only traditional lecture me	ethod, but alternative et	ffective
	teaching methods could be adopted	to attain the outcomes.		
2.	Use of Video/Animation to explain	functioning of various con	ncepts.	
3.	Encourage collaborative (Group Le	earning)Learning in the clas	SS.	
4.	Ask atleast three HOT(Higher orde	r Thinking) questions in th	e class, which promote	s critical
	thinking.			
5.	Adopt Problem Based Learning (PI thinking skills such as the ability to simply recall it.		•	* •
6.		sentations		
7.			rage the students to co	me up with
	their own creative ways to solve the	-		
8.	Discuss how every concept can be a improve the students' understanding	applied to the real world-ang.		_
9.				ions of C Programs
	Mod	ule-1 (6 Hours of Pedago	gy)	
Introd progra	duction to C: Introduction to conduction to C, Structure of C program, ams, variables, constants, Input/output pook: Chapter 1.1-1.9, 2.1-2.2, 8.1 –	Files used in a C program t statements in C,		
Teach	ning-LearningProcess	Chalkandtalkmethod/P	owerPointPresentation	
	Mod	ule-2 (6 Hours of Pedago	gy)	
Opera	tors in C, Type conversion and typeca	asting.		
<b>Decisi</b> iterativ	ion control and Looping statements ve statements, nested loops, break and ook: Chapter 9.15-9.16, 10.1-10.6	: Introduction to decision		anching statement
	ning-LearningProcess	Chalkandtalkmethod/P	owerPointPresentation	
I	Module	-3 (6 Hours of Pedagogy)		
	ntroduction using functions, Function meters to functions, scope of variables			l, return statemen

Passing arrays to functions,	
Textbook: Chapter 11.1-11.13, 12.1-12.6	
Teaching-LearningProcess	Chalkandtalkmethod/PowerPointPresentation
Μ	Iodule-4 (6 Hours of Pedagogy)
Introduction to strings: Reading strings, w Suppressing input using a Scanset. Textbook: Chapter 12.7-12.12	<b>• strings:</b> Applications of arrays, case study with sorting techinques. writing strings, summary of functions used to read and write characters
Teaching-LearningProcess	Chalkandtalkmethod/PowerPointPresentation
M	Iodule-5 (6 Hours of Pedagogy) rings, Miscellaneous string and character functions, arrays of strings.

Chalkandtalkmethod/PowerPointPresentation

Structures: Introduction to structures

### Textbook: Chapter 13.1-13.6, 14.1-14.3,15.1

Teaching-LearningProcess

### CourseOutcomes(CourseSkillSet)

Attheendofthecoursethestudentwillbeableto:

CO1. Elucidate the basic architecture and functionalities of a computer and also recognize

the hardware parts.

CO 2. Apply programming constructs of C language to solve the real world problem

CO 3.Explore user-defined data structures like arrays in implementing solutions to

problems like searching and sorting

CO 4.Explore user-defined data structures like structures, unions and pointers in implementing solutions

CO5.Design and Develop Solutions to problems using modular programming constructs

using functions

### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation (CIE):

The CIE marks for the theory component of the IC shall be **30 marks** and for the laboratory component **20** Marks.

CIE for the theory component of the IC

- Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.
- Two Assignments/two quizzes/ seminars/one field survey and report presentation/one-course project totaling 20 marks.

Total Marks scored (test + assignments) out of 80 shall be scaled down to **30 marks** 

### CIE for the practical component of the IC

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted at the end of the semester.
- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks.
   Marks of all experiments' write-ups are added and scaled down to 15 marks.
- The laboratory test **(duration 03 hours)** at the end of the 15<sup>th</sup> week of the semester /after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to **05 marks**.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

### Semester End Examination (SEE):

### SEE for IC

Theory SEE will be conducted by University as per the scheduled time table, with common question papers for the course (duration 03 hours)

- 1. The question paper will have ten questions. Each question is set for 20 marks.
- 2. There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.
- 3. The students have to answer 5 full questions, selecting one full question from each module.

The theory portion of the Integrated Course shall be for both CIE and SEE, whereas the practical portion

# will have a CIE component only. Questions mentioned in the SEE paper shall include questions from the practical component).

### Passing standard:

- The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks-30) in the theory component and 08 (40% of maximum marks -20) in the practical component. The laboratory component of the IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 04/05 questions to be set from the practical component of IPCC, the total marks of all questions should not be more than 30 marks.
- SEE will be conducted for 100 marks and students shall secure 35% of the maximum marks to qualify for the SEE. Marks secured will be scaled down to 50.

### Suggested Learning Resources:

### Textbooks

1. Computer fundamentals and programming in c, "Reema Thareja", Oxford University, Second edition, 2017.

### **Reference Books:**

- 1. E. Balaguruswamy, Programming in ANSI C, 7th Edition, Tata McGraw-Hill.
- 2. Brian W. Kernighan and Dennis M. Ritchie, The 'C' Programming Language, Prentice Hall of India.

### Web links and Video Lectures (e-Resources):

- 1. elearning.vtu.ac.in/econtent/courses/video/BS/15PCD23.html
- 2. https://nptel.ac.in/courses/106/105/106105171/ MOOC courses can be adopted for more clarity in understanding the topics and verities of problem solving methods.

### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- Quizzes
- Assignments
- Seminars

### Lab Assignments

1	C Program to find Mechanical Energy of a particle using $E = mgh+1/2 mv2$ .
2	C Program to convert Kilometers into Meters and Centimeters.
3	C Program To Check the Given Character is Lowercase or Uppercase or Special Character.
4	Program to balance the given Chemical Equation values x, y, p, q of a simple chemical equation of the type: The task is to find the values of constants b <sub>1</sub> , b <sub>2</sub> , b <sub>3</sub> such that the equation is balanced on both sides and it must be the reduced form.
4	type: The task is to find the values of constants $b_1$ , $b_2$ , $b_3$ such that the equation is balanced on both

7	SortthegivensetofNnumbersusingBubblesort.	
8	Writefunctionstoimplementstringoperationssuchascompare,concatenate,stringlength.Convinceth	
0	eparameterpassingtechniques.	
0	Implementstructurestoread, writeand compute average-	]
9	marksandthestudentsscoringaboveandbelowtheaveragemarksforaclassofN students.	
10	Developaprogramusingpointerstocompute the sum, mean and standard deviation of all elements stored	
10	inanarrayofNrealnumbers.	

Course Title:	Waste Managemen	t		
Course Code:		BETCK105F/205F	CIE Marks	50
Course Type (Theory/Practical		Theory	SEE Marks	50
/Integrated)			Total Marks	100
Teaching Hours/Week (L:T:P: S)		3:0:0:0	Exam Hours	3 hrs of Theory
Total Hours of Pe	edagogy	40 hours	Credits	03

#### **Course objectives**

- To learn broader understandings on various aspects of solid waste management practiced in industries.
- To learn recovery of products from solid waste to compost and biogas, incineration and energy recovery,
  - hazardous waste management and treatment, and integrated waste management.

#### **Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective

- 1. Include traditional teaching learning process such as Chalk and Talk using writing boards.
- 2. Construct graphical and pictorial representation of the subject in the form of Chart, hand-outs or PowerPoint presentations.
- 3. Collaborate with students how tools are applied to solve biological problems.
- 4. Integrate real time case studies in various scientific tools used.
- 5. Reflective approaches on analysing how and why the tools are used in self-reflected or published data.
- 6. Incorporate Inquiry based approach using demonstration, field study, experiments and project work

#### Module-1 (08)

#### INTRODUCTION TO SOLID WASTE MANAGEMENT:

Classification of solid wastes (source and type based), solid waste management (SWM), elements of SWM, ESSWM (environmentally sound solid waste management) and EST (environmentally sound technologies), factors affecting SWM, Indian scenario, progress in MSW (municipal solid waste) management in India.Indian and global scenario of e-waste,

#### Module-2 (08)

#### WASTE GENERATION ASPECTS:

Waste stream assessment (WSA), waste generation and composition, waste characteristics (physical and chemical), health and environmental effects (public health and environmental), comparative assessment of waste generation and composition of developing and developed nations, a case study results from an Indian city, handouts on solid waste compositions. E-waste generation.

#### Module-3 (08)

#### COLLECTION, STORAGE, TRANSPORT AND DISPOSAL OF WASTES:

Waste Collection, Storage and Transport: Collection components, storage-containers/collection vehicles, collection operation, transfer station, waste collection system design, record keeping, control, inventory and monitoring, implementing collection and transfer system, a case study. Waste Disposal: key issues in waste disposal, disposal options and selection criteria, sanitary landfill, landfill gas emission, leachate formation, environmental effects of landfill, landfill operation issues, a case study.

#### Module-4 (08)

#### WASTE PROCESSING TECHNIQUES & SOURCE REDUCTION, PRODUCT RECOVERY & RECYCLING:

Purpose of processing, mechanical volume and size reduction, component separation, drying and dewatering. Source Reduction, Product Recovery and Recycling: basics, purpose, implementation monitoring and evaluation of source reduction, significance of recycling, planning of a recycling programme, recycling programme elements, commonly recycled materials and processes, a case study.

#### Module-5 (08)

#### HAZARDOUS WASTE MANAGEMENT AND TREATMENT:

Identification and classification of hazardous waste, hazardous waste treatment, pollution prevention and waste minimization, hazardous wastes management in India. E-waste recycling.

#### Course outcome (Course Skill Set)

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At the end of the course the student will be able to:

At the en	d of the course the student will be able to.
C01	Apply the basics of solid waste management towards sustainable development
CO2	Apply technologies to process waste and dispose the same.
CO3	Design working models to convert waste to energy
C04	Identify and classify hazardous waste and manage the hazard

#### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### **Continuous Internal Evaluation(CIE):**

Three Tests each of 20 Marks;

• 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> tests shall be conducted after completion of the syllabus of 30-35%,

70-75%, and 90-100% of the course/s respectively.

 Assignments/Seminar/quiz/group discussion /field survey & report presentation/ course project/Skill development activities, suitably planned to attain the COs and POs for a total of 40 Marks.

If the nature of the courses requires assignments/Seminars/Quizzes/group discussion two evaluation components shall be conducted. If course project/field survey/skill development activities etc then the evaluation method shall be one.

#### Total CIE marks (out of 100 marks) shall be scaled down to 50 marks

#### Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks.
- Students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

#### Suggested Learning Resources:

Books

#### **Text Books:**

1. Tchobaanoglous, G., Theisen, H., and Samuel A Vigil, Integrated Solid Waste Management, McGraw-Hill Publishers, 1993.

2. Bilitewski B., Hard He G., Marek K., Weissbach A., and Boeddicker H., Waste Management, Springer, 1994.

#### **Reference Books:**

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1. White, F. R., Franke P. R.,, & Hindle M., Integrated solid waste management: a life cycle inventory. McDougall, P. John Wiley & Sons. 2001

2. Nicholas, P., & Cheremisinoff, P. D., Handbook of solid waste management and waste minimization

technologies, Imprint of Elsevier Science. 2005

#### Web links and Video Lectures (e-Resources):

- https://nptel.ac.in/courses/105103205
- https://www.youtube.com/watch?v=k0ktJRoRcOA
- https://nptel.ac.in/courses/103/107/103107125/
- https://onlinecourses.nptel.ac.in/noc22\_ce76/preview
- https://onlinecourses.swayam2.ac.in/cec20\_ge13/preview

#### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- AV presentation by students (on specific topics).
- Discussion of case studies based on research findings.
- Model making and Poster presentations

#### COs and POs Mapping (Individual teacher has to fill up) COs POs 1 7 9 2 3 4 5 6 8 10 11 12 C01 3 3 3 3 3 **CO2** 3 **CO3** 3 3 3 **CO4** 3 3 3 Level 3- Highly Mapped, Level 2-Moderately Mapped, Level 1-Low Mapped, Level 0- Not Mapped

#### I Semester

Learning

INNOVATION and DESIGN THINKING			
Course Code BIDTK158/258 CIE Marks 50			50
Teaching Hours/Week (L: T:P: S)	1:0:0	SEE Marks	50
Total Hours of Pedagogy	15	Total Marks	100
Credits	01	Exam Hours	01

#### Course Category: Foundation

**Preamble:** This course provides an introduction to the basic concepts and techniques of engineering and reverses engineering, the process of design, analytical thinking and ideas, basics and development of engineering drawing, application of engineering drawing with computer aide. **Course objectives:** 

- To explain the concept of design thinking for product and service development
- To explain the fundamental concept of innovation and design thinking
- To discuss the methods of implementing design thinking in the real world.

### **Teaching-Learning Process (General Instructions)**

These are sample Strategies; which teachers can use to accelerate the attainment of the various course outcomes.

- **1.** Lecturer method (L) does not mean only the traditional lecture method, but a different type of teaching method may be adopted to develop the outcomes.
- 2. Show Video/animation films to explain concepts
- 3. Encourage collaborative (Group Learning) Learning in the class
- **4.** Ask at least three HOTS (Higher-order Thinking) questions in the class, which promotes critical thinking
- **5.** Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develops thinking skills such as the ability to evaluate, generalize, and analyze information rather than simply recall it.
- **6.** Topics will be introduced in multiple representations.
- **7.** Show the different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.
- **8.** Discuss how every concept can be applied to the real world and when that's possible, it helps improve the students' understanding.

Module-1					
PROCESS OF DESIGN					
Understanding Design thinking					
Shared mode	Shared model in team-based design – Theory and practice in Design thinking – Explore presentation				
signers acros	signers across globe – MVP or Prototyping				
<b>Teaching-</b> Introduction about the design thinking: Chalk and Talk method					
Learning	Theory and practice through presentation				
Process	MVP and Prototyping through live examples and videos				
Module-2					
Tools for De	Tools for Design Thinking				
Real-Time de	Real-Time design interaction capture and analysis – Enabling efficient collaboration in digital space				
– Empathy fo	r design – Collaboration in distributed Design				
Teaching-	Case studies on design thinking for real-time interaction and analysis				

Process	Simulation exercises for collaborated enabled design thinki	ing
	Live examples on the success of collaborated design thinking	ıg
	Module-3	
Design T	hinking in IT	
Design T	ninking to Business Process modelling – Agile in Virtual collaborati	ion environment – Scenario
based Pr	ototyping	
Teaching	- Case studies on design thinking and business acceptance of the	e design
LearningSimulation on the role of virtual eco-system for collaborated prototyping		prototyping
Process		
	Module-4	
	rategic innovations	
	Story telling representation – Strategic Foresight - Change – S	
	e – Value redefinition - Extreme Competition – experience	
Humaniza	tion - Creative Culture - Rapid prototyping, Strategy and Orga	anization – Business Mode
design.		
Teaching		
Learning		
Process	Live project on design thinking in a group of 4 students Module-5	
Design thi	nking workshop	
0	inking Work shop Empathize, Design, Ideate, Prototype and Test	
Teaching	- 8 hours design thinking workshop from the expect and then pro-	esentation by the students
Learning	on the learning from the workshop	
Process		
Course O		
opon the	successful completion of the course, students will be able to:	Un ouvlo da o Lorrol
CO	Course Outcomes	Knowledge Level
Nos.		(Based on revised Bloom's Taxonomy)
C01	Appreciate various design process procedure	K2
001		1\\2
CO2	Generate and develop design ideas through different technique	K2
CO3	Identify the significance of reverse Engineering toUnderstand	К2
000	products	112
CO4	Draw technical drawing for design ideas	КЗ

#### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together. **Continuous Internal Evaluation (CIE):** 

- Two Tests (preferably in MCQ pattern ) each of **30 Marks**; The first test after the completion of the 40 -50% syllabus of the course. A second test after the completion of 90-100% of the syllabus of the course.
- Two Assignments/two quizzes/two seminars/one field survey and report

presentation/one-course project totaling 40 marks

Total Marks scored (test + assignments) out of 100 shall be scaled down to 50 marks

At the beginning of the semester, the instructor/faculty teaching the course has to announce the methods of CIE for the course.

The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

#### Semester-End Examination:

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for subject

SEE paper will be set for 50 questions of each of 01 marks. The pattern of the question paper is MCQ. The time allotted for SEE is **01 hour** 

#### Suggested Learning Resources:

#### **Text Books :**

- 1. John.R.Karsnitz, Stephen O'Brien and John P. Hutchinson, "Engineering Design", Cengage learning (International edition) Second Edition, 2013.
- 2. Roger Martin, "The Design of Business: Why Design Thinking is the Next Competitive Advantage", Harvard Business Press, 2009.
- 3. Hasso Plattner, Christoph Meinel and Larry Leifer (eds), "Design Thinking: Understand Improve Apply", Springer, 2011
- 4. Idris Mootee, "Design Thinking for Strategic Innovation: What They Can't Teach You at Business or Design School", John Wiley & Sons 2013.

**References**:

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5.	Yousef Haik and Tamer M.Shahin, "Engineering Design Process", CengageLearning, Second
	Edition, 2011.
6.	Book - Solving Problems with Design Thinking - Ten Stories of What Works (Columbia Business
	School Publishing) Hardcover – 20 Sep 2013 by Jeanne Liedtka (Author), Andrew King (Author),
	Kevin Bennett (Author).
Web li	nks and Video Lectures (e-Resources):
1.	www.tutor2u.net/business/presentations/. / <b>productlifecycle</b> /default.html
2.	https://docs.oracle.com/cd/E11108_02/otn/pdf/. /E11087_01.pdf
3.	www.bizfilings.com > Home > Marketing > Product Developmen
4.	https://www.mindtools.com/brainstm.html
5.	https://www.quicksprout.com/. /how-to- <b>reverse-engineer</b> -your-competit
6.	www.vertabelo.com/blog/documentation/reverse-engineering
	https://support.microsoft.com/en-us/kb/273814
7.	https://support.google.com/docs/answer/179740?hl=en
8.	https://www.youtube.com/watch?v=2mjSDIBaUlM
	thevirtualinstructor.com/foreshortening.html
	https://dschool.stanford.edu//designresources//ModeGuideBOOTCAMP2010L.pdf
	https://dschool.stanford.edu/use-our-methods/ 6. https://www.interaction-
	design.org/literature/article/5-stages-in-the-design-thinking-process 7.
	http://www.creativityatwork.com/design-thinking-strategy-for-innovation/ 49 8.
	https://www.nngroup.com/articles/design-thinking/ 9.
	https://designthinkingforeducators.com/design-thinking/ 10.
	www.designthinkingformobility.org/wp-content//10/NapkinPitch_Worksheet.pdf
	ty Based Learning (Suggested Activities in Class)/ Practical Based learning

http://dschool.stanford.edu/dgift/

https://onlinecourses.nptel.ac.in/noc19\_mg60/preview

Theory - 01 Credit Course

### ಬಳಕೆ ಕನ್ನಡ - baLake Kannada (Kannada for Usage)

#### ಕನ್ನಡ ಕಲಿಕೆಗಾಗಿ <u>ನಿಗದಿ</u>ಪಡಿಸಿದ ಪಠ್ಯಪುಸ್ತಕ - (Prescribed Textbook to Learn Kannada)

~			_
Course Title:	ಬಳಕೆ ಕನ್ನಡ		
Course Code:	BKBKK107-207	CIE Marks	50
Course Type (Theory/Practical /Integrated	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01

#### Course objectives : ಬಳಕೆ ಕನ್ನಡ ಪಠ್ಯ ಕಲಿಕೆಯ ಉದ್ದೇಶಗಳು:

The course (22KBK17/27) will enable the students,

- 1. To Create the awareness regarding the necessity of learning local language for comfortable and healthy life.
- 2. To enable learners to Listen and understand the Kannada language properly.
- 3. To speak, read and write Kannada language as per requirement.
- 4. To train the learners for correct and polite conservation.
- 5. To know about Karnataka state and its language, literature and General information about this state.

#### ಬೋಧನೆ ಮತ್ತು ಕಲಿಕಾ ವ್ಯವಸ್ಥೆ (Teaching-Learning Process - General Instructions) :

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

- ಬಳಕೆ ಕನ್ನಡವನ್ನು ತರಗತಿಯಲ್ಲಿ ಶಿಕ್ಷಕರು ಬೋಧಿಸಲು ವಿಟಿಯು ಸೂಚಿಸಿರುವ ಪಠ್ಯಪುಸ್ತಕವನ್ನು ಉಪಯೊಗಿಸಬೇಕು.
- ಪ್ರಮುಖ ಅಂಶಗಳ ಚಾರ್ಟ್ ಗಳನ್ನು ತಯಾರಿಸಲು ವಿದ್ಯಾರ್ಥಿಗಳನ್ನು ಉತ್ತೇಜಿಸುವುದು ಮತ್ತು ತರಗತಿಯಲ್ಲಿ ಅವುಗಳನ್ನು ಚರ್ಚಿಸಲು ಅವಕಾಶ ಮಾಡಿಕೊಡುವುದು.
- 3. ಪ್ರತಿ ವಿದ್ಯಾರ್ಥಿ ಪುಸ್ತಕವನ್ನು ತರಗತಿಯಲ್ಲಿ ಬಳಸುವಂತೆ ನೋಡಿಕೊಳ್ಳುವುದು ಮತ್ತು ಪ್ರತಿ ಪಾಠ ಮತ್ತು ಪ್ರವಚನಗಳ ಮೂಲ ಅಂಶಗಳಿಗೆ ಸಂಬಂಧಪಟ್ಟಂತೆ ಪೂರಕ ಚಟುವಟಿಕೆಗಳಿಗೆ ತೊಡಗಿಸತಕ್ಕದ್ದು.
- 4. ಡಿಜಿಟಲ್ ತಂತ್ರಜ್ಞಾನದ ಮುಖಾಂತರ ಇತ್ತೀಚೆಗೆ ಡಿಜಿಟಲೀಕರಣ ಗೊಂಡಿರುವ ಭಾಷೆ ಕಲಿಕೆಯ ವಿಧಾನಗಳನ್ನು ಪಿಪಿಟಿ ಮತ್ತು ದೃಶ್ಯ ಮಾಧ್ಯಮದ ಮುಖಾಂತರ ಚರ್ಚಿಸಲು ಕ್ರಮಕೈಗೊಳ್ಳುವುದು. ಇದರಿಂದ ವಿದ್ಯಾರ್ಥಿಗಳನ್ನು ತರಗತಿಯಲ್ಲಿ ಹೆಚ್ಚು ಏಕಾಗ್ರತೆಯಿಂದ ಪಾಠ ಕೇಳಲು ಮತ್ತು ಅಧ್ಯಯನದಲ್ಲಿ ತೊಡಗಲು ಅನುಕೂಲವಾಗುತ್ತದೆ.
- ಭಾಷಾಕಲಿಕೆಯ ಪ್ರಯೋಗಾಲಯದ ಮುಖಾಂತರ ಬಹುಬೇಗ ಕನ್ನಡ ಭಾಷೆಯನ್ನು ಕಲಿಯಲು ಅನುಕೂಲವಾಗುವಂತೆ ಕಾರ್ಯಚಟುವಟಿಕೆಗಳನ್ನು ಮತ್ತು ಕ್ರಿಯಾ ಯೋಜನೆಗಳನ್ನು ರೂಪಿಸುವುದು.

### Module - 1

#### (03 hours of pedagogy)

- 1. Introduction, Necessity of learning a local language. Methods to learn the Kannada language.
- 2. Easy learning of a Kannada Language: A few tips. Hints for correct and polite conservation, Listening and Speaking Activities, Key to Transcription
- 3. ವೈಯಕ್ತಿಕ, ಸ್ವಾಮ್ಯಸೂಚಕ/ಸಂಬಂಧಿತ ಸಾರ್ವನಾಮಗಳು ಮತ್ತು ಪ್ರಶ್ನಾರ್ಥಕ ಪದಗಳು Personal Pronouns, Possessive Forms, Interrogative words

Module - 2	(03 hours of pedagogy)
<ol> <li>ನಾಮಪದಗಳ ಸಂಬಂಧಾರ್ಥಕ ರೂಪಗಳು, ಸಂದೇಹಾಸ್ಪದ</li> </ol>	ಪ್ರಶ್ನೆಗಳು ಮತ್ತು ಸಂಬಂಧವಾಚಕ
ನಾಮಪದಗಳು - Possessive forms of nouns, dubitive	question and Relative nouns
2. ಗುಣ, ಪರಿಮಾಣ ಮತ್ತು ವರ್ಣಬಣ್ಣ ವಿಶೇಷಣಗಳು, ಸಂಖ್ಯಾ Colour Adjectives, Numerals	ವಾಚಕಗಳು Qualitative, Quantitative and
3. ಕಾರಕ ರೂಪಗಳು ಮತ್ತು ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯಗಳು –ಸಪ್ತಮಿ ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯ – (ಆ, ಆ	ಶದು, ಅವು, ಅಲ್ಲಿ) –Predictive Forms, Locative Case
Module - 3	(03 hours of pedagogy)
1. ಚತುರ್ಥಿ ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯದ ಬಳಕೆ ಮತ್ತು ಸಂಖ್ಯಾವಾಚಕಗಳು - Dative Cas	es, and Numerals
2. ಸಂಖ್ಯಾಗುಣವಾಚಕಗಳು ಮತ್ತು ಬಹುವಚನ ನಾಮರೂಪಗಳು -Ordinal n	umerals and Plural markers
3. ನ್ಯೂನ/ನಿಷೇಧಾರ್ಥಕ ಕ್ರಿಯಾಪದಗಳು & ವರ್ಣ ಗುಣವಾಚಕಗಳು –Defec	tive/Negative Verbs & Colour Adjectives
Module- 4	(03 hours of pedagogy)
1. ಅಪ್ಪಣೆ / ಒಪ್ಪಿಗೆ, ನಿರ್ದೇಶನ, ಪ್ರೋತ್ಸಾಹ ಮತು ಒತ್ತಾಯ ಆರ್ಥ	ರೂಪ ಪದಗಳು ಮತ್ತು ವಾಕ್ಯಗಳು
Permission, Commands, encouraging and Urging words (Imp	erative words and sentences)
2. ಸಾಮಾನ್ಯ ಸಂಭಾಷಣೆಗಳಲ್ಲಿ ದ್ವಿತೀಯ ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯಗಳು ಮ	ತ್ತು ಸಂಭವನೀಯ ಪ್ರಕಾರಗಳು
Accusative Cases and Potential Forms used in General Commu	nication
3. "ಇರು ಮತ್ತು ಇರಲ್ಲ" ಸಹಾಯಕ ಕ್ರಿಯಾಪದಗಳು, ಸಂಭಾವ್ಯಸೂ	ಚಕ ಮತ್ತು ನಿಷೇಧಾರ್ಥಕ ಕ್ರಿಯಾ ಪದಗಳು -
Helping Verbs "iru and iralla", Corresponding Future and Negati	on Verbs
4.  ಹೋಲಿಕೆ (ತರತಮ) , ಸಂಬಂಧ ಸೂಚಕ, ವಸ್ತು ಸೂಚಕ ಪ್ರತ್ಯಂ	ಮಗಳು ಮತ್ತು ನಿಷೇಧಾರ್ಥಕ ಪದಗಳ ಬಳಕೆ-
Comparitive, Relationship, Identification and Negation Words	
Module - 5	(03 hours of pedagogy)
1. ಕಾಲ ಮತ್ತು ಸಮಯದ ಹಾಗೂ ಕ್ರಿಯಾಪದಗಳ ವಿವಿಧ ಪ್ರಕಾರಗಳ	・Different types of Tense, Time and Verbs
2. ದ್, -ತ್, - ತು, - ಇತು, - ಆಗಿ, - ಅಲ್ಲ, - ಗ್, -ಕ್, ಇದೆ, ಕ್ರಿಯಾ ಪ್ರತ್ಯ	ಯಗಳೊಂದಿಗೆ ಭೂತ, ಭವಿಷ್ಯತ್ ಮತ್ತು
ವರ್ತಮಾನ ಕಾಲ ವಾಕ್ಯ ರಚನೆ - Formation of Past, Future and	Present Tense Sentences with Verb Forms

3. Kannada Vocabulary List :ಸಂಭಾಷಣೆಯಲ್ಲಿ ದಿನೋಪಯೋಗಿ ಕನ್ನಡ ಪದಗಳು -Kannada Words in Conversation

### Course outcome (Course Skill Set)

### ಬಳಕೆ ಕನ್ನಡ ಪಠ್ಯ ಕಲಿಕೆಯಿಂದ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಆಗುವ ಅನುಕೂಲಗಳು ಮತ್ತು ಫಲಿತಾಂಶಗಳು:

At the end of the course the student will be able to:

C01	To understand the necessity of learning of local language for comfortable life.
CO2	To speak, read and write Kannada language as per requirement.
CO3	To communicate (converse) in Kannada language in their daily life with kannada speakers.
C04	To Listen and understand the Kannada language properly.
CO5	To speak in polite conservation.

### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than

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35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### Continuous Internal Evaluation(CIE):

Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration

#### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others.. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

## The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks Semester End Examinations (SEE)

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

### **University Prescribed Textbook :**

ಬಳಕೆ ಕನ್ನಡ

ಡಾ. ಎಲ್. ತಿಮ್ಮೇಶ

ಪ್ರಕಟಣೆ : ಪ್ರಸಾರಾಂಗ,

#### ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ.

ಸೂಚನೆ :

- 1. ಹೆಚ್ಚಿನ ಮಾಹಿತಿ ಮತ್ತು ವಿವರಣೆಗಳಿಗೆ ಡಾ. ಎಲ್. ತಿಮ್ಮೇಶ (9900832331) ಇವರನ್ನು ಸಂಪರ್ಕಿಸಿ.
- ಮಾದರಿ ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆ, ಕೋರ್ಸ್ ಆಯ್ಕೆ ಮಾಹಿತಿ, ಅಧ್ಯಯನ ಸಾಮಗ್ರಿ & ಬಹು ಆಯ್ಕೆ ಮಾದರಿಯ ಪ್ರಶ್ನೆಗಳ ಕೈಪಿಡಿಗಾಗಿ ವಿಶ್ವವಿದ್ಯಾಲಯದ ವೆಬ್ ಸೈಟ್ ನೋಡುವುದು.

#### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- $\checkmark$  For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions,
- Seminars and assignments

### Theory - 01 Credit Course

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	Title:	ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ		
Course	Code:		CIE Marks	50
Course	Two (The own (Departical) (Intermeter	BKSKK107-207	SEE Marks	50
Course	Type (Theory/Practical /Integrated		Total Marks	100
Teachi	ng Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total H	Iours of Pedagogy	15 hours	Credits	01
Course	e objectives : ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ ಪ	ಪಠ್ಯ ಕಲಿಕೆಯ ಉದ್ದೇಶಗ	ಗಳು:	
	urse (22KSK17/27) will enable the stud			
	ವೃತ್ತಿಪರ ಪದವಿ ವಿದ್ಯಾರ್ಥಿಗಳಾಗಿರ		ಸಾಹಿತ್ಯ ಮತ್ತು ಕಂ	ನ್ನಡದ ಸಂಸ್ಕೃತಿಯ ಪರಿಚಯ
	ಮಾಡಿಕೊಡುವುದು.		<u>مــــــــــــــــــــــــــــــــــــ</u>	a,
2.	ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಪ್ರಧಾನ ಭಾಗವ	ವಾದ ಆಧುನಿಕ ಪೂರ್ವ	ಮತು ಆಧುನಿಕ ಕ	ಣವ್ಯಗಳನ್ನು ಸಾಂಕೇತಿಕವಾ
	ಪರಿಚಯಿಸಿವುದು.			
2	ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ ಸಾಹಿತ್ಯ ಮತ್ತು ಸಂ	ುಕ ಕಿಯ ಬಗೆ ಅಧಿವ ಹಾ	ಗ ೧೫ ಸಕಿಯನ್ನು ಸ	ಗೂಡಿಸುವ್ರದು
	ತಾಂತ್ರಿಕ ವ್ಯಕ್ತಿಗಳ ಪರಿಚಯವನ್ನು ಸ			
				పరచయనుత్రదు.
	ಸಾಂಸ್ಕೃತಿಕ, ಜನಪದ ಹಾಗೂ ಪ್ರವಾ			
ಬೋ	ನನೆ ಮತ್ತು ಕಲಿಕಾ ವ್ಯವಸ್ಥೆ (Teach	ing-Learning Proces	s - General Instru	uctions) :
These	are sample Strategies, which teache	er can use to accelerate t	he attainment of th	ne course outcomes.
1.	ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡವನ್ನು ಬೋಧಿ	ಸಲು ತರಗತಿಯಲ್ಲಿ ಶಿಕ್ಷಕ	ರು ಪ್ರಸ್ತುತ ಪುಸ್ತಕ	ಆಧಾರಿಸಿ ಬ್ಲಾಕ್ ಬೋಡ್ಟ್
	ವಿಧಾನವನ್ನು ಅನುಸರಿಸುವುದು.	ಪ್ರಮುಖ ಅಂಶಗಳ ಚಾ	ೂರ್ಟ್ ಗಳನ್ನು ತಂ	ಯಾರಿಸಲು ವಿದ್ಯಾರ್ಥಿಗಳನು
	ಪ್ರೇರೇಪಿಸುವುದು ಮತ್ತು ತರಗತಿಯಂ	ಲ್ಲಿ ಅವುಗಳನ್ನು ಚರ್ಚಿಸಲ	ು ಅವಕಾಶ ಮಾಡಿಕೆ	ೂಡುವುದು.
2.	ಇತ್ತೀಚಿನ ತಂತ್ರಜ್ಞಾನದ ಅನುಕೂ	ಲಗಳನ್ನು ಬಳಸಿಕೊಳ್ಳುವ	<b>ಶ್ರದು - ಅಂದರೆ ಕ</b> ವಿ	-ಕಾವ್ಯ ಪರಿಚಯದಲ್ಲಿ ಕವಿಗಳ
	ಚಿತ್ರಣ ಮತ್ತು ಲೇಖನಗಳು ಮತ	್ತು ಕಥೆ ಕಾವ್ಯಗಳ ಮೂ	ಲ ಅಂಶಗಳಿಗೆ ಸಂ	ಂಬಂಧಪಟ್ಟ ಧ್ವನಿ ಚಿತ್ರಗಳ
	ಸಂಭಾಷಣೆಗಳು, ಈಗಾಗಲೇ ಇತರ	ವಿಮರ್ಶಕರು ಬರೆದಿರುವ	ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ	
	ಸಂಭಾಷಣೆಗಳು, ಈಗಾಗಲೇ ಇತರ ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ?		ವಿಮರ್ಶಾತ್ಮಕ ವಿಷ	
3.	-	ಸುವುದು.	-	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ
3.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿ?	ಸುವುದು. ನನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧಾ	-	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ
3.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿಸ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ	ಸುವುದು. ನನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧಾ 'ವಡಿಸಿಕೊಳ್ಳಬಹುದು.	ನಗಳನ್ನು ಶಿಕ್ಷಕರು (	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟe ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ
	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿಸ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕನ	ಸುವುದು. ನನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧಾ 'ವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾಶ	ನಗಳನ್ನು ಶಿಕ್ಷಕರು (	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟe ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ
1.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿಸ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕನ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗರ	ಸುವುದು. ರನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧಾ 'ವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾಣ ಾಜಯ್ಯ	ುನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟe ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ
1. 2.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿಸ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕನ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗರ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅನ	ಸುವುದು. ರನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧಾ 'ವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾ ವಾಜಯ್ಯ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕಕ	ುನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟೆಸುಬ್ಬಯ್ಯ	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagog
1. 2.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿಸ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕನ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗರ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅಭ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ನ	ಸುವುದು. ರೆನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧಾ 'ವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾಸ ಕಾಜಯ್ಯ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕರ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪ್ರೊ	ುನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಬಸುಬ್ಬಯ್ಯ ೧. ವಿ. ಕೇಶವಮೂರ್ತಿ	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟೀ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagog
1. 2. 3.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿಸ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕನ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗರ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅಸ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಎ ಘಟಕ - 2 ಲ	ಸುವುದು. ರನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧಾ 'ವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾಸ ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾಸ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕರ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪ್ರೊ ತಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಇ	ನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟೆಸುಬ್ಬಯ್ಯ ೧. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagog
1. 2.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿಸ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕನ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗರ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅಭ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಂ ಘಟಕ - 2 e ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ	ಸುವುದು. ರನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧನ 'ವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾಷ ನಾಜಯ್ಯ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕನ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪ್ರೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಇ ದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಯ	ನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟೆಸುಬ್ಬಯ್ಯ ೧. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟೀ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagog
1. 2. 3.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿಸ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕನ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗರ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಂ ಘಟಕ - 2 e ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, e	ಸುವುದು. ರನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧನ 'ವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾನ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕನ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪ್ರೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ನ ದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಯ ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ.	ುನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟೆಸುಬ್ಬಯ್ಯ ೧. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ರ್ದಕ್ಕಿ ಮಾರಯ್ಯ,	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagog
1. 2. 3.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಸೇಷಿಸ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕನ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗರ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಂ ಘಟಕ - 2 e ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, o ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ	ಸುವುದು. ರನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧನ 'ವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾನ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕರ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪ್ರೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಇ ದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಯ ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂಶ	ುನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ ೧. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ರ್ದಕ್ಕಿ ಮಾರಯ್ಯ, ವರದಾಸರು	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟೀ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagog
1. 2. 3. 1. 2.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿಸ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕನ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗರ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅಭ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ರ ಘಟಕ - 2 e ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, o ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ 2	ಸುವುದು. ರನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧನ 'ವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾಸ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕನ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪ್ರೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ನ ದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಯ ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂಪ ತಾಳು ಮನವೇ - ಕನಕದಾ	ುನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ ೧. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ರ್ದಕ್ಕಿ ಮಾರಯ್ಯ, ವರದಾಸರು	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟೀ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagog
1. 2. 3.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿಸ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕನ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗರ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಂ ಘಟಕ - 2 e ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, e ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ : ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸು	ಸುವುದು. ರನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧನ 'ವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾನ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕನ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ನ ದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಯ ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂಧ ತಾಳು ಮನವೇ - ಕನಕದಾ ಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ	ುನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟೆಸುಬ್ಬಯ್ಯ ೧. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ರ್ದಾಕ್ಕಿ ಮಾರಯ್ಯ, ವರದಾಸರು ಸರು	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟೀ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagog : hours of pedagogy)
1. 2. 3. 1. 2. 3.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿಸ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕನ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗರ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅಂ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಂ ಘಟಕ - 2 e ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, o ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸು ಘಟಕ - 3 o	ಸುವುದು. ರನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧನ 'ವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾಷ ವಾಜಯ್ಯ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕನ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪ್ರೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಸ ದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಯ ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂದ ತಾಳು ಮನವೇ - ಕನಕದಾ ಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ	ುನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ ೧. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ರ್ದಕ್ಕಿ ಮಾರಯ್ಯ, ವರದಾಸರು ಸರು	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟೀ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagog
1. 2. 3. 1. 2. 3.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿಸ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕನ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗರ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅಸ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಂ ಘಟಕ - 2 e ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, o ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ 3 ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸು ಫೆಟಕ - 3 o ಡಿವಿಜಿ ರವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗದಿಂ	ಸುವುದು. ರನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧನ 'ವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾಸ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕನ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪ್ರೊ ತಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಸ ದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಯ ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂಭ ತಾಳು ಮನವೇ - ಕನಕದಾ ಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ ಂದ ಅಯ್ದ ಕೆಲವು ಭಾಗಗಳ	ುನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ ೧. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ರ್ದಕ್ಕಿ ಮಾರಯ್ಯ, ವರದಾಸರು ಸರು	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagogy S hours of pedagogy)
1. 2. 3. 1. 2. 3. 1. 2.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಸೆಷಿಸ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕನ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗರ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅಂ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಂ ಘಟಕ - 2 e ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, o ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ , ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸು ಫೆಟಕ - 3 e ಡಿವಿಜಿ ರವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗದಿಂ	ಸುವುದು. ರನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧನ 'ವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾಸ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕನ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪ್ರೊ ತಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಸ ದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಯ ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂಭ ತಾಳು ಮನವೇ - ಕನಕದಾ ಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ ಂದ ಅಯ್ದ ಕೆಲವು ಭಾಗಗಳ	ುನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ ೧. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ರ್ದಕ್ಕಿ ಮಾರಯ್ಯ, ವರದಾಸರು ಸರು	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagogy S hours of pedagogy)
1. 2. 3. 1. 2. 3. 1. 2.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿಸ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕನ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗರ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅಸ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ರ ಘಟಕ - 2 e ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, e ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸು ಘಟಕ - 3 e ಡಿವಿಜಿ ರವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗದಿಂ ಕುರುಡು ಕಾಂಚಾಣ : ದಾ.ರಾ. ಬೇಂಕ	ಸುವುದು. ರನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧನ 'ವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾಸ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕನ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪ್ರೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಸ ದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಯ ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂಧ ತಾಳು ಮನವೇ - ಕನಕದಾ ಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ ಂದ ಅಯ್ದ ಕೆಲವು ಭಾಗಗಳ ದ್ರೆ	ುನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟೆಸುಬ್ಬಯ್ಯ ೧. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ರ್ದಾಕ್ಕಿ ಮಾರಯ್ಯ, ವರದಾಸರು ಸರು (03 ಸು	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagogy B hours of pedagogy)
1. 2. 3. 1. 2. 3. 1. 2.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿಸ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕನ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗರ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅಸ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ರ ಘಟಕ - 2 e ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, e ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸು ಘಟಕ - 3 e ಡಿವಿಜಿ ರವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗದಿಂ ಕುರುಡು ಕಾಂಚಾಣ : ದಾ.ರಾ. ಬೇಂಕ	ಸುವುದು. ರನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧನ 'ವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾಸ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕನ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪ್ರೊ ತಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಸ ದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಯ ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂಭ ತಾಳು ಮನವೇ - ಕನಕದಾ ಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ ಂದ ಅಯ್ದ ಕೆಲವು ಭಾಗಗಳ	ುನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟೆಸುಬ್ಬಯ್ಯ ೧. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ರ್ದಾಕ್ಕಿ ಮಾರಯ್ಯ, ವರದಾಸರು ಸರು (03 ಸು	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagogy S hours of pedagogy)
1. 2. 3. 1. 2. 3. 1. 2.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿಸ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕನ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗರ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅಸ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ರ ಘಟಕ - 2 e ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, e ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸು ಘಟಕ - 3 e ಡಿವಿಜಿ ರವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗದಿಂ ಕುರುಡು ಕಾಂಚಾಣ : ದಾ.ರಾ. ಬೇಂಕ	ಸುವುದು. ರನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧನ 'ವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾನ ತಾಜಯ್ಯ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕರ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಇ ದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಯ ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂಭ ತಾಳು ಮನವೇ - ಕನಕದಾನ ಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ ಂದ ಅಯ್ದ ಕೆಲವು ಭಾಗಗಳ ದ್ರೆ	ುನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ ೧. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ರ್ದಾಕ್ಕಿ ಮಾರಯ್ಯ, ವರದಾಸರು ಸರು (03 ರು (03	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagogy B hours of pedagogy)
1. 2. 3. 1. 2. 3. 1. 2. 3.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿಸ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕನ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗರ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅಂ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ರ ಘಟಕ - 2 e ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, e ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸು ಘಟಕ - 3 e ಡಿವಿಜಿ ರವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗದಿಂ ಕುರುಡು ಕಾಂಚಾಣ : ದಾ.ರಾ. ಬೇಂ ಹೊಸಬಾಳಿನ ಗೀತೆ : ಕುವೆಂಪು ಘಟಕ - 4 ತ ಡಾ. ಸರ್. ಎಂ. ವಿಶ್ವೇಶ್ವರಯ್ಯ : ವ್ಯಕ್ತಿ	ಸುವುದು. ರನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧನ 'ವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾಸ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕನ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪ್ರೊ ತಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಸ ದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಯ ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂಧ ತಾಳು ಮನವೇ - ಕನಕದಾ ಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ ಂದ ಅಯ್ದ ಕೆಲವು ಭಾಗಗಳ ದ್ರೆ	ುನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟೆಸುಬ್ಬಯ್ಯ ೧. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ರ್ದುಕ್ಕಿ ಮಾರಯ್ಯ, ವರದಾಸರು ನರು (03 ರು (03 ಮೂರ್ತಿರಾವ್	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagogy B hours of pedagogy)
1. 2. 3. 1. 2. 3. 1. 2. 3.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಸೆಷಿಗ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕನ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗರ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅಂ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ನ ಘಟಕ - 2 e ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, e ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ 2 ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸು ಘಟಕ - 3 e ಡಿವಿಜಿ ರವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗದಿಂ ಕುರುಡು ಕಾಂಚಾಣ : ದಾ.ರಾ. ಬೇಂ ಹೊಸಬಾಳಿನ ಗೀತೆ : ಕುವೆಂಪು ಘಟಕ - 4 ತ ಡಾ. ಸರ್. ಎಂ. ವಿಶ್ವೇಶ್ವರಯ್ಯ : ವ್ಯಕ್ತಿ	ಸುವುದು. ರನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧನ 'ವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾಸ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕನ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪ್ರೊ ತಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಸ ದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಯ ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂಧ ತಾಳು ಮನವೇ - ಕನಕದಾ ಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ ಂದ ಅಯ್ದ ಕೆಲವು ಭಾಗಗಳ ದ್ರೆ	ನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ ೧. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ರ್ದಾಕ್ಕಿ ಮಾರಯ್ಯ, ದರದಾಸರು ಸರು (03 ಸು (03 ಮೂರ್ತಿರಾವ್ ಲೀಚನಹಳ್ಳಿ	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟೀ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagog hours of pedagogy) hours of pedagogy)
1. 2. 3. 1. 2. 3. 1. 2. 3. 1. 2. 3.	ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಸೆಷಿಗ ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳ ಘಟಕ -1 ಕನ ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗರ ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅಂ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ನ ಘಟಕ - 2 e ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾ ಜೇಡರದಾಸಿಮಯ್ಯ, e ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇ ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ 2 ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸು ಘಟಕ - 3 e ಡಿವಿಜಿ ರವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗದಿಂ ಕುರುಡು ಕಾಂಚಾಣ : ದಾ.ರಾ. ಬೇಂ ಹೊಸಬಾಳಿನ ಗೀತೆ : ಕುವೆಂಪು ಘಟಕ - 4 ತ ಡಾ. ಸರ್. ಎಂ. ವಿಶ್ವೇಶ್ವರಯ್ಯ : ವ್ಯಕ್ತಿ	ಸುವುದು. ರನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧನ 'ವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾನ ಸಾಜಯ್ಯ ಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕರ ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪೊ ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಸ ದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಯ ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ. ಇದರಿಂದೇನು ಫಲ – ಪುರಂಭ ತಾಳು ಮನವೇ - ಕನಕದಾನ ಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ ಂದ ಅಯ್ದ ಕೆಲವು ಭಾಗಗಳ ದ್ರೆ ಎತ್ತು ಕತಿಹ್ಯ – ಎ. ಎನ್. ಯ ವಿಜ್ಞಾನ : ಕರೀಗೌಡ ಬ	ನಗಳನ್ನು ಶಿಕ್ಷಕರು ನ ಷೆ ಕುರಿತಾದ ಲೇಖನಗ ಟಸುಬ್ಬಯ್ಯ ೧. ವಿ. ಕೇಶವಮೂರ್ತಿ ಭಾಗ (03 ರ್ದಾಕ್ಕಿ ಮಾರಯ್ಯ, ದರದಾಸರು ಸರು (03 ಸು (03 ಮೂರ್ತಿರಾವ್ ಲೀಚನಹಳ್ಳಿ	ಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟೀ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗಳು (03 hours of pedagog hours of pedagogy) hours of pedagogy)

### 26.10.2022

#### Course outcome (Course Skill Set)

ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ (22KSK17/27) ಪಠ್ಯ ಕಲಿಕೆಯ ನಂತರ ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ :

At the end of the course the student will be able to:

C01	ಕನ್ನಡ ಭಾಷೆ, ಸಾಹಿತ್ಯ ಮತ್ತು ಕನ್ನಡದ ಸಂಸ್ಕೃತಿಯ ಕುರಿತು ಅರಿವು ಮೂಡಿರುತ್ತದೆ.
CO2	ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಪ್ರಧಾನ ಭಾಗವಾದ ಆಧುನಿಕ ಪೂರ್ವ ಮತ್ತು ಆಧುನಿಕ ಕಾವ್ಯಗಳನ್ನು ಸಾಂಕೇತಿಕವಾಗಿ
	ಕಲಿತು ಹೆಚ್ಚಿನ ಓದಿಗೆ ಮತ್ತು ಜ್ಞಾನಕ್ಕೆ ಸ್ಪೂರ್ತಿ ಮೂಡುತ್ತದೆ.
CO3	ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ ಸಾಹಿತ್ಯ ಮತ್ತು ಸಂಸ್ಕೃತಿಯ ಬಗ್ಗೆ ಅರಿವು ಹಾಗೂ ಆಸಕ್ತಿಯನ್ನು ಹೆಚ್ಚಾಗುತ್ತದೆ.
CO4	ತಾಂತ್ರಿಕ ವ್ಯಕ್ತಿಗಳ ಪರಿಚಯ ಹಾಗೂ ಅವರುಗಳ ಸಾಧಿಸಿದ ವಿಷಯಗಳನ್ನು ತಿಳಿದುಕೊಂಡು ನಾಡಿನ ಇನ್ನಿತರ
	ವ್ಯಕ್ತಿಗಳ ಬಗ್ಗೆ ತಿಳಿದುಕೊಳ್ಳಲು ಕೌತುಕತೆ ಹೆಚ್ಚಾಗುತ್ತದೆ.
C05	ಸಾಂಸ್ಕೃತಿಕ, ಜನಪದ ಹಾಗೂ ಪ್ರವಾಸ ಕಥನಗಳ ಪರಿಚಯ ಮಾಡಿಕೊಡುವುದು.

#### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### **Continuous Internal Evaluation(CIE):**

Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration

#### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

#### The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks Semester End Examinations (SEE)

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

### **University Prescribed Textbook :**

### ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ

ಡಾ. ಹಿ.ಚಿ.ಬೋರಲಿಂಗಯ್ಯ ಮತ್ತು ಡಾ. ಎಲ್. ತಿಮ್ಮೇಶ,

ಪ್ರಕಟಣೆ : ಪ್ರಸಾರಾಂಗ,

### ವಿಶ್ಯೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ.

#### ಸೂಚನೆ :

- 1. ಹೆಚ್ಚಿನ ಮಾಹಿತಿ ಮತ್ತು ವಿವರಣೆಗಳಿಗೆ ಡಾ. ಎಲ್. ತಿಮ್ಮೇಶ (9900832331) ಇವರನ್ನು ಸಂಪರ್ಕಿಸಿ.
- ಮಾದರಿ ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆ, ಕೋರ್ಸ್ ಆಯ್ಕೆ ಮಾಹಿತಿ, ಅಧ್ಯಯನ ಸಾಮಗ್ರಿ & ಬಹು ಆಯ್ಕೆ ಮಾದರಿಯ ಪ್ರಶ್ನೆಗಳ ಕೈಪಿಡಿಗಾಗಿ ವಿಶ್ವವಿದ್ಯಾಲಯದ ವೆಬ್ ಸೈಟ್ ನೋಡುವುದು.

#### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

✓ Contents related activities (Activity-based discussions)

- ✓ For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions, Seminars and assignments.

HSem	ester(CSEStre	am)	2004/2004/2004/001	(For students atte	ended 1	st seme	ester un	der Ph	vsics Gr	oup)			
-				2 4 F F F F F F F F F F F F F F F F F F		Tea	ching s/Week		1	xaminatio	n		
SL No		nd Course ode	Course Title	TD/PSB	Theory Lecture	Tutorial	Practical/ Drawing	VUS	Duration in hours	CIE Martis	SEE Marks	Total Marks	Credits
					L	T	Р	S					-
1	*ASC(IC)	BMATS201	Mathematics-II forCSE Stream	Maths	2	2	2	0	03	50	50	100	0
2	#ASC(IC)	BCHES202	Applied Chemistry for CSE Stream	Chemistry	2	2	2	0	03	50	50	100	(
3	ESC	BCEDK203	Computer-Aided Engineering Drawing	Civil/Mech Engg dept	2	0	2	0	03	50	50	100	(
4	ESC-II	BESCK204x	Engineering Science Course-II	Respective Engg. Dept	3	0	0	0	03	50	50	100	
	PLC-II	BETCK205x	Programming Language Course-II		2	00	2	0	03	-			
5		20. V	OR	Any Dept		8 8		8		50	50	100	03
	ETC-II	BPLCK205x	Emerging Technology Course-II		3	0	0	0	03			c	
		BPWSK206	Professional Writing Skills in English						01	50	50	100	
6	AEC		OR	Humanities	1	0	0	0					01
		BENGK206	Communicative English										
	2	BICOK207	Indian Constitution		1	0	0	0					
7	HSMS		OR	Humanities				6. C	01	50	50	100	(
410	and and a second	BKSKK207/ BKBKK207	Samskrutika Kannada/ Balake Kannada		1	0	0	0		5	2 2	с	
		BSFHK258	Scientific Foundations of Health		1	0	0	0	01	2			
8	HSMS		OR	Any Dept				3	2	50	50	100	0
		KIDTK258	Innovation and Design Thinking	5107.853	1	0	0	0	01				

	(ESC-II) Engineering Science Courses-II			(ETC-II) Emerging Technology Courses-II			a		
Code	Title	L	Т	Р	Code	Title	L	Т	P
BESCK204A	Introduction to Civil Engineering	3	0	0	BETCK205A	Smart materials and Systems	3	0	0
BESCK204B	Introduction to Electrical Engineering	3	0	0	BETCK205B	Green Buildings	3	0	0
BESCK204C	Introduction to Electronics Communication	3	0	0	BETCK205C	Introduction to Nano Technology	3	0	0
BESCK204D	Introduction to Mechanical Engineering	3	0	0	BETCK205D	Introduction to Sustainable Engineering	3	0	0
BESCK204E	Introduction to C Programming	2	0	2	BETCK205E	Renewable Energy Sources	3	0	0
					BETCK205F	Waste Management	3	0	0
		0.0			BETCK205G	Emerging Applications of Biosensors	3	0	0
					BETCK205H	Introduction to Internet of Things(IoT)	3	0	0
					BETCK205I	Introduction to Cyber Security	3	0	0
					BETCK205J	Introduction to Embedded System	3	0	0
(PLC-II) Prog	gramming Language Courses-II	- 01 - C							
Code	Title	L	Т	P					
BPLCK205A	Introduction to Web Programming	2	0	2				0.—	
BPLCK205B	Introduction to Python Programming	2	0	2				3-3	
BPLCK205C	Basics of JAVA programming	2	0	2				8-8	
BPLCK205D	Introduction to C++ Programming	2	0	2				а::	

- The student has to select one course from the ESC-II group.
- CSE/ISE and allied branches Students shall opt for any one of the courses from the ESC-II group except, BESCK245E-Introduction to C Programming
- The students have to opt for the courses from ESC group without repeating the course in either 1<sup>st</sup> or 2<sup>nd</sup> semester
- The students must select one course from either ETC-II or PLC-II group.
- If students study the subject from ETC-I in 1<sup>st</sup> semester he/she has to select the course from PLC-II in the 2<sup>nd</sup> semester and vice-versa

<b>Course Title:</b>	Applied Chemistry for Computer Science &Engineering stream					
Course Code:	BCHES102/202	CIEMarks	50			
Course		SEEMarks	50			
Type(Theory/Practical/Integrated)	Integrated	Total	100			
Type(Theory/Tractical/Integrated)		Marks	100			
TeachingHours/Week(L:T:P:S) <sup>1</sup>	2:2:2:0	Exam	03			
TeachingTiours/ Week(L.T.T.S)	2.2.2.0	Hours	05			
TotalHoursofPedagogy	40hoursTheory+ 10to12Labslots	Credits	04			

### **Computer Science and Engineering and allied branches(Chemistry group)**

#### Courseobjectives

- Toenablestudentstoacquireknowledgeonprinciplesofchemistryforengineeringapplications.
- Todevelopanintuitiveunderstandingofchemistrybyemphasizingtherelatedbranchesofengineer ing.
- Toprovidestudentswithasolidfoundationinanalyticalreasoningrequiredtosolvesocietalproble ms.

#### **Teaching-LearningProcess**

These are samples trategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching-Learning more effective

- Tutorial&remedialclassesforneedystudents(notregularT/R)
- ConductingMakeupclasses/Bridgecourses forneedystudents
- Demonstration of concepts either by building models or by industry visit
- Experiments in laboratories shall be executed in blended mode (conventional or non-conventional methods)
- UseofICT–Onlinevideos,onlinecourses
- Useofonlineplatformsforassignments/Notes/Quizzes(Ex.Googleclassroom)

### MODULE1:SensorsandEnergySystems(8hr)

Sensors:Introduction,working,principleandapplicationsofConductometricsensors,Electrochemical<br/>sensors,Thermometricsensors(Flame<br/>photometry)andOpticalsensors(colorimetry).Sensorsforthemeasurement of dissolved oxygen (DO). Electrochemical sensors for<br/>pharmaceuticals.ElectrochemicalgassensorsforSOxandNOx.Disposablesensorsin<br/>thedetectionofbiomoleculesandpesticides.

 $\label{eq:construction} Energy Systems: Introduction to batteries, construction, working and applications of Lithiumion and Sodiumion batteries. Quantum DotSensitizedSolarCells (QDSSC's)-Principle,$ 

Properties and Applications.

Self-learning: Types of electrochemical sensor, Gas sensor -  $O_2$  sensor, Biosensor - Glucosesensors.

#### MODULE2:MaterialsforMemoryandDisplaySystems(8hr)

**Memory Devices:** Introduction, Basic concepts of electronic memory, History of organic/polymerelectronic memory devices, Classification of electronic memory devices,

1.NOTE: Whereverthecontact hours is not sufficient, tutorial hour can be converted to the oryhours

typesoforganicmemorydevices(organicmolecules,polymericmaterials,organicinorganichybridmaterials).

**DisplaySystems**:Photoactiveandelectroactivematerials,Nanomaterialsandorganicmaterials used in optoelectronic devices. Liquid crystals (LC's) - Introduction, classification,properties and application in Liquid Crystal Displays (LCD's). Properties and application ofOrganic Light Emitting Diodes (OLED's) and Quantum Light Emitting Diodes (QLED's), Lightemittingelectrochemicalcells.

**Self-learning:**Properties and functions of Silicon(Si), Germanium(Ge), Copper(Cu),

Aluminium(Al), and Brominated flameret ard ant sincomputers.

### MODULE3:CorrosionandElectrodeSystem(8hr)

Corrosion Chemistry: Introduction, electrochemical theory of corrosion, types of corrosion and the second 
differentialmetalanddifferentialaeration.Corrosioncontrol-galvanization,anodization and sacrificial anode method. Corrosion Penetration Rate (CPR) - Introductionandnumerical problem. Electrode System: Introduction, types of electrodes. Ion selective electrode definition, construction, working and applications of glass electrode. Determination of pH using glasselectrode. Reference electrode-Introduction, calomel electrodeconstruction. workingandapplicationsofcalomelelectrode.Concentrationcell-

Definition, construction and Numerical problems.

**Analytical Techniques**: Introduction, principle and instrumentation of Conductometry; itsapplication in the estimation of weak acid. Potentiometry; its application in the estimationofiron.

Self-learning: IRandUV-Visiblespectroscopy.

### MODULE4:PolymersandGreenFuels(8hr)

Polymers: Introduction, Molecularweight-

Numberaverage,weightaverageandnumericalproblems.Preparation,properties,andcommercialappl icationsofkevlar. Conductingpolymers-

synthesis and conducting mechanism of polyacetyle near dcommercial applications.

**Green Fuels:** Introduction, construction and working of solar photovoltaic cell, advantages, and disadvantages. Generation of energy (green hydrogen) by electrolysis of water and itsadvantages. **Self-learning:**Regenerativefuelcells

### MODULE5:E-WasteManagement(8hr)

E-Waste: Introduction, sources of e-waste, Composition, Characteristics, and Need of ewastemanagement.Toxicmaterialsusedinmanufacturingelectronicandelectricalproducts, health hazards due to exposure to e-waste. Recycling and Recovery: Differentapproachesofrecycling(separation,thermaltreatments,hydrometallurgicalextraction,pyro metallurgical methods, direct recycling). Extraction of gold from E-waste. Role of stakeholders in environmental management of e-waste (producers, consumers, recyclers, andstatutorybodies). Self-learning:Impactofheavymetalsonenvironmentandhumanhealth.

### PRACTICALMODULE

<u>A-Demonstration(anytwo)offline/virtual:</u>

A1.ChemicalStructure drawingusingsoftware:ChemDraworACD/ChemSketch

16-2-2023

A2. Determination of strength of an acid in Pb-acid

batteryA3:SynthesisofIron-oxideNanoparticles

A4.Electrolysisofwater

B-Exercise(compulsorilyany4tobeconducted):

B1.Conductometricestimationofacidmixture

 $B2. Potentiometric estimation of FAS using K_2 Cr_2 O_7 \\$ 

B3.DeterminationofpKaofvinegarusingpHsensor(Glasselectrode)

B4. Determination of rate of corrosion of mildsteel by weight loss method B5.

 $Estimation of total hardness of water by {\it EDTA} method$ 

### <u>C-StructuredEnquiry (compulsorilyany4tobeconducted):</u>

C1. Estimation of Copper present in electroplating effluent by optical sensor

(colorimetry)C2.DeterminationofViscositycoefficientoflubricant(Ostwald'sviscometer)

C3. Estimation of iron in TMT bar by diphenyl amine/external indicator

method C4. Estimation of Sodium present in soil/effluents ampleusing flame photometry

C5. Determination of Chemical Oxygen Demand (COD) of industrial was tewaters ample

### D-OpenEndedExperiments(anytwo):

D1: Evaluation of a cid content in beverages by using pHs ensors and simulation. D2.

Construction of photovoltaiccell.

D3. Design an experiment to I dentify the presence of protein singiven sample.

D4. Searching suitable PDB file and target formole cular docking

### Courseoutcome(CourseSkillSet)

Attheendofthecourse thestudentwillbeableto:

1 minoc	muorimeeo	unse u	liebtudelitwi	moedoleto.					
CO1.	Identify	the	terms	processes	involved	in	scientific	and	engineering
		anda	pplications						
CO2.	Explainth	nephei	nomenaofch	emistrytodesci	ribethemetho	dsofe	engineering	process	ses
CO3.	Solvethe	proble	msinchemis	strythatareperti	nentinengine	ering	application	S	
CO4.	Applythe	basico	conceptsofc	hemistrytoexp	lainthechemic	calpro	opertiesand	proces	ses
			_			_			
CO5.	Analyzep	roper	tiesandmult	idi processes	associated		withchen	nical s	substances in
	sciplinary	vsitual	tions	-					

### AssessmentDetails(bothCIEandSEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). Astudentshallbedeemedtohavesatisfiedtheacademicrequirementsandearnedthecreditsallotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in thesemester-end examination (SEE), and a minimum of 40% (40 marks out of 100) in the sum total oftheCIE(ContinuousInternalEvaluation)andSEE(SemesterEndExamination)takentogether.

#### ContinuousInternalEvaluation(CIE):

The CIE marks for the theory component of the IC shall be **30 marks** and for the laboratory component **20 Marks**.

### **CIE** for the theory component of the IC

- Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.
- Two Assignments/two quizzes/ seminars/one field survey and report presentation/one-course project totalling 20 marks.

Total Marks scored (test + assignments) out of 80 shall be scaled down to **30 marks CIE for the practical component of the IC**  16-2-2023

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted at the end of the semester.
- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.
- The laboratory test (duration 03 hours) at the end of the 15<sup>th</sup> week of the semester /after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to 05 marks.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

• The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

### Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English/Kannada). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.

There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 subquestions), **should have a mix of topics** under that module.

### SuggestedLearningResources:

### Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year)

- $1. Wiley Engineering Chemistry, Wiley India Pvt. Ltd. New Delhi, 2013-2^{nd} Edition.$
- 2. EngineeringChemistry,Satyaprakash&ManishaAgrawal,KhannaBookPublishing,Delhi
- $\label{eq:alpha} 3. \quad ATextBook of Engg. Chemistry, Shashi Chawla, Dhanpat Rai \& Co. (P) Ltd.$
- 4. EssentialsofPhysicalChemistry,Bahl&Tuli,S.ChandPublishing
- 5. AppliedChemistry,SunitaRattan,Kataria5.EngineeringChemistry,Baskar,Wiley
- 6. EngineeringChemistry–I,D.GrourKrishana,VikasPublishing
- 7. ATextbookofEngineeringChemistry,SSDara&Dr.SSUmare,SChand&CompanyLtd.,12thEdition,2011.
- 8. ATextBookofEngineeringChemistry,R.V.GadagandNityanandaShetty,I.K.InternationalPublishinghous e. 2<sup>nd</sup>Edition,2016.
- 9. TextBookofPolymerScience,F.W.Billmeyer,JohnWiley&Sons,4thEdition,1999.
- 10. NanotechnologyAChemicalApproachtoNanomaterials,G.A.Ozin&A.C.Arsenault,RSCPublishing,2005 .

 $11. \ Corrosion Engineering, M.G. Fontana, N.D. Greene, McGraw Hill Publications, New York, 3^{rd} Edition, 1996.$ 

- 12. Linden'sHandbookofBatteries,KirbyW.Beard,FifthEdition,McGrawHill,2019.
- 13. OLEDDisplayFundamentalsandApplications,TakatoshiTsujimura,Wiley-Blackwell,2012
- 14. Supercapacitors:Materials,Systems,andApplications,MaxLu,FrancoisBeguin,ElzbietaFrackowiak,Wile y-VCH;1stedition,2013.
- 15. "HandbookonElectroplatingwithManufactureofElectrochemicals",ASIAPACIFICBUSINESSPRESS Inc., 2017. Dr.H. Panda,
- 16. Expanding the Vision of Sensor Materials. National Research Council 1995, Washington, DC: The National Ac ademies Press. doi:10.17226/4782.
- 17. EngineeringChemistry,EditedbyDr.MaheshBandDr.RoopashreeB,SunstarPublisher,Bengaluru,ISBN97 8-93-85155-70-3, 2022
- 18. HighPerformanceMetallicMaterialsforCostSensitiveApplications,F.H.Froes,etal.JohnWiley&Sons, 2010
- 19. InstrumentalMethodsofAnalysis,Dr.K.R.MahadikandDr.L.Sathiyanarayanan,NiraliPrakashan,2020
- 20. PrinciplesofInstrumentalAnalysis,DouglasA.Skoog,F.JamesHoller,StanleyR.CrouchSeventhEdition,CengageLearning, 2020
- 21. PolymerScience,VRGowariker,NVViswanathan,Jayadev,Sreedhar,NewageInt.Publishers,4thEdition, 2021
- 22. EngineeringChemistry,PCJain&MonicaJain,DhanpatRaiPublication,2015-16thEdition.
- 23. Nanostructuredmaterialsandnanotechnology, Hari Singh, Nalwa, academicpress, 1stEdition, 2002.
- 24. NanotechnologyPrinciplesandPractices,SulabhaKKulkarni,CapitalPublishingCompany,3rdEdition2014
- 25. Principlesofnanotechnology, Phanikumar, Scitechpublications, 2nd Edition, 2010.
- 26. ChemistryforEngineeringStudents,B.S.JaiPrakash,R.Venugopal,Sivakumaraiah&PushpaIyengar.,Suba shPublications,5<sup>th</sup>Edition, 2014
- 27. "EngineeringChemistry",O.G.Palanna,TataMcGrawHillEducationPvt.Ltd.NewDelhi,FourthReprint,20 15.
- 28. ChemistryofEngineeringmaterials, MaliniS, KSAnanthaRaju, CBSpublishersPvtLtd.,
- 29. LaboratoryManualEngg.Chemistry,AnupmaRajput,DhanpatRai&Co.

#### WeblinksandVideoLectures(e-Resources):

- <u>http://libgen.rs/</u>
- https://nptel.ac.in/downloads/122101001/
- https://nptel.ac.in/courses/104/103/104103019/
- https://ndl.iitkgp.ac.in/
- <u>https://www.youtube.com/watch?v=faESCxAWR9k</u>
- <u>https://www.youtube.com/watch?v=TBqXMWaxZYM&list=PLyhmwFtznRhuz8L1bb3X-9IbHrDMjHWWh</u>
- <u>https://www.youtube.com/watch?v=j5Hml6KN4TI</u>
- <u>https://www.youtube.com/watch?v=X9GHBdyYcyo</u>
- https://www.youtube.com/watch?v=1xWBPZnEJk8
- <u>https://www.youtube.com/watch?v=wRAo-M8xBHM</u>

### ActivityBasedLearning(SuggestedActivitiesinClass)/PracticalBasedlearning

- $\Box$  <u>https://www.vlab.co.in/broad-area-chemical-sciences</u>
- L https://demonstrations.wolfram.com/topics.php
- □ <u>https://interestingengineering.com/science</u>

	COsandPOsMapping(Individualteacherhastofillup)													
	РО													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12		
CO1	3	1	1				1							
CO2	3	1	1				1							
CO3	3	1	1				1							
CO4	3	1	1				1							
CO5	3	1	1				1							

16-2-2023

Course	Introduction to Ele	ctronics & Communication		
Title:				
Course Code:		<b>BESCK104C/204C</b>	CIE Marks	50
Course Type		Theory	SEE Marks	50
(Theory/Pract	ical/Integrated)		Total Marks	100
Teaching Hou	rs/Week (L:T:P: S)	3:0:0:0	Exam Hours	03
Total Hours o	f Pedagogy	40 hours	Credits	03

### **Course objectives**

1. To prepare students with fundamental knowledge/ overview in the field of Electronics and Communication Engineering.

2. To equip students with a basic foundation in electronic engineeringrequired for comprehending the operation and application of electronic electronic design, embedded systems, and communication systems.

3.Professionalism & Learning Environment: To inculcate in first-year engineering students an ethical and professional attitude by providing an academic environment inclusive of effective communication, teamwork, ability to relate engineering issues to a broader social context, and life-long learning needed for a successful professional career.

### **Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective

1. Lecturer method (L) does not mean only the traditional lecture method, but a different type of teaching method may be adopted to develop the outcomes.

2.Arrange visits to nearby PSUs such as BHEL, BEL, ISRO, etc., and small-scale hardware Industries to give brief information about the electronics manufacturing industry.

- 3. Show Video/animation films to explain the functioning of various analog and digital circuits.
- 4. Encourage collaborative (Group) Learning in the class

5. Ask at least three HOTS (Higher-order Thinking) questions in the class, which promotes criticalthinking

6. Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develop thinking skills such as the ability to evaluate, generalize, and analyze information rather than simply recall it.

7. Topics will be introduced in multiple representations.

8. Show the different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.

9. Discuss how every concept can be applied to the real world - and when that's possible, it helpsimprove the students' understanding.

Module-1 (8 hours)

**Power Supplies** –Block diagram, Half-wave rectifier, Full-waverectifiers and filters, Voltage regulators, Output resistanceand voltage regulation, Voltage multipliers.

**Amplifiers** – Types of amplifiers, Gain, Input and output resistance, Frequency response, Bandwidth, Phase shift, Negativefeedback, multi-stage amplifiers (Text 1)

#### Module-2(8 hours )

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**Oscillators** – Barkhausen criterion, sinusoidal and non-sinusoidal oscillators, Ladder network oscillator, Wein bridge oscillator, Multivibrators, Single-stage astable oscillator, Crystal controlled oscillators (Only Concepts, working, and waveforms. No mathematical derivations)

**Operational amplifiers -**Operational amplifier parameters, Operational amplifier characteristics, Operational amplifier configurations, Operational amplifier circuits.

Text 1)

#### Module-3 (8 hours)

**Boolean Algebra and Logic Circuits:** Binary numbers, Number Base Conversion, octal & Hexa Decimal Numbers, Complements, Basic definitions, Axiomatic Definition of Boolean Algebra, Basic Theorems and Properties of Boolean Algebra, Boolean Functions, Canonical and Standard Forms, Other Logic Operations, Digital Logic Gates (Text 2: 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7) **Combinational logic**: Introduction, Design procedure, Adders- Half adder, Full adder (Text 2:4.1, 4.2, 4.3)

### Module-4 (8 hours)

**Embedded Systems** – Definition, Embedded systems vs general computing systems, Classification of Embedded Systems, Major application areas of Embedded Systems, Elements of an Embedded System, Core of the Embedded System, Microprocessor vs Microcontroller, RISC vs CISC **Sensors and Interfacing** – Instrumentation and control systems, Transducers, Sensors, Actuators, LED, 7-Segment LED Display. (Text 3)

Module-5 (8 hours)

**Analog Communication Schemes** – Modern communication system scheme, Information source, and input transducer, Transmitter, Channel or Medium – Hardwired and Soft wired, Noise, Receiver, Multiplexing, Types of communication systems.Types of modulation (only concepts) – AM, FM, Concept of Radio wave propagation (Ground, space, sky)

**Digital Modulation Schemes**: Advantages of digital communication over analog communication, ASK, FSK, PSK, Radio signal transmission Multiple access techniques. (Text 4)

### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination (SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

**Continuous Internal Evaluation (CIE):** 

Three Tests each of 20 Marks;

- 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> tests shall be conducted after completion of the syllabus of 30-35%, 70-75%, and 90-100% of the course/s respectively.
- Assignments/Seminar/quiz/group discussion /field survey & report presentation/ course project/Skill development activities, suitably planned to attain the COs and POs for a total of 40 Marks.

If the nature of the courses requires assignments/Seminars/Quizzes/group discussion two evaluation components shall be conducted. If course project/field survey/skill development activities etc then the evaluation method shall be one.

Total CIE marks (out of 100 marks) shall be scaled down to 50 marks

### Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

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Suggested Learning Resources:

Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year) 1.Mike Tooley, 'Electronic Circuits, Fundamentals & Applications',4thEdition, Elsevier, 2015. DOI https://doi.org/10.4324/9781315737980. eBook ISBN9781315737980

2. Digital Logic and Computer Design, M. Morris Mano, PHI Learning, 2008 ISBN-978-81-203-0417-84.

3. K V Shibu, 'Introduction to Embedded Systems', 2nd Edition, McGraw Hill Education (India), Private Limited, 2016

4. S L Kakani and Priyanka Punglia, 'Communication Systems', New Age International Publisher, 2017.

### II Semester

Course Title: Mathematics-II for Computer Science and Engineering stream			
Course Code:	BMATS201	CIE Marks	50
Course Type	Integrated	SEE Marks	50
(Theory/Practical/Integrated)		Total Marks	100
Teaching Hours/Week (L:T:P: S)	2:2:2:0	Exam Hours	03
Total Hours of Pedagogy	40 hours Theory + 10 to 12 Lab slots	Credits	04

Course objectives: The goal of the course Mathematics-II for Computer Science and Engineering stream(22MATS21) is to

- Familiarize the importance of Integral calculus and Vector calculus.
- Learn vector spaces and linear transformations.
- **Develop** the knowledge of numerical methods and apply them to solvetranscendental and differential equations.

### **Teaching-Learning Process**

### Pedagogy (General Instructions):

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

- 1. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted so that the delivered lessons shall develop students' theoretical and applied mathematical skills.
- 2. State the need for Mathematics with Engineering Studies and Provide real-life examples.
- 3. Support and guide the students for self-study.
- 4. You will also be responsible for assigning homework, grading assignments and quizzes, and documenting students' progress.
- 5. Encourage the students to group learning to improve their creative and analytical skills.
- 6. Show short related video lectures in the following ways:
  - As an introduction to new topics (pre-lecture activity).
  - As a revision of topics (post-lecture activity).
  - As additional examples (post-lecture activity).
  - As an additional material of challenging topics (pre-and post-lecture activity).
  - As a model solution of some exercises (post-lecture activity).

### Module-1Integral Calculus (8 hours)

### Introduction to Integral Calculus in Computer Science & Engineering.

**Multiple Integrals:** Evaluation of double and triple integrals, evaluation of double integrals by change of order of integration, changing into polar coordinates. Applications to find Area and Volume by double integral.Problems.

**Beta and Gamma functions:** Definitions, properties, relation between Beta and Gamma functions. Problems.

**Self-Study:** Center of gravity, Duplication formula.

**Applications:** Antenna and wave propagation, Calculation of optimum value in various geometries. Analysis of probabilistic models.

(RBT Levels: L1, L2 and L3)

#### Module-2 Vector Calculus(8 hours)

Introduction to Vector Calculus in Computer Science & Engineering.

Scalar and vector fields. Gradient, directional derivative, curl and divergence - physical interpretation, solenoidal and irrotational vector fields. Problems.

**Curvilinear coordinates:**Scale factors, base vectors, Cylindrical polar coordinates, Spherical polar coordinates, transformation between cartesian and curvilinear systems, orthogonality. Problems.

Self-Study: Vector integration and Vector line integral.

Applications: Conservation of laws, Electrostatics, Analysis of streamlines.

Module-3Vector Space and Linear Transformations(8 hours)

Importance of Vector Space and Linear Transformations in the field of Computer Science & Engineering.

**Vector spaces:** Definition and examples, subspace, linear span, Linearly independent and dependent sets, Basis and dimension. Problems.

**Linear transformations**: Definition and examples, Algebra of transformations, Matrix of a linear transformation. Change of coordinates, Rank and nullity of a linear operator, rank-nullity theorem. Inner product spaces and orthogonality. Problems.

Self-study: Angles and Projections.Rotation, Reflection, Contraction and Expansion. Applications: Image processing, AI & ML, Graphs and networks, Computer graphics. (RBT Levels: L1, L2 and L3)

Module-4Numerical Methods -1(8 hours)

Importance of numerical methods for discrete data in the field of computer science & engineering.

Solution of algebraic and transcendental equations - Regula-Falsi and Newton-Raphson methods (only formulae). Problems.

Finite differences, Interpolation using Newton's forward and backward difference formulae, Newton's divided difference formula and Lagrange's interpolation formula (All formulae without proof). Problems.

**Numerical integration**: Trapezoidal, Simpson's (1/3)<sup>rd</sup> and (3/8)<sup>th</sup> rules(without proof). Problems.

Self-Study: Bisection method, Lagrange's inverse Interpolation.

**Applications:** Estimating the approximate roots, extremum values, Area, volume, and surface area. Errors in finite precision.

(RBT Levels: L1, L2 and L3)

Module-5Numerical Methods -2(8 hours)

Introduction to various numerical techniques for handling Computer Science & Engineering applications.

**Numerical Solution of Ordinary Differential Equations (ODE's):** Numerical solution of ordinary differential equations of first order and first degree - Taylor's series method, Modified Euler's method, Runge-Kutta method of fourth order and Milne's predictor-corrector formula (No derivations of formulae). Problems.

Self-Study: Adam-Bashforth method. Applications: Estimating the approximate solutions of ODE. (RBT Levels: L1, L2 and L3).

1	Program to compute area, surface area, volume and centre of gravity
2	Evaluation of improper integrals
3	Finding gradient, divergent, curl and their geometrical interpretation
4	Computation of basis and dimension for a vector space and Graphical representation of
7	linear transformation
5	Computing the inner product and orthogonality
6	Solution of algebraic and transcendental equations by Ramanujan's, Regula-Falsi and
	Newton-Raphson method
7	Interpolation/Extrapolation using Newton's forward and backward difference formula
8	Computation of area under the curve using Trapezoidal, Simpson's (1/3) <sup>rd</sup> and (3/8) <sup>th</sup> rule
9	Solution of ODE of first order and first degree by Taylor's series and Modified Euler's
	method
10	Solution of ODE of first order and first degree by Runge-Kutta 4 <sup>th</sup> order and Milne's
	predictor-corrector method
ugges	ted software's: Mathematica/MatLab/Python/Scilab
	e outcome (Course Skill Set)
	end of the course the student will be able to:
CO1	Apply the concept of change of order of integration and variables to evaluate multiple
CO2	integrals and their usage in computing area and volume.
202	Understand the applications of vector calculus refer to solenoidal, and irrotationa vectors.Orthogonal curvilinear coordinates.
CO3	Demonstrate the idea of Linear dependence and independence of sets in the vector space
	and linear transformation
CO4	Apply the knowledge of numerical methods in analysing the discrete data and solving th
	physical and engineering problems.
CO5	Get familiarize with modern mathematical tools namely
	MATHEMATICA/ MATLAB /PYTHON/ SCILAB

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in thetotal of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### **Continuous Internal Evaluation(CIE):**

The CIE marks for the theory component of the IC shall be **30 marks** and for the laboratory component **20 Marks**.

# CIE for the theory component of the IC

• Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.

• Two Assignments/two quizzes/ seminars/one field survey and report presentation/one-course project totalling 20 marks.

Total Marks scored (test + assignments) out of 80 shall be scaled down to 30 marks

# CIE for the practical component of the IC

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted at the end of the semester.
- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.
- The laboratory test (duration 03 hours) at the end of the 15<sup>th</sup> week of the semester/after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to 05 marks.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

# Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English/Kannada). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

## Suggested Learning Resources:

Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year) Text Books

- 1. **B. S. Grewal**: "Higher Engineering Mathematics", Khanna Publishers, 44<sup>th</sup>Ed., 2021.
- 2. E. Kreyszig: "Advanced Engineering Mathematics", John Wiley & Sons, 10<sup>th</sup>Ed., 2018.

# **Reference Books**

- 1. V. Ramana: "Higher Engineering Mathematics" McGraw-Hill Education, 11<sup>th</sup> Ed., 2017
- 2. Srimanta Pal & Subodh C.Bhunia: "Engineering Mathematics" Oxford University Press, 3<sup>rd</sup> Ed., 2016.
- 3. **N.P Bali and Manish Goyal**: "A Textbook of Engineering Mathematics" Laxmi Publications, 10<sup>th</sup> Ed., 2022.
- 4. **C. Ray Wylie, Louis C. Barrett:** "Advanced Engineering Mathematics" McGraw Hill Book Co., New York, 6<sup>th</sup> Ed., 2017.
- 5. **Gupta C.B, Sing S.R and Mukesh Kumar:** "Engineering Mathematic for Semester I and II", Mc-Graw Hill Education(India) Pvt. Ltd 2015.
- 6. **H. K. Dass and Er. Rajnish Verma:** "Higher Engineering Mathematics" S. Chand Publication, 3<sup>rd</sup> Ed., 2014.
- 7. James Stewart: "Calculus" Cengage Publications, 7<sup>th</sup>Ed., 2019.
- 8. David C Lay: "Linear Algebra and its Applications", Pearson Publishers, 4<sup>th</sup> Ed., 2018.
- 9. **Gareth Williams:** "Linear Algebra with applications", Jones Bartlett Publishers Inc., 6<sup>th</sup> Ed., 2017.

10. Gilbert Strang: "Linear Algebra and its Applications", Cengage Publications, 4<sup>th</sup> Ed., 2022.

# Web links and Video Lectures (e-Resources):

- http://nptel.ac.in/courses.php?disciplineID=111
- <u>http://www.class-central.com/subject/math(MOOCs)</u>
- http://academicearth.org/
- VTU e-Shikshana Program
- VTU EDUSAT Program

#### Activity-Based Learning (Suggested Activities in Class)/ Practical-Based Learning

- Quizzes
- Assignments
- Seminar

#### COs and POs Mapping (Individual teacher has to fill up)

COs	11 8			POs			
	1	2	3	4	5	6	7
CO1							
CO2							
CO3							
CO4							
CO5							
Level 3- Hig	ghly Mapped,	Level 2-Mo	derately Map	ped, Level	1-Low Mapped	, Level 0- N	ot Mapped

# Theory - 01 Credit Course Indian Constitution

Course Title:	Indian Constitution		
Course Code:		CIE Marks	50
Course Type (Theory/Practical /Integrated)	BIGOK107-207	SEE Marks	50
	1.0.0.0	Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy Course objectives :	15 hours	Credits	01
The course INDIAN CONSTITUTION (22	ICO17 / 27) will enable th	ne students	
1. To know about the basic structure o		ie students,	
<ol> <li>To know the Fundamental Rights (F</li> </ol>		pental Duties (FD's) of ou	r constitution
<ol> <li>To know about our Union Governm</li> </ol>			i constitution.
<ol> <li>To know the State Executive &amp; Ele</li> </ol>	· 1	odes, procedures.	
5. To learn the Amendments and Emer	•	nnortant provisions given	by the constitution
	geney i tovisions, other in	iiportant provisions given	by the constitution.
<b>Teaching-Learning Process</b> These are sample Strategies, which teache	r can use to accelerate th	e attainment of the vari	ous course outcomes and
make Teaching –Learning more effective:			
process. The pedagogy shall involve the com	_		
(i) Direct instructional method ( Low/O		U	e
(iii) Blended learning (Combination	••••		-
learning, (vi) Problems based learning			5, (1) 1 615011411264
(ii) Apart from conventional lecture met		ovative teaching techniqu	es through videos.
animation films may be adapted so t			-
practical skills.			·····
Module-1 Indian Constitution: Necessity of the Const	titution, Societies before a		doption. Introduction to the
Module-1 Indian Constitution: Necessity of the Const Indian constitution, Making of the Constitution	titution, Societies before a on, Role of the Constituen	nd after the Constitution a t Assembly.	doption. Introduction to the
Module-1 Indian Constitution: Necessity of the Const Indian constitution, Making of the Constitution Module-2	titution, Societies before a on, Role of the Constituen (03 ho	nd after the Constitution a t Assembly. <b>Purs of pedagogy)</b>	-
Module-1           Indian Constitution: Necessity of the Const           Indian constitution, Making of the Constitution           Module-2           Salient features of India Constitution. Prear	titution, Societies before a on, Role of the Constituen <b>(03 ho</b> nble of Indian Constitution	nd after the Constitution a t Assembly. <b>Purs of pedagogy)</b> on & Key concepts of th	-
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Module-1           Indian Constitution: Necessity of the Constitution           Indian constitution, Making of the Constitution           Indian constitution, Making of the Constitution           Module-2           Salient features of India Constitution. Prear           Rights (FR's) and its Restriction and limit           Module-3           Directive Principles of State Policy (DPS and its Scope and significance in Nation, U Minister, Union Cabinet.           Module-4           Parliament - LS and RS, Parliamentary Consupreme Court of India and other Courts, June Module-5           State Executive and Governer, CM, State Constitution, and Im           Course outcome (Course Skill Set)           At the end of the course 22IC017/27 the state CO1           Analyse the basic structure of India CO2	titution, Societies before a on, Role of the Constituen (03 ho nble of Indian Constitution ations in different Comple (03 ho SP's) and its present re Union Executive : Parliame (03 ho Ommittees, Important Parliation Committees, Important Parliation (03 ho committees, Important Parliation (10 ho committees, Important Parliati	nd after the Constitution a t Assembly. <b>Purs of pedagogy)</b> on & Key concepts of th ex Situations. building. <b>Urs of pedagogy)</b> elevance in Indian soc entary System, Union Exc <b>Durs of pedagogy)</b> iamentary Terminologies 1 Activism. <b>Durs of pedagogy)</b> & VP, Election Commisse mendments till today. Emc ental Duties (FD's) of our odes, procedures.	e Preamble. Fundamenta ciety. Fundamental Duties ecutive – President, Prime . Judicial System of India sion, Elections & Electoral ergency Provisions.

#### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### Continuous Internal Evaluation(CIE):

#### Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration

#### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others.. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks

#### Semester End Examinations (SEE)

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

#### **Suggested Learning Resources:**

#### **Textbook:**

- 1. "Constitution of India" (for Competitive Exams) Published by Naidhruva Edutech Learning Solutions, Bengaluru. 2022.
- 2. "Introduction to the Constitution of India", (Students Edition.) by Durga Das Basu (DD Basu): Prentice –Hall, 2008.

#### **Reference Books:**

- 1. "Constitution of India, Professional Ethics and Human Rights" by Shubham Singles, Charles E. Haries, and et al: published by Cengage Learning India, Latest Edition 2019.
- 2. **"The Constitution of India"** by Merunandan K B: published by Merugu Publication, Second Edition, Bengaluru.
- 3. "Samvidhana Odu" for Students & Youths by Justice HN Nagamohan Dhas, Sahayana, kerekon.
- 4. M.Govindarajan, S.Natarajan, V.S.Senthilkumar, "Engineering Ethics", Prentice Hall, 2004.

#### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- ✓ For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions
- ✓ Seminars and assignments

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Course Code	BCEDK203/203	CIE Marks	50
eaching Hour/Week (L:T:P:S)	2:0:2:0	SEE Marks	50
Total Hours of Teaching - Learning	40	Total Marks	100
Credits	03	Exam Hours	03
Course Learning Objectives:			I
CLO1: To understand the	basic principles and convention	ons of engineering drawing	
CLO2: To use drawing as			
÷ .	ial views using CAD software		
<b>CLO4:</b> To understand the	_		
CLO5: To visualize engin			
eaching-Learning (General Instruction			
• Students should be made aware of p		-	1 6
• Simple Case studies can be suitably	selected by the teacher for har	nds on practice to induce the fe	elof
<ul><li>fruitfulness oflearning.</li><li>Appropriate Models, Power Point particular de la construction de la</li></ul>	recontation Charts Videos sh	all he used to enhance visualiz	vation bafara
• Appropriate Models, Power Point p. hands onpractice.	resentation, Charts, videos, sn	an de useu to enhance visualiz	ation before
<ul> <li>For application problems use very g</li> </ul>	enerally available actual object	ts (Example: For rectangular)	prism / object·
matchbox, carton boxes, book, etc c	•		jiisiii / object,
• Use any CAD software for generating	-	-	
• Make use of sketch book with graph			
	Module-1		
Introduction: for CIE only			
Significance of Engineering drawing, BIS	Conventions of Engineering	Drawing, Free hand sketching	g of engineering
lrawing, Scales. Introduction to Computer	r Aided Drafting software, Co-	-ordinate system and reference	planes HP, VP
RPP & LPP of 2D/3D environment. Sele	ection of drawing sheet size	and scale. Commands and cre	eation of Lines
coordinate points, axes, polylines, squar	e, rectangle, polygons, spline	es, circles, ellipse, text, move	, copy, off-set
nirror, rotate, trim, extend, break, chamfe	r, fillet and curves.		
Orthographic Projections of Points, Lin			
ntroduction to Orthographic projections:		bints in 1 <sup>st</sup> and 3 <sup>rd</sup> quadrants.	
Orthographic projections of lines (Placed	-		
Orthographic projections of planes viz tria		gon, hexagon, and circular lami	nae (Placed in
First quadrant only using change of position			
Application on projections of Lines & Pla	anes (For CIE only)		
	Module-2		
Orthographic Projection of Solids:			
Orthographic projection of right regular rectangle, pentagon, hexagon), Cylinders,	. 8	P only): Prisms & Pyramids	(triangle, squa

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#### Module-3

#### **Isometric Projections:**

Isometric scale, Isometric projection of hexahedron (cube), right regular prisms, pyramids, cylinders, cones and spheres. Isometric projection of combination of two simple solids.

#### Conversion of simple isometric drawings into orthographic views.

Problems on applications of Isometric projections of simple objects / engineering components.

Introduction to drawing views using 3D environment (For CIE only).

#### Module-4

#### **Development of Lateral Surfaces of Solids:**

Development of lateral surfaces of right regular prisms, cylinders, pyramids and cones resting with base on HP only. Development of lateral surfaces of their frustums and truncations.

Problems on applications of development of lateral surfaces like funnels and trays.

Problems on applications of development of lateral surfaces of transition pieces connecting circular duct and rectangular duct (For CIE Only)

#### Module-5

#### Multidisciplinary Applications & Practice (For CIE Only):

**Free hand Sketching;** True free hand, Guided Free hand, Roads, Buildings, Utensils, Hand tools & Furniture's etc **Drawing Simple Mechanisms;** Bicycles, Tricycles, Gear trains, Ratchets, two-wheeler cart & Four-wheeler carts to dimensions etc

**Electric Wiring and lighting diagrams;** Like, Automatic fire alarm, Call bell system, UPS system, Basic power distribution system using suitable software

**Basic Building Drawing;** Like, Architectural floor plan, basic foundation drawing, steel structures- Frames, bridges, trusses using Auto CAD or suitable software,

**Electronics Engineering Drawings**- Like, Simple Electronics Circuit Drawings, practice on layers concept. **Graphs & Charts**: Like, Column chart, Pie chart, Line charts, Gantt charts, etc. using Microsoft Excel or any suitable software.

#### **Course Outcomes**

At the end of the course the student will be able to:

- CO 1. Drawand communicate the objects with definite shape and dimensions
- CO 2. Recognize and Draw the shape and size of objects through different views
- **CO 3.** Develop the lateral surfaces of the object
- CO 4. Create a Drawing views using CAD software.
- CO 5. Identify the interdisciplinary engineering components or systems through its graphical representation.

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# Assessment Details (both CIE and SEE):

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks) and that for SEE minimum passing marks is 35% of the maximum marks (18 marks). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination (SEE), and a minimum of 40% (40 marks out of 100) in the sum of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) takentogether.

#### **Continuous Internal Evaluation (CIE)**

- CIE shall be evaluated for max. marks of 100 and later the same shall be scaled-down to 50 marks as detailed below:
- CIE component should comprise of Continuous evaluation of Drawing work of students as and when the Modules are covered based onbelow detailed weightage.

Module	Max. Marks	Evaluation Weightag	ge in marks
	Weightage	Computer display and print out	Sketching
		(a)	(b)
Module 1	15	10	05
Module 2	20	15	05
Module 3	20	20	00
Module 4	20	20	00
Module 5	25	15	10
Total	100	80	20
Consideration	on of Class work	Total of [(a) + (b)] = 100 Scaled down to 30 Marks	

- At least one **Test** covering all the modules is to be conducted for 100 marks and evaluation to be based SEE pattern, and the same is to be scaled down to **20Marks**.
- The final CIE = Class work marks + Test marks

#### Semester End Examination (SEE)

- SEE shall be conducted and evaluated for maximum marks 100. Marks obtained shall be accounted for SEE final marks, reducing it by50%
- Question paper shall be set jointly by both Internal and External Examiner and made available for each batch as per schedule. *Questions are to be set preferably from TextBooks*.
- Related to Module-1: One full question can be set either from "points & lines" or "planes".
- Evaluation shall be carried jointly by both theexaminers.
- Scheme of Evaluation: *To be defined by the examiners jointly and the same shall be submitted to the university along with questionpaper.*
- One full question shall be set from each of the Module from Modules 1,2,3 and 4 as per the below tabled weightage details. *However, the student may be awarded full marks, if he/she completes solution on computer display withoutsketch.*

Module	Max. Marks	Evaluation Weightage in marks			
	Weightage	Computer display and print out	Preparatory sketching		
		(a)	(b)		
Module 1	20	15	05		
Module 2	30	25	05		
Module 3	25	20	05		
Module 4	25	20	05		
Total	100	80	20		
Considerat	ion of SEE Marks	<b>Total of (a) + (b)</b> $\div$ <b>2 = Final SEE</b>	marks		

#### Suggested Learning Resources:

#### **Text Books**

- S.N. Lal, & T Madhusudhan:, Engineering Visulisation, 1st Edition, Cengage, Publication
- Parthasarathy N. S., Vela Murali, Engineering Drawing, Oxford University Press, 2015.

#### **Reference Books**

- *Bhattacharya S. K.*, Electrical Engineering Drawing, New Age International publishers, second edition 1998, reprint2005.
- Chris Schroder, Printed Circuit Board Design using AutoCAD, Newnes, 1997.
- *K S Sai Ram* Design of steel structures, , Third Edition byPearson
- Nainan p kurian Design of foundation systems, Narosapublications
- A S Pabla, Electrical power distribution, 6th edition, Tata Mcgrawhill
- *Bhatt, N.D., Engineering Drawing: Plane and Solid Geometry*, 53<sup>rd</sup> edition, Charotar Publishing House Pvt. Limited, 2019.
- *K. R. Gopalakrishna, & Sudhir Gopalakrishna*: Textbook Of Computer Aided Engineering Drawing, 39<sup>th</sup>Edition, Subash Stores, Bangalore,2017

#### **COs and POs Mapping (**CO-PO mappings are only **Indicative)**

COs						P	Os					
	1	2	3	4	5	6	7	8	9	10	11	12
C01	3	2			3	1		1	1	3		2
CO2	3	2			3	1		1	1	3		2
CO3	3	2			3	1		1	1	3		2
CO4	3	3			3	1	1		1	3		1
CO5	3	2			3				1	3		2

Level 3- Highly Mapped, Level 2-Moderately Mapped, Level 1-Low Mapped, Level 0- Not Mapped

Course Title:	Introduction to	C++ Programming		
Course Code:		BPLCK105D/BPLCK205D	CIE Marks	50
Course Type (Theor	y/Practical	Integrated	SEE Marks	50
/Integrated )			Total Marks	100
Teaching Hours/We	eek (L:T:P: S)	2:0:2	Exam Hours	03
Total Hours of Peda	gogy	40 hours	Credits	03

#### **Course objectives**

- Understanding about object oriented programming and Gain knowledge about the capability to store information together in an object.
- Understand the capability of a class to rely upon another class and functions.
- Understand about constructors which are special type of functions.
- Create and process data in files using file I/O functions
- Use the generic programming features of C++ including Exception handling

#### **Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective

- 1. Chalk and talk
- 2. Onine demonstration
- **3.** Hands on problem solving

#### Module-1 (8 hours)

Introduction to Object Oriented Programming: Computer programming background- C++ overview. First C++ Program -Basic C++ syntax, Object Oriented Programming: What is an object, Classes, methods and messages, abstraction and encapsulation, inheritance, abstract classes, polymorphism.

#### **Textbook 1: Chapter 1(1.1 to 1.8)**

Module-2 (8 hours)

Functions in C++: Tokens – Keywords – Identifiers and constants – Operators in C++ – Scope resolution operator – Expressions and their types – Special assignment expressions – Function prototyping – Call by reference – Return by reference – Inline functions -Default arguments – Function overloading.

#### Textbook 2: Chapter 3(3.2,3.3,3.4,3.13,3.14,3.19, 3.20) , chapter 4(4.3,4.4,4.5,4.6,4.7,4.9) Module-3 (8 hours)

Inheritance & Polymorphism: Derived class Constructors, destructors-Types of Inheritance-Defining Derived classes, Single Inheritance, Multiple, Hierarchical Inheritance, Hybrid Inheritance.

#### Textbook 2: Chapter 6 (6.2,6.11) chapter 8 (8.1 to,8.8)

Module-4 (8 hours)

I/O Streams: C++ Class Hierarchy- File Stream-Text File Handling- Binary File Handling during file operations.

Textbook 1: Chapter 12(12.5), Chapter 13 (13.6,13.7)

#### Module-5 (8 hours)

Exception Handling: Introduction to Exception - Benefits of Exception handling- Try and catch blockThrow statement- Pre-defined exceptions in C++

# Textbook 2: Chapter 13 (13.2 to13.6)

Cours	o outcomo	(Course Skill Set)
At the	end of the o	course the student will be able to:
	CO1	Able to understand and design the solution to a problem using object-oriented
		programming concepts.
	CO2	
		Able to reuse the code with extensible Class types, User-defined operators and
		function Overloading.
		Tunction Overloading.
	CO3	
		Achieve code reusability and extensibility by means of Inheritance and
		Polymorphism
		Torymorphism
	CO4	
		Implement the features of C++ including templates, exceptions and file handling for
		providing programmed solutions to complex problems.
		providing programmed solutions to complex problems.

Programming Assignments:

1. Write a C++ program to sort the elements in ascending and descending order.

2. Write a C++ program to find the sum of all the natural numbers from 1 to n.

3. Write a C++ program to swap 2 values by writing a function that uses call by reference technique.

4. Write a C++ program to demonstrate function overloading for the following prototypes.

*add(int a, int b) add(double a, double b)* 

5. Create a class named Shape with a function that prints "This is a shape". Create another class named Polygon inheriting the Shape class with the same function that prints "Polygon is a shape". Create two other classes named Rectangle and Triangle having the same function which prints "Rectangle is a polygon" and "Triangle is a polygon" respectively. Again, make another class named Square having the same function which prints "Square is a rectangle".Now, try calling the function by the object of each of these classes.

6.Suppose we have three classes Vehicle, FourWheeler, and Car. The class Vehicle is the base class, the class FourWheeler is derived from it and the class Car is derived from the class FourWheeler. Class Vehicle has a method 'vehicle' that prints 'I am a vehicle', class FourWheeler has a method 'fourWheeler' that prints 'I have four wheels', and class Car has a method 'car' that prints 'I am a car'. So, as this is a multi-level inheritance; we can have access to all the other classes methods from the object of the class Car. We invoke all the methods from a Car object and print the corresponding outputs of the methods.

So, if we invoke the methods in this order, car(), fourWheeler(), and vehicle(), then the output will be

I am a car

I have four wheels

I am a vehicle

Write a C++ program to demonstrate multilevel inheritance using this.

7. Write a C++ program to create a text file, check file created or not, if created it will write some text into the file and then read the text from the file.

8.Write aC++ program to write and read time in/from binary file using fstream

9. Write a function which throws a division by zero exception and catch it in catch block. Write a C++ program to demonstrate usage of try, catch and throw to handle exception.

10. Write a C++ program function which handles array of bounds exception using C++.

#### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

## **Continuous Internal Evaluation(CIE):**

The CIE marks for the theory component of the IC shall be **30 marks** and for the laboratory component **20 Marks**.

# CIE for the theory component of the IC

- Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.
- Two Assignments/two quizzes/ seminars/one field survey and report presentation/onecourse project totaling20 marks.

Total Marks scored (test + assignments) out of 80 shall be scaled down to **30 marks** 

# CIE for the practical component of the IC

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted at the end of the semester.
- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.

 The laboratory test (duration 03 hours) at the end of the 15<sup>th</sup> week of the semester /after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to 05 marks.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

## Semester End Examination (SEE): SEE for IC

Theory SEE will be conducted by University as per the scheduled time table, with common question papers for the course (duration 03 hours)

- 1. The question paper will have ten questions. Each question is set for 20 marks.
- 2. There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.
- 3. The students have to answer 5 full questions, selecting one full question from each module.

The theory portion of the Integrated Course shall be for both CIE and SEE, whereas the practical

#### portion will have a CIE component only. Questions mentioned in the SEE paper shall include

#### questions from the practical component).

#### Passing standard:

- The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks-30) in the theory component and 08 (40% of maximum marks -20) in the practical component. The laboratory component of the IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 04/05 questions to be set from the practical component of IPCC, the total marks of all questions should not be more than 30 marks.
- SEE will be conducted for 100 marks and students shall secure 35% of the maximum marks to qualify for the SEE. Marks secured will be scaled down to 50.

#### Suggested Learning Resources:

**Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year)** Textbooks

1. Bhushan Trivedi, "Programming with ANSI C++", Oxford Press, Second Edition, 2012.

2. Balagurusamy E, Object Oriented Programming with C++, Tata McGraw Hill Education Pvt.Ltd , Fourth Edition 2010.

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Weblinks and Video Lectures (e-Resources):

- 1. Basics of C++ https://www.youtube.com/watch?v=BClS40yzssA
- 2. Functions of C++ <u>https://www.youtube.com/watch?v=p8ehAjZWjPw</u>

Tutorial Link:

- 1. https://www.w3schools.com/cpp/cpp\_intro.asp
- 2. https://www.edx.org/course/introduction-to-c-3

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

• Assign small tasks to Develop and demonstrate using C++

COs				POs			
-	1	2	3	4	5	6	7
CO1							
CO2							
CO3							
CO4							

26.10.2022

#### Theory - 01 Credit Course Scientific Foundations of Health

Course Title:	Scientific Foundation	s of Health	
Course Code:	BSFHK158/258	CIE Marks	50
Course Type (Theory (Departice) (Intermeted)	Theory	SEE Marks	50
Course Type (Theory/Practical /Integrated)		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01
<b>Course objectives</b> The course Scientific Foundations of Healt	th (22SFH18/28) will enab	le the students,	

- 1. To know about Health and wellness (and its Beliefs) & It's balance for positive mindset.
- 2. To Build the healthy lifestyles for good health for their better future.
- 3. To Create a Healthy and caring relationships to meet the requirements of good/social/positive life.
- 4. To learn about Avoiding risks and harmful habits in their campus and outside the campus for their bright future
- 5. To Prevent and fight against harmful diseases for good health through positive mindset

#### **Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective:

Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

(i) Direct instructional method ( Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools),

(iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning,

(v) Personalized learning, (vi) Problems based learning through discussion, (vii) Following the method of expeditionary learning Tools and techniques, (viii) Use of audio visual methods.

Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

Module-1	(03 hours of pedagogy)
Good Health & It's balance for positive mindset: Health -Import	rtance of Health, Influencing factors of Health,
Health beliefs, Advantages of good health, Health & Behavior, Health &	Society, Health & family, Health & Personality,
Psychological disorders-Methods to improve good psychological health, Ch	hanging health habits for good health.
Module-2	(03 hours of pedagogy)
Building of healthy lifestyles for better future: Developing healthy	diet for good health, Food & health, Nutritional
guidelines for good health, Obesity & overweight disorders and its manage	ement, Eating disorders, Fitness components for
health Wellness and physical function How to avoid exercise injuries	
Module-3	(03 hours of pedagogy)
Creation of Healthy and caring relationships : Building communic	cation skills, Friends and friendship - Education,
the value of relationship and communication skills, Relationships for Bet	
the value of relationship and communication skins, relationships for bet	ter or worsening of life, understanding of basic
instincts of life (more than a biology), Changing health behaviours through	
instincts of life (more than a biology), Changing health behaviours through	social engineering. (03 hours of pedagogy)
instincts of life (more than a biology), Changing health behaviours through Module-4	<b>(03 hours of pedagogy)</b> omising behaviors, Recognizing and avoiding of

# **Preventing & fighting against diseases for good health:** How to protect from different types of infections, How to reduce risks for good health, Reducing risks & coping with chronic conditions, Management of chronic illness for Quality of life, Health & Wellness of youth :a challenge for upcoming future, Measuring of health & wealth status.

Module-5

(03 hours of pedagogy)

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#### Course outcome (Course Skill Set) :

At the en	nd of the course Scientific Foundations of Health (22SFH18/28) the student will be able to:
C01	To understand and analyse about Health and wellness (and its Beliefs) & It's balance for positive mindset.
C02	Develop the healthy lifestyles for good health for their better future.
CO3	Build a Healthy and caring relationships to meet the requirements of good/social/positive life.
C04	To learn about Avoiding risks and harmful habits in their campus and outside the campus for their bright future.
C05	Prevent and fight against harmful diseases for good health through positive mindset.

#### Assessment Details (both CIE and SEE) :

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### **Continuous Internal Evaluation(CIE) :**

#### Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration.

#### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others.. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

#### The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks

#### **Semester End Examinations (SEE)**

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

#### **Suggested Learning Resources:**

#### **Textbook:**

- 1. "Scientific Foundations of Health" Study Material Prepared by Dr. L Thimmesha, Published in VTU University Website.
- 2. "Scientific Foundations of Health", (ISBN-978-81-955465-6-5) published by Infinite Learning Solutions, Bangalore 2022.
- 3. **Health Psychology A Textbook,** FOURTH EDITION by Jane Ogden McGraw Hill Education (India) Private Limited Open University Press.

#### **Reference Books:**

- 1. Health Psychology (Second edition) by Charles Abraham, Mark Conner, Fiona Jones and Daryl O'Connor Published by Routledge 711 Third Avenue, New York, NY 10017.
- 2. **HEALTH PSYCHOLOGY (Ninth Edition)** by SHELLEY E. TAYLOR University of California, Los Angeles, McGraw Hill Education (India) Private Limited Open University Press.
- 3. SWAYAM / NPTL/ MOOCS/ We blinks/ Internet sources/ YouTube videos and other materials / notes.
- **4. Scientific Foundations of Health (Health & Welness) General Books** published for university and colleges references by popular authors and published by the reputed publisher.

#### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- ✓ For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions, Seminars and assignments

# Theory - 01 Credit Course Professional Writing Skills in English

Course Title:	<b>Professional Writing S</b>		
Course Code:	BPWSK206-106	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy Course objectives:	15 hours	Credits	01
<ol> <li>The course Professional Writing Skills in Eng</li> <li>To Identify the Common Errors in V</li> <li>To Achieve better Technical writing</li> <li>To read Technical proposals properl</li> <li>To Acquire Employment and Workp</li> <li>To learn about Techniques of Inform</li> </ol>	Vriting and Speaking of Eng and Presentation skills for y and make them to write g blace communication skills.	glish. employment. ood technical reports.	evel.
Teaching-Learning Process These are sample Strategies, which teacher can Teaching –Learning more effective: Teachers ships shall involve the combination of different methods requirements of the Global employment market. (i) Direct instructional method (Low/Old Telearning (Combination of both), (iv) Enquiry (v) Personalized learning, (vi) Problems bases Tools and techniques, (viii) Use of audio vis Apart from conventional lecture methods, various adapted so that the delivered lesson can progress the skills in general. Language Lab: To augment LSRW, grammer Grammar, Vocabulary) through tests, activities can be referred as per the AICTE / VTU guid Module-1 Identifying Common Errors in Writing	all adopt suitable pedagogy for ologies which suit modern tech echnology), (ii) Flipped classro y and evaluation based learning ed learning through discussion, ual methods through language types of innovative teaching te he students In theoretical appli- uar and Vocabulary skills (L es, exercises etc., comprehe lelines. (03 hou and Speaking English : C	e effective teaching - lear nological tools and softw oms (High/advanced Tec g, (vii) Following the meth Labs in teaching of of LS echniques through videos ed and practical skills in istening, Speaking, Re nsive web-based learn <b>rs of pedagogy</b> Common errors identifi	ning process. The pedagogy vare's to meet the present chnological tools), (iii) Blended nod of expeditionary learning SRW skills. , animation films may be teaching of communicative eading, Writing and ing and assessment systems cation in parts of speech,
Use of verbs and phrasal verbs, Auxiliary ver	1 0 0		
in Subject-verb agreement, Sequence of Tens	es and errors identification	in Tenses. Words Con	fused/Misused.
		in Tenses. Words Con Irs of pedagogy)	fused/Misused.
in Subject-verb agreement, Sequence of Tens Module-2 Nature and Style of sensible writing: On Conclusion, Importance of Proper Punctuati and Corrections activities. Misplaced modifie Module-3 Technical Reading and Writing Prace Significance of Reports, Types of Reports. Characteristics of Technical Proposals. Scient & Sentence Improvement, Cloze Test and Th	(03 hou rganizing Principles of Pa on, Precise writing and Te ers, Contractions, Collocations (03 hou ctices: Technical writing p Introduction to Technical ntific Writing Process. Gran eme Detection Exercises.	ars of pedagogy) ragraphs in Documen echniques in Essay wr , Word Order, Errors due ars of pedagogy) process, Introduction of Proposals Writing, T	ts, Writing Introduction and iting, Sentence arrangements to the Confusion of words. to Technical Reports writing, Ypes of Technical Proposals,
in Subject-verb agreement, Sequence of Tens Module-2 Nature and Style of sensible writing: On Conclusion, Importance of Proper Punctuati and Corrections activities. Misplaced modifie Module-3 Technical Reading and Writing Prac Significance of Reports, Types of Reports. Characteristics of Technical Proposals. Scient	(03 hou rganizing Principles of Pa on, Precise writing and Te ers, Contractions, Collocations (03 hou ctices: Technical writing p Introduction to Technical ntific Writing Process. Gran eme Detection Exercises.	ars of pedagogy) ragraphs in Documen echniques in Essay wr , Word Order, Errors due ars of pedagogy) process, Introduction of Proposals Writing, T	ts, Writing Introduction and iting, Sentence arrangements to the Confusion of words. to Technical Reports writing. Ypes of Technical Proposals.
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# 26.10.2022

#### Course outcome (Course Skill Set)

At the end	d of the course the student will be able to:
C01	To understand and identify the Common Errors in Writing and Speaking.
CO2	To Achieve better Technical writing and Presentation skills.
CO3	To read Technical proposals properly and make them to Write good technical reports.
CO4	Acquire Employment and Workplace communication skills.
C05	To learn about Techniques of Information Transfer through presentation in different level.

#### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### Continuous Internal Evaluation(CIE):

#### Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration

#### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (To have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

#### The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks

#### Semester End Examinations (SEE)

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

#### **Suggested Learning Resources:**

#### Textbook:

- 1) "Professional Writing Skills in English" published by Fillip Learning Education (ILS), Bangalore 2022.
- "Functional English" (As per AICTE 2018 Model Curriculum) (ISBN-978-93-5350-047-4) Cengage learning India Pvt Limited [Latest Edition 2019].

#### **Reference Books:**

- 1) English for Engineers by N.P.Sudharshana and C.Savitha, Cambridge University Press 2018.
- 2) Technical Communication by Gajendra Singh Chauhan and Et al, (ISBN-978-93-5350-050-4), Cengage learning India Pvt Limited [Latest Revised Edition] 2019.
- 3) Technical Communication Principles and Practice, Third Edition by Meenakshi Raman and Sangeetha Sharma, Oxford University Press 2017.
- 4) High School English Grammar & Composition by Wren and Martin, S Chandh & Company Ltd 2015.
- 5) Effective Technical Communication Second Edition by M Ashraf Rizvi, McGraw Hill Education (India) Private

#### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- ✓ For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions, Seminars and assignments

IISem	ester(CSEStre	eam)		(For students atte	ended 1			der Ph	ysics Gr	oup)			
2							ching /Week		I	xaminatio	n	8	
SL No		nd Course ode	Course Title	TD/PSB	Theory Lecture	Tutorial	Practical/ Drawing	NGS	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
		-			L	T	P	S	100	50	50	100	0
1	*ASC(IC)	BMATS201	Mathematics-II forCSE Stream	Maths	2	2	2	0	03	50	50	100	0
2	#ASC(IC)	BCHES202	Applied Chemistry for CSE Stream	Chemistry	2	2	2	0	03	50	50	100	0
3	ESC	BCEDK203	Computer-Aided Engineering Drawing	Civil/Mech Engg dept	2	0	2	0	03	50	50	100	0
4	ESC-II	BESCK204x	Engineering Science Course-II	Respective Engg. Dept	3	0	0	0	03	50	50	100	(
	PLC-II	BETCK205x	Programming Language Course-II		2	00	2	0	03	=			
5		22 2	OR	Any Dept		8		8		50	50	100	0
	ETC-II	BPLCK205x	Emerging Technology Course-II		3	0	0	0	03				
		BPWSK206	Professional Writing Skills in English										
6	AEC		OR	Humanities	1	0	0	0	01	50	50	100	0
14000		BENGK206	Communicative English	- HASHIC & CANADADA	15	00000	523	1104		Second .	194696	SC-RMM	
		BICOK207	Indian Constitution		1	0	0	0					
7	HSMS		OR	Humanities					01	50	50	100	0
473.	the second second	BKSKK207/ BKBKK207	Samskrutika Kannada/ Balake Kannada	- neonantonoo	1	0	0	0		500000 (C	8	icaesini icaesini	250
		BSFHK258	Scientific Foundations of Health		1	0	0	0	01	2			
8	HSMS		OR	Any Dept		a - 9		3		50	50	100	(
		KIDTK258	Innovation and Design Thinking	Dept	1	0	0	0	01				
				TOTAL			-	17. AND	3	400	400	800	

	(ESC-II) Engineering Science Courses-II					(ETC-II) Emerging Technology Courses-II			<u>.</u>
Code	Title	L	Т	Р	Code	Title	L	Т	F
BESCK204A	Introduction to Civil Engineering	3	0	0	BETCK205A	Smart materials and Systems	3	0	C
BESCK204B	Introduction to Electrical Engineering	3	0	0	BETCK205B	Green Buildings	3	0	0
BESCK204C	Introduction to Electronics Communication	3	0	0	BETCK205C	Introduction to Nano Technology	3	0	0
BESCK204D	Introduction to Mechanical Engineering	3	0	0	BETCK205D	Introduction to Sustainable Engineering	3	0	0
BESCK204E	Introduction to C Programming	2	0	2	BETCK205E	Renewable Energy Sources	3	0	(
81 - 41 (1999) - 41 (1999) - 41 (1999) 19					BETCK205F	Waste Management	3	0	(
		1		00 - 10 02 - 10	BETCK205G	Emerging Applications of Biosensors	3	0	(
				0	BETCK205H	Introduction to Internet of Things(IoT)	3	0	(
				0	BETCK205I	Introduction to Cyber Security	3	0	(
				0	BETCK205J	Introduction to Embedded System	3	0	(
(PLC-II) Prog	gramming Language Courses-II	- 01 - 0							
Code	Title	L	Т	P			1		
BPLCK205A	Introduction to Web Programming	2	0	2			Ĵ.		
BPLCK205B	Introduction to Python Programming	2	0	2			2	3-3	
BPLCK205C	Basics of JAVA programming	2	0	2			×	<u>s—</u> 2	
BPLCK205D	Introduction to C++ Programming	2	0	2			· · ·	9	

- The student has to select one course from the ESC-II group.
- CSE/ISE and allied branches Students shall opt for any one of the courses from the ESC-II group except, BESCK245E-Introduction to C Programming
- The students have to opt for the courses from ESC group without repeating the course in either 1<sup>st</sup> or 2<sup>nd</sup> semester
- The students must select one course from either ETC-II or PLC-II group.
- If students study the subject from ETC-I in 1<sup>st</sup> semester he/she has to select the course from PLC-II in the 2<sup>nd</sup> semester and vice-versa

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<b>Course Title:</b>	Applied Chemistry for Computer Science &Engineering stream					
Course Code:	BCHES102/202	CIEMarks	50			
Course		SEEMarks	50			
Type(Theory/Practical/Integrated)	Integrated	Total	100			
Type(Theory/Tractical/Integrated)		Marks				
TeachingHours/Week(L:T:P:S) <sup>1</sup>	2:2:2:0	Exam	03			
reachingriours/week(L.T.T.S)	2.2.2.0	Hours				
TotalHoursofPedagogy	40hoursTheory+ 10to12Labslots	Credits	04			

# **Computer Science and Engineering and allied branches(Chemistry group)**

## Courseobjectives

- Toenablestudentstoacquireknowledgeonprinciplesofchemistryforengineeringapplications.
- Todevelopanintuitiveunderstandingofchemistrybyemphasizingtherelatedbranchesofengineer ing.
- Toprovidestudentswithasolidfoundationinanalyticalreasoningrequiredtosolvesocietalproble ms.

#### **Teaching-LearningProcess**

These are samples trategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching-Learning more effective

- Tutorial&remedialclassesforneedystudents(notregularT/R)
- ConductingMakeupclasses/Bridgecourses forneedystudents
- Demonstration of concepts either by building models or by industry visit
- Experiments in laboratories shall be executed in blended mode (conventional or non-conventional methods)
- UseofICT–Onlinevideos,onlinecourses
- Useofonlineplatformsforassignments/Notes/Quizzes(Ex.Googleclassroom)

# MODULE1:SensorsandEnergySystems(8hr)

Sensors:Introduction,working,principleandapplicationsofConductometricsensors,Electrochemical<br/>sensors,Thermometricsensors(Flame<br/>photometry)andOpticalsensors(colorimetry).Sensorsforthemeasurement of dissolved oxygen (DO). Electrochemical sensors for<br/>pharmaceuticals.ElectrochemicalgassensorsforSOxandNOx.Disposablesensorsin<br/>thedetectionofbiomoleculesandpesticides.

 $\label{eq:systems:Introductionto batteries, construction, working and applications of Lithiumion and Sodiumion batteries. Quantum DotSensitizedSolarCells (QDSSC's)-Principle,$ 

Properties and Applications.

Self-learning: Types of electrochemical sensor, Gas sensor -  $O_2$  sensor, Biosensor - Glucosesensors.

#### MODULE2:MaterialsforMemoryandDisplaySystems(8hr)

**Memory Devices:** Introduction, Basic concepts of electronic memory, History of organic/polymerelectronic memory devices, Classification of electronic memory devices,

1.NOTE: Whereverthecontact hours is not sufficient, tutorial hour can be converted to the oryhours

typesoforganicmemorydevices(organicmolecules,polymericmaterials,organicinorganichybridmaterials).

**DisplaySystems**:Photoactiveandelectroactivematerials,Nanomaterialsandorganicmaterials used in optoelectronic devices. Liquid crystals (LC's) - Introduction, classification,properties and application in Liquid Crystal Displays (LCD's). Properties and application ofOrganic Light Emitting Diodes (OLED's) and Quantum Light Emitting Diodes (QLED's), Lightemittingelectrochemicalcells.

**Self-learning:**Properties and functions of Silicon(Si), Germanium(Ge), Copper(Cu),

Aluminium(Al), and Brominated flameret ard ant sincomputers.

# MODULE3:CorrosionandElectrodeSystem(8hr)

Corrosion Chemistry: Introduction, electrochemical theory of corrosion, types of corrosion and the second 
differentialmetalanddifferentialaeration.Corrosioncontrol-galvanization,anodization and sacrificial anode method. Corrosion Penetration Rate (CPR) - Introductionandnumerical problem. Electrode System: Introduction, types of electrodes. Ion selective electrode definition, construction, working and applications of glass electrode. Determination of pH using glasselectrode. Reference electrode-Introduction, calomel electrodeconstruction. workingandapplicationsofcalomelelectrode.Concentrationcell-

Definition, construction and Numerical problems.

**Analytical Techniques**: Introduction, principle and instrumentation of Conductometry; itsapplication in the estimation of weak acid. Potentiometry; its application in the estimationofiron.

Self-learning: IRandUV-Visiblespectroscopy.

# MODULE4:PolymersandGreenFuels(8hr)

Polymers: Introduction, Molecularweight-

Numberaverage,weightaverageandnumericalproblems.Preparation,properties,andcommercialappl icationsofkevlar. Conductingpolymers-

synthesis and conducting mechanism of polyacetyle near dcommercial applications.

**Green Fuels:** Introduction, construction and working of solar photovoltaic cell, advantages, and disadvantages. Generation of energy (green hydrogen) by electrolysis of water and itsadvantages. **Self-learning:**Regenerativefuelcells

# MODULE5:E-WasteManagement(8hr)

E-Waste: Introduction, sources of e-waste, Composition, Characteristics, and Need of ewastemanagement.Toxicmaterialsusedinmanufacturingelectronicandelectricalproducts, health hazards due to exposure to e-waste. Recycling and Recovery: Differentapproachesofrecycling(separation,thermaltreatments,hydrometallurgicalextraction,pyro metallurgical methods, direct recycling). Extraction of gold from E-waste. Role of stakeholders in environmental management of e-waste (producers, consumers, recyclers, andstatutorybodies). Self-learning:Impactofheavymetalsonenvironmentandhumanhealth.

# PRACTICALMODULE

<u>A-Demonstration(anytwo)offline/virtual:</u>

A1.ChemicalStructure drawingusingsoftware:ChemDraworACD/ChemSketch

16-2-2023

A2. Determination of strength of an acid in Pb-acid

batteryA3:SynthesisofIron-oxideNanoparticles

A4.Electrolysisofwater

B-Exercise(compulsorilyany4tobeconducted):

B1.Conductometricestimationofacidmixture

 $B2. Potentiometric estimation of FAS using K_2 Cr_2 O_7 \\$ 

B3.DeterminationofpKaofvinegarusingpHsensor(Glasselectrode)

B4. Determination of rate of corrosion of mildsteel by weight loss method B5.

EstimationoftotalhardnessofwaterbyEDTAmethod

# <u>C-StructuredEnquiry (compulsorilyany4tobeconducted):</u>

C1. Estimation of Copper present in electroplating effluent by optical sensor

(colorimetry)C2.DeterminationofViscositycoefficientoflubricant(Ostwald'sviscometer)

C3. Estimation of iron in TMT bar by diphenyl amine/external indicator

method C4. Estimation of Sodium present in soil/effluents ampleusing flame photometry

C5. Determination of Chemical Oxygen Demand (COD) of industrial was tewaters ample

# D-OpenEndedExperiments(anytwo):

D1: Evaluation of a cid content in beverages by using pHs ensors and simulation. D2.

Construction of photovoltaiccell.

D3.DesignanexperimenttoIdentifythepresenceofproteinsingivensample.

D4. Searching suitable PDB file and target formole cular docking

## Courseoutcome(CourseSkillSet)

Attheendofthecourse thestudentwillbeableto:

1 minor	muortineeo	uise u	nestudent wi	mocuoleto.					
CO1.	Identify	the	terms	processes	involved	in	scientific	and	engineering
		anda	pplications						
CO2.	Explainth	nephei	nomenaofch	emistrytodesci	ribethemetho	dsofe	engineering	process	ses
CO3.	Solvethe	proble	msinchemi	strythatareperti	nentinengine	ering	application	S	
CO4.	Applythe	basico	conceptsofc	hemistrytoexpl	lainthechemio	calpro	opertiesand	proces	ses
CO5.	Analyzep	oroper	tiesandmult	idi processes	associated		withchen	nical s	substances in
	sciplinary	ysituat	tions	-					

#### AssessmentDetails(bothCIEandSEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). Astudentshallbedeemedtohavesatisfiedtheacademicrequirementsandearnedthecreditsallotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in thesemester-end examination (SEE), and a minimum of 40% (40 marks out of 100) in the sum total oftheCIE(ContinuousInternalEvaluation)andSEE(SemesterEndExamination)takentogether.

#### ContinuousInternalEvaluation(CIE):

The CIE marks for the theory component of the IC shall be **30 marks** and for the laboratory component **20 Marks**.

# CIE for the theory component of the IC

- Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.
- Two Assignments/two quizzes/ seminars/one field survey and report presentation/one-course project totalling 20 marks.

Total Marks scored (test + assignments) out of 80 shall be scaled down to **30 marks CIE for the practical component of the IC**  16-2-2023

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted at the end of the semester.
- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.
- The laboratory test (duration 03 hours) at the end of the 15<sup>th</sup> week of the semester /after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to 05 marks.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

• The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

# Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English/Kannada). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.

There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 subquestions), **should have a mix of topics** under that module.

# SuggestedLearningResources:

# Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year)

- $1. Wiley Engineering Chemistry, Wiley India Pvt. Ltd. New Delhi, 2013-2^{nd} Edition.$
- 2. EngineeringChemistry,Satyaprakash&ManishaAgrawal,KhannaBookPublishing,Delhi
- $\label{eq:alpha} 3. \quad ATextBook of Engg. Chemistry, Shashi Chawla, Dhanpat Rai \& Co. (P) Ltd.$
- 4. EssentialsofPhysicalChemistry,Bahl&Tuli,S.ChandPublishing
- 5. AppliedChemistry,SunitaRattan,Kataria5.EngineeringChemistry,Baskar,Wiley
- 6. Engineering Chemistry I, D. Grour Krishana, Vikas Publishing
- 7. ATextbookofEngineeringChemistry,SSDara&Dr.SSUmare,SChand&CompanyLtd.,12thEdition,2011.
- 8. ATextBookofEngineeringChemistry,R.V.GadagandNityanandaShetty,I.K.InternationalPublishinghous e. 2<sup>nd</sup>Edition,2016.
- 9. TextBookofPolymerScience,F.W.Billmeyer,JohnWiley&Sons,4thEdition,1999.
- 10. NanotechnologyAChemicalApproachtoNanomaterials,G.A.Ozin&A.C.Arsenault,RSCPublishing,2005 .

 $11. \ Corrosion Engineering, M.G. Fontana, N.D. Greene, McGraw Hill Publications, New York, 3^{rd} Edition, 1996.$ 

- 12. Linden'sHandbookofBatteries,KirbyW.Beard,FifthEdition,McGrawHill,2019.
- 13. OLEDDisplayFundamentalsandApplications,TakatoshiTsujimura,Wiley-Blackwell,2012
- 14. Supercapacitors:Materials,Systems,andApplications,MaxLu,FrancoisBeguin,ElzbietaFrackowiak,Wile y-VCH;1stedition,2013.
- 15. "HandbookonElectroplatingwithManufactureofElectrochemicals",ASIAPACIFICBUSINESSPRESS Inc., 2017. Dr.H. Panda,
- 16. Expanding the Vision of Sensor Materials. National Research Council 1995, Washington, DC: The National Ac ademies Press. doi:10.17226/4782.
- 17. EngineeringChemistry,EditedbyDr.MaheshBandDr.RoopashreeB,SunstarPublisher,Bengaluru,ISBN97 8-93-85155-70-3, 2022
- 18. HighPerformanceMetallicMaterialsforCostSensitiveApplications,F.H.Froes,etal.JohnWiley&Sons, 2010
- 19. InstrumentalMethodsofAnalysis,Dr.K.R.MahadikandDr.L.Sathiyanarayanan,NiraliPrakashan,2020
- 20. PrinciplesofInstrumentalAnalysis,DouglasA.Skoog,F.JamesHoller,StanleyR.CrouchSeventhEdition,CengageLearning, 2020
- 21. PolymerScience,VRGowariker,NVViswanathan,Jayadev,Sreedhar,NewageInt.Publishers,4thEdition, 2021
- 22. EngineeringChemistry,PCJain&MonicaJain,DhanpatRaiPublication,2015-16thEdition.
- 23. Nanostructuredmaterialsandnanotechnology, Hari Singh, Nalwa, academicpress, 1stEdition, 2002.
- 24. NanotechnologyPrinciplesandPractices,SulabhaKKulkarni,CapitalPublishingCompany,3rdEdition2014
- 25. Principlesofnanotechnology, Phanikumar, Scitechpublications, 2nd Edition, 2010.
- 26. ChemistryforEngineeringStudents,B.S.JaiPrakash,R.Venugopal,Sivakumaraiah&PushpaIyengar.,Suba shPublications,5<sup>th</sup>Edition, 2014
- 27. "EngineeringChemistry", O.G.Palanna, TataMcGrawHillEducationPvt.Ltd.NewDelhi, FourthReprint, 20 15.
- 28. ChemistryofEngineeringmaterials, MaliniS, KSAnanthaRaju, CBSpublishersPvtLtd.,
- 29. LaboratoryManualEngg.Chemistry,AnupmaRajput,DhanpatRai&Co.

#### WeblinksandVideoLectures(e-Resources):

- <u>http://libgen.rs/</u>
- https://nptel.ac.in/downloads/122101001/
- https://nptel.ac.in/courses/104/103/104103019/
- https://ndl.iitkgp.ac.in/
- <u>https://www.youtube.com/watch?v=faESCxAWR9k</u>
- <u>https://www.youtube.com/watch?v=TBqXMWaxZYM&list=PLyhmwFtznRhuz8L1bb3X-9IbHrDMjHWWh</u>
- <u>https://www.youtube.com/watch?v=j5Hml6KN4TI</u>
- <u>https://www.youtube.com/watch?v=X9GHBdyYcyo</u>
- https://www.youtube.com/watch?v=1xWBPZnEJk8
- <u>https://www.youtube.com/watch?v=wRAo-M8xBHM</u>

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## ActivityBasedLearning(SuggestedActivitiesinClass)/PracticalBasedlearning

- $\Box$  <u>https://www.vlab.co.in/broad-area-chemical-sciences</u>
- L https://demonstrations.wolfram.com/topics.php
- □ <u>https://interestingengineering.com/science</u>

	COsandPOsMapping(Individualteacherhastofillup)											
	РО											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	1	1				1					
CO2	3	1	1				1					
CO3	3	1	1				1					
CO4	3	1	1				1					
CO5	3	1	1				1					

16-2-2023

## II Semester

16-2-2022

Course Title: Mathematics-II for Computer Science and Engineering stream							
Course Code:	BMATS201	CIE Marks	50				
Course Type	Integrated	SEE Marks	50				
(Theory/Practical/Integrated)		Total Marks	100				
Teaching Hours/Week (L:T:P: S)	2:2:2:0	Exam Hours	03				
Total Hours of Pedagogy	40 hours Theory + 10 to 12 Lab slots	Credits	04				

Course objectives: The goal of the course Mathematics-II for Computer Science and Engineering stream(22MATS21) is to

- Familiarize the importance of Integral calculus and Vector calculus.
- Learn vector spaces and linear transformations.
- **Develop** the knowledge of numerical methods and apply them to solvetranscendental and differential equations.

# **Teaching-Learning Process**

## Pedagogy (General Instructions):

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

- 1. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted so that the delivered lessons shall develop students' theoretical and applied mathematical skills.
- 2. State the need for Mathematics with Engineering Studies and Provide real-life examples.
- 3. Support and guide the students for self-study.
- 4. You will also be responsible for assigning homework, grading assignments and quizzes, and documenting students' progress.
- 5. Encourage the students to group learning to improve their creative and analytical skills.
- 6. Show short related video lectures in the following ways:
  - As an introduction to new topics (pre-lecture activity).
  - As a revision of topics (post-lecture activity).
  - As additional examples (post-lecture activity).
  - As an additional material of challenging topics (pre-and post-lecture activity).
  - As a model solution of some exercises (post-lecture activity).

#### Module-1Integral Calculus (8 hours)

# Introduction to Integral Calculus in Computer Science & Engineering.

**Multiple Integrals:** Evaluation of double and triple integrals, evaluation of double integrals by change of order of integration, changing into polar coordinates. Applications to find Area and Volume by double integral.Problems.

**Beta and Gamma functions:** Definitions, properties, relation between Beta and Gamma functions. Problems.

**Self-Study:** Center of gravity, Duplication formula.

**Applications:** Antenna and wave propagation, Calculation of optimum value in various geometries. Analysis of probabilistic models.

(RBT Levels: L1, L2 and L3)

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#### Module-2 Vector Calculus(8 hours)

Introduction to Vector Calculus in Computer Science & Engineering.

Scalar and vector fields. Gradient, directional derivative, curl and divergence - physical interpretation, solenoidal and irrotational vector fields. Problems.

**Curvilinear coordinates:**Scale factors, base vectors, Cylindrical polar coordinates, Spherical polar coordinates, transformation between cartesian and curvilinear systems, orthogonality. Problems.

Self-Study: Vector integration and Vector line integral.

Applications: Conservation of laws, Electrostatics, Analysis of streamlines.

Module-3Vector Space and Linear Transformations(8 hours)

Importance of Vector Space and Linear Transformations in the field of Computer Science & Engineering.

**Vector spaces:** Definition and examples, subspace, linear span, Linearly independent and dependent sets, Basis and dimension. Problems.

**Linear transformations**: Definition and examples, Algebra of transformations, Matrix of a linear transformation. Change of coordinates, Rank and nullity of a linear operator, rank-nullity theorem. Inner product spaces and orthogonality. Problems.

**Self-study:** Angles and Projections.Rotation, Reflection, Contraction and Expansion. **Applications:** Image processing, AI & ML, Graphs and networks, Computer graphics. **(RBT Levels: L1, L2 and L3)** 

Module-4Numerical Methods -1(8 hours)

Importance of numerical methods for discrete data in the field of computer science & engineering.

Solution of algebraic and transcendental equations - Regula-Falsi and Newton-Raphson methods (only formulae). Problems.

Finite differences, Interpolation using Newton's forward and backward difference formulae, Newton's divided difference formula and Lagrange's interpolation formula (All formulae without proof). Problems.

**Numerical integration**: Trapezoidal, Simpson's (1/3)<sup>rd</sup> and (3/8)<sup>th</sup> rules(without proof). Problems.

Self-Study: Bisection method, Lagrange's inverse Interpolation.

**Applications:** Estimating the approximate roots, extremum values, Area, volume, and surface area. Errors in finite precision.

(RBT Levels: L1, L2 and L3)

Module-5Numerical Methods -2(8 hours)

Introduction to various numerical techniques for handling Computer Science & Engineering applications.

**Numerical Solution of Ordinary Differential Equations (ODE's):** Numerical solution of ordinary differential equations of first order and first degree - Taylor's series method, Modified Euler's method, Runge-Kutta method of fourth order and Milne's predictor-corrector formula (No derivations of formulae). Problems.

Self-Study: Adam-Bashforth method. Applications: Estimating the approximate solutions of ODE. (RBT Levels: L1, L2 and L3).

List of	Laboratory experiments (2 hours/week per batch/ batch strength 15)
10 lab	sessions + 1 repetition class + 1 Lab Assessment
1	Program to compute area, surface area, volume and centre of gravity
2	Evaluation of improper integrals
3	Finding gradient, divergent, curl and their geometrical interpretation
4	Computation of basis and dimension for a vector space and Graphical representation of
	linear transformation
5	Computing the inner product and orthogonality
6	Solution of algebraic and transcendental equations by Ramanujan's, Regula-Falsi and
	Newton-Raphson method
7	Interpolation/Extrapolation using Newton's forward and backward difference formula
8	Computation of area under the curve using Trapezoidal, Simpson's (1/3) <sup>rd</sup> and (3/8) <sup>th</sup> rule
9	Solution of ODE of first order and first degree by Taylor's series and Modified Euler's
	method
10	Solution of ODE of first order and first degree by Runge-Kutta 4 <sup>th</sup> order and Milne's
	predictor-corrector method
~~~	ted software's: Mathematica/MatLab/Python/Scilab
	outcome (Course Skill Set)
	and of the course the student will be able to:
CO1	Apply the concept of change of order of integration and variables to evaluate multiple
CO2	<ul><li>integrals and their usage in computing area and volume.</li><li>Understand the applications of vector calculus refer to solenoidal, and irrotational</li></ul>
02	vectors.Orthogonal curvilinear coordinates.
CO3	Demonstrate the idea of Linear dependence and independence of sets in the vector space,
	and linear transformation
CO4	Apply the knowledge of numerical methods in analysing the discrete data and solving the
	physical and engineering problems.
CO5	Get familiarize with modern mathematical tools namely
	MATHEMATICA/ MATLAB /PYTHON/ SCILAB
Assess	nent Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in thetotal of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

**Continuous Internal Evaluation(CIE):** 

The CIE marks for the theory component of the IC shall be **30 marks** and for the laboratory component **20 Marks**.

# **CIE** for the theory component of the IC

• Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.

• Two Assignments/two quizzes/ seminars/one field survey and report presentation/one-course project totalling 20 marks.

Total Marks scored (test + assignments) out of 80 shall be scaled down to 30 marks

## CIE for the practical component of the IC

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted at the end of the semester.
- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.
- The laboratory test (duration 03 hours) at the end of the 15<sup>th</sup> week of the semester/after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to 05 marks.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

# Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English/Kannada). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

# Suggested Learning Resources:

Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year) Text Books

- 1. **B. S. Grewal**: "Higher Engineering Mathematics", Khanna Publishers, 44<sup>th</sup>Ed., 2021.
- 2. E. Kreyszig: "Advanced Engineering Mathematics", John Wiley & Sons, 10<sup>th</sup>Ed., 2018.

# **Reference Books**

- 1. V. Ramana: "Higher Engineering Mathematics" McGraw-Hill Education, 11<sup>th</sup> Ed., 2017
- 2. Srimanta Pal & Subodh C.Bhunia: "Engineering Mathematics" Oxford University Press, 3<sup>rd</sup> Ed., 2016.
- 3. **N.P Bali and Manish Goyal**: "A Textbook of Engineering Mathematics" Laxmi Publications, 10<sup>th</sup> Ed., 2022.
- 4. **C. Ray Wylie, Louis C. Barrett:** "Advanced Engineering Mathematics" McGraw Hill Book Co., New York, 6<sup>th</sup> Ed., 2017.
- 5. **Gupta C.B, Sing S.R and Mukesh Kumar:** "Engineering Mathematic for Semester I and II", Mc-Graw Hill Education(India) Pvt. Ltd 2015.
- 6. **H. K. Dass and Er. Rajnish Verma:** "Higher Engineering Mathematics" S. Chand Publication, 3<sup>rd</sup> Ed., 2014.
- 7. James Stewart: "Calculus" Cengage Publications, 7<sup>th</sup>Ed., 2019.
- 8. David C Lay: "Linear Algebra and its Applications", Pearson Publishers, 4<sup>th</sup> Ed., 2018.
- 9. **Gareth Williams:** "Linear Algebra with applications", Jones Bartlett Publishers Inc., 6<sup>th</sup> Ed., 2017.

10. Gilbert Strang: "Linear Algebra and its Applications", Cengage Publications, 4<sup>th</sup> Ed., 2022.

# Web links and Video Lectures (e-Resources):

- http://nptel.ac.in/courses.php?disciplineID=111
- <u>http://www.class-central.com/subject/math(MOOCs)</u>
- http://academicearth.org/
- VTU e-Shikshana Program
- VTU EDUSAT Program

#### Activity-Based Learning (Suggested Activities in Class)/ Practical-Based Learning

- Quizzes
- Assignments
- Seminar

#### COs and POs Mapping (Individual teacher has to fill up)

COs	11 8			POs			
	1	2	3	4	5	6	7
CO1							
CO2							
CO3							
CO4							
CO5							
Level 3- Hig	ghly Mapped,	Level 2-Mo	derately Map	ped, Level	1-Low Mapped	, Level 0- N	ot Mapped

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Course Code	BCEDK203/203	CIE Marks	50
Teaching Hour/Week (L:T:P:S)	2:0:2:0	SEE Marks	50
Total Hours of Teaching - Learning	40	Total Marks	100
Credits	03	Exam Hours	03
CLO2: To use drawing as	rial views using CAD software development of surfaces neering components <b>ns):</b> powerful engineering communi- reselected by the teacher for har resentation, Charts, Videos, sh generally available actual object can be used. Similarly for other ng orthographic and pictorialv h sheets for manual / preparato <u>Module-1</u> S Conventions of Engineering r Aided Drafting software, Co ection of drawing sheet size re, rectangle, polygons, spling r, fillet and curves. <b>nes and Planes:</b> Orthographic projections of po in First quadrant only). angle, square, rectangle, pentag on method).	ication tool –Drawing. Inds on practice to induce the fe all be used to enhance visualize ets. (Example: For rectangular preshapes) iews. rysketching Drawing, Free hand sketching -ordinate system and reference and scale. Commands and create es, circles, ellipse, text, move bints in 1 <sup>st</sup> and 3 <sup>rd</sup> quadrants.	ation before prism / object; g of engineering planes HP, VP eation of Lines e, copy, off-set
	Module-2		
Orthographic Projection of Solids:	moune-2		
Orthographic projection of right regular rectangle, pentagon, hexagon), Cylinders,		P only): Prisms & Pyramids	(triangle, squar

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#### Module-3

#### **Isometric Projections:**

Isometric scale, Isometric projection of hexahedron (cube), right regular prisms, pyramids, cylinders, cones and spheres. Isometric projection of combination of two simple solids.

#### Conversion of simple isometric drawings into orthographic views.

Problems on applications of Isometric projections of simple objects / engineering components.

Introduction to drawing views using 3D environment (For CIE only).

#### Module-4

#### **Development of Lateral Surfaces of Solids:**

Development of lateral surfaces of right regular prisms, cylinders, pyramids and cones resting with base on HP only. Development of lateral surfaces of their frustums and truncations.

Problems on applications of development of lateral surfaces like funnels and trays.

Problems on applications of development of lateral surfaces of transition pieces connecting circular duct and rectangular duct (For CIE Only)

#### Module-5

#### Multidisciplinary Applications & Practice (For CIE Only):

**Free hand Sketching;** True free hand, Guided Free hand, Roads, Buildings, Utensils, Hand tools & Furniture's etc **Drawing Simple Mechanisms;** Bicycles, Tricycles, Gear trains, Ratchets, two-wheeler cart & Four-wheeler carts to dimensions etc

**Electric Wiring and lighting diagrams;** Like, Automatic fire alarm, Call bell system, UPS system, Basic power distribution system using suitable software

**Basic Building Drawing;** Like, Architectural floor plan, basic foundation drawing, steel structures- Frames, bridges, trusses using Auto CAD or suitable software,

**Electronics Engineering Drawings**- Like, Simple Electronics Circuit Drawings, practice on layers concept. **Graphs & Charts**: Like, Column chart, Pie chart, Line charts, Gantt charts, etc. using Microsoft Excel or any suitable software.

#### **Course Outcomes**

At the end of the course the student will be able to:

- CO 1. Drawand communicate the objects with definite shape and dimensions
- CO 2. Recognize and Draw the shape and size of objects through different views
- **CO 3.** Develop the lateral surfaces of the object
- CO 4. Create a Drawing views using CAD software.
- CO 5. Identify the interdisciplinary engineering components or systems through its graphical representation.

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# Assessment Details (both CIE and SEE):

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks) and that for SEE minimum passing marks is 35% of the maximum marks (18 marks). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination (SEE), and a minimum of 40% (40 marks out of 100) in the sum of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) takentogether.

#### **Continuous Internal Evaluation (CIE)**

- CIE shall be evaluated for max. marks of 100 and later the same shall be scaled-down to 50 marks as detailed below:
- CIE component should comprise of Continuous evaluation of Drawing work of students as and when the Modules are covered based onbelow detailed weightage.

Module	Max. Marks	Evaluation Weightage in marks				
	Weightage	Computer display and print out	Sketching			
		(a)	(b)			
Module 1	15	10	05			
Module 2	20	15	05			
Module 3	20	20	00			
Module 4	20	20	00			
Module 5	25	15	10			
Total	100	80	20			
Consideration of Class work		Total of [(a) + (b)] = 100 Scaled down to 30 Marks				

- At least one **Test** covering all the modules is to be conducted for 100 marks and evaluation to be based SEE pattern, and the same is to be scaled down to **20Marks**.
- The final CIE = Class work marks + Test marks

#### Semester End Examination (SEE)

- SEE shall be conducted and evaluated for maximum marks 100. Marks obtained shall be accounted for SEE final marks, reducing it by50%
- Question paper shall be set jointly by both Internal and External Examiner and made available for each batch as per schedule. *Questions are to be set preferably from TextBooks*.
- Related to Module-1: One full question can be set either from "points & lines" or "planes".
- Evaluation shall be carried jointly by both theexaminers.
- Scheme of Evaluation: *To be defined by the examiners jointly and the same shall be submitted to the university along with questionpaper.*
- One full question shall be set from each of the Module from Modules 1,2,3 and 4 as per the below tabled weightage details. *However, the student may be awarded full marks, if he/she completes solution on computer display withoutsketch.*

Module	Max. Marks	Evaluation Weightage in marks			
	Weightage	Computer display and print out	Preparatory sketching		
		(a)	(b)		
Module 1	20	15	05		
Module 2	30	25	05		
Module 3	25	20	05		
Module 4	25	20	05		
Total	100	80	20		
Consideration of SEE Marks		Total of (a) + (b) $\div$ 2 = Final SEE	marks		

#### Suggested Learning Resources:

#### **Text Books**

- S.N. Lal, & T Madhusudhan:, Engineering Visulisation, 1st Edition, Cengage, Publication
- Parthasarathy N. S., Vela Murali, Engineering Drawing, Oxford University Press, 2015.

#### **Reference Books**

- *Bhattacharya S. K.*, Electrical Engineering Drawing, New Age International publishers, second edition 1998, reprint2005.
- Chris Schroder, Printed Circuit Board Design using AutoCAD, Newnes, 1997.
- *K S Sai Ram* Design of steel structures, , Third Edition byPearson
- Nainan p kurian Design of foundation systems, Narosapublications
- A S Pabla, Electrical power distribution, 6th edition, Tata Mcgrawhill
- *Bhatt, N.D., Engineering Drawing: Plane and Solid Geometry*, 53<sup>rd</sup> edition, Charotar Publishing House Pvt. Limited, 2019.
- *K. R. Gopalakrishna, & Sudhir Gopalakrishna*: Textbook Of Computer Aided Engineering Drawing, 39<sup>th</sup>Edition, Subash Stores, Bangalore,2017

#### **COs and POs Mapping (**CO-PO mappings are only **Indicative)**

COs	POs											
	1	2	3	4	5	6	7	8	9	10	11	12
C01	3	2			3	1		1	1	3		2
CO2	3	2			3	1		1	1	3		2
CO3	3	2			3	1		1	1	3		2
CO4	3	3			3	1	1		1	3		1
CO5	3	2			3				1	3		2

Level 3- Highly Mapped, Level 2-Moderately Mapped, Level 1-Low Mapped, Level 0- Not Mapped

Course Title: INTROD	UCTION TO	MECHANICAL ENGINEERING		
Course Code:		BESCK104D/204D	CIE Marks	50
Course Type		Theory	SEE Marks	50
(Theory/Practical/Integra	ited )		Total Marks	100
Teaching Hours/Week (L:T:P: S)		2:2:0:0	Exam Hours	03
Total Hours of Pedagogy		40 hours	Credits	03

#### **Course Learning Objectives**

- To develop basic Knowledge on Mechanical Engineering, Fundamentals and Energy Sources.
- Understand the concept of different types of Machine tool operations and Modern Manufacturing Processes like CNC, 3D printing.
- To know the concept of IC engines and Future Mobility vehicles.
- To give exposure in the field of Engineering Materials and Manufacturing Processes Technology and its applications
- To acquire a basic understanding role of Mechanical Engineering in the Robotics and Automation in industry.

#### **Teaching-Learning Process**

- Adopt different types of teaching methods to develop the outcomes throughPowerPoint presentations and Video demonstrations or Simulations.
- Arrange visits to show the live working models other than laboratory topics.
- Adopt collaborative (Group Learning) Learning in the class.
- Adopt Problem Based Learning (PBL), which fosters students Analytical skills and develops thinking skills such as evaluating, generalizing, and analyzing information.

#### Module-1 (8 hours)

**Introduction:** Role of Mechanical Engineering in Industries and Society- Emerging Trends and Technologies in different sectors such as Energy, Manufacturing, Automotive, Aerospace, and Marine sectors.

**Energy**: Introduction and applications of Energy sources like Fossil fuels, Nuclear fuels, Hydel, Solar, wind, and bio-fuels, Environmental issues like Global warming and Ozone depletion

#### Module-2 (8 hours)

#### Machine Tool Operations:

Working Principle of lathe, Lathe operations: Turning, facing, knurling. Working principles of Drilling Machine, drilling operations: drilling, boring, reaming. Working of Milling Machine, Milling operations: plane milling and slot milling.

(No sketches of machine tools, sketches to be used only for explaining the operations).

**Introduction to Advanced Manufacturing Systems:** Introduction, components of CNC, advantages and applications of CNC, 3D printing.

#### Module-3 (8 hours)

**Introduction to IC Engines**: Components and Working Principles, 4-Strokes Petrol and Diesel Engines, Application of IC Engines.

**Insight into Future Mobility;** Electric and Hybrid Vehicles, Components of Electric and Hybrid Vehicles. Advantages and disadvantages of EVs and Hybrid vehicles.

#### Module-4 (8 hours)

**Engineering Materials**: Types and applications of Ferrous & Nonferrous Metals, silica, ceramics, glass, graphite, diamond and polymer. Shape Memory Alloys. **Joining Processes**: Soldering, Brazing and Welding, Definitions, classification of welding process, Arc welding, Gas welding and types of flames.

Module-5 (8 hours)

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**Introduction to Mechatronics and Robotics:** open-loop and closed-loop mechatronic systems. Classification based on robotics configuration: polar cylindrical, Cartesian coordinate and spherical. Application, Advantages and disadvantages.

Automation in industry: Definition, types – Fixed, programmable and flexible automation, basic elements with block diagrams, advantages.

**Introduction to IOT**: Definition and Characteristics, Physical design, protocols, Logical design of IoT, Functional blocks, and communication models.

Course (	Dutcome (Course Skill Set)
At the en	d of the course the student will be able to:
C01	Explain the concepts of Role of Mechanical Engineering and Energy sources.
CO2	Describe the Machine Tool Operations and advanced Manufacturing process.
CO3	Explain the Working Principle of IC engines and EV vehicles.
CO4	Discuss the Properties of Common Engineering Materials and various Metal Joining
	Processes.
CO5	Explain the Concepts of Mechatronics, Robotics and Automation in IoT

## Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination (SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### Continuous Internal Evaluation(CIE):

Three Tests each of 20 Marks;

• 1<sup>st</sup>, 2<sup>nd,</sup> and 3<sup>rd</sup> tests shall be conducted after completion of the syllabus of 30-35%,

70-75%, and 90-100% of the course/s respectively.

 Assignments/Seminar/quiz/group discussion /field survey & report presentation/ course project/Skill development activities, suitably planned to attain the COs and POs for a total of 40 Marks.

If the nature of the courses requires assignments/Seminars/Quizzes/group discussion two evaluation components shall be conducted. If course project/field survey/skill development activities etc then the evaluation method shall be one.

## Total CIE marks (out of 100 marks) shall be scaled down to 50 marks

#### Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English/Kannada). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

#### Suggested Learning Resources:

Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year) Text Books:

- 1. Elements of Mechanical Engineering, K R Gopala Krishna, Subhash Publications, 2008
- 2. An Introduction to Mechanical Engineering, Jonathan Wickert and Kemper Lewis, Third Edition, 2012

### **Reference Books:**

1. Elements of Workshop Technology (Vol. 1 and 2), Hazra Choudhry and Nirzar Roy, Media

Promoters and Publishers Pvt. Ltd., 2010.

- 2. Manufacturing Technology- Foundry, Forming and Welding, P.N.Rao Tata McGraw Hill 3rdEd., 2003.
- 3. Internal Combustion Engines, V. Ganesan, Tata McGraw Hill Education; 4th edition, 2017
- 4. Robotics, Appu Kuttan KK K. International Pvt Ltd, volume 1
- 5. Dr SRN Reddy, Rachit Thukral and Manasi Mishra, "Introduction to Internet of Things: A Practical Approach", ETI Labs
- 6. Raj kamal, "Internet of Things: Architecture and Design", McGraw hill.

## Web links and Video Lectures (e-Resources):

- <u>https://rakhoh.com/en/applications-and-advantages-of-steam-in-manufacturing- and-process-industry/</u>)
- Videos | Makino (For Machine Tool Operation)

### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- Demonstration of lathe/milling/drilling operations
- Demonstration of working of IC Engine.
- Study arc welding, oxy-acetylene gas flame structure.
- Video demonstration of latest trends in mobility robotics and Automation
- Demonstration of developing models on machine tools

COs		POs										
	1	2	3	4	5	6	7	8	9	10	11	12
CO1	3					1	2			1		1
CO2	3					1	1			1		1
CO3	3					1	1			1		1
<b>CO4</b>	3					1	1			1		1
CO5	3					1	1			1		1

## Theory - 01 Credit Course Indian Constitution

Course Title:	Indian Constitution		
Course Code:		CIE Marks	50
Course Type (Theory/Practical /Integrated)	BIGOK107-207	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy Course objectives :	15 hours	Credits	01
<ol> <li>To know about the basic structure of</li> <li>To know the Fundamental Rights (F</li> <li>To know about our Union Governm</li> <li>To know the State Executive &amp; Ele</li> <li>To learn the Amendments and Emer</li> </ol> <b>Teaching-Learning Process</b> These are sample Strategies, which teache make Teaching –Learning more effective: To process. The pedagogy shall involve the com <ol> <li>(i) Direct instructional method (Low/O</li> </ol>	R's), DPSP's and Fundam ent, political structure & co ctions system of India. gency Provisions, other im r can use to accelerate the Feachers shall adopt suitab bination of different metho	odes, procedures. nportant provisions given e attainment of the vario le pedagogy for effective odologies which suit mode	by the constitution. ous course outcomes and teaching - learning ern technological tools.
<ul> <li>(iii) Blended learning (Combination learning, (vi) Problems based learning</li> <li>(ii) Apart from conventional lecture met animation films may be adapted so t</li> </ul>	ng through discussion. hods, various types of inno	ovative teaching technique	es through videos,
practical skills.			
module-1	(03 hou	urs of pedagogy)	
<b>Module-1</b> Indian Constitution: Necessity of the Const Indian constitution, Making of the Constitution	titution, Societies before ar on, Role of the Constituent	ad after the Constitution a Assembly.	doption. Introduction to the
Module-1 Indian Constitution: Necessity of the Const Indian constitution, Making of the Constitution Module-2	titution, Societies before ar on, Role of the Constituent (03 ho	ad after the Constitution a Assembly.	-
Module-1 Indian Constitution: Necessity of the Const Indian constitution, Making of the Constitution Module-2 Salient features of India Constitution. Prear	titution, Societies before ar on, Role of the Constituent (03 ho nble of Indian Constitution	nd after the Constitution a Assembly. urs of pedagogy) on & Key concepts of th	-
Module-1 Indian Constitution: Necessity of the Const Indian constitution, Making of the Constitution	titution, Societies before ar on, Role of the Constituent <b>(03 ho</b> nble of Indian Constitution rations in different Comple	ad after the Constitution a Assembly. <b>urs of pedagogy)</b> on & Key concepts of th x Situations. building.	-
Module-1 Indian Constitution: Necessity of the Const Indian constitution, Making of the Constitution Module-2 Salient features of India Constitution. Prear Rights (FR's) and its Restriction and limit	titution, Societies before ar on, Role of the Constituent (03 hour mble of Indian Constitution rations in different Comple (03 hour SP's) and its present reliant	ad after the Constitution a Assembly. <b>urs of pedagogy)</b> on & Key concepts of th x Situations. building. <b>urs of pedagogy)</b> levance in Indian soc	e Preamble. Fundamenta
Module-1 Indian Constitution: Necessity of the Const Indian constitution, Making of the Constitution Module-2 Salient features of India Constitution. Prear Rights (FR's) and its Restriction and limit <u>Module-3</u> Directive Principles of State Policy (DPS and its Scope and significance in Nation, U Minister, Union Cabinet. Module-4	titution, Societies before ar on, Role of the Constituent <b>(03 hot</b> mble of Indian Constitution rations in different Comple <b>(03 hot</b> SP's) and its present relution Inion Executive : Parliame <b>(03 hot</b>	ad after the Constitution a Assembly. urs of pedagogy) on & Key concepts of th x Situations. building. urs of pedagogy) levance in Indian soc entary System, Union Exe urs of pedagogy)	e Preamble. Fundamenta eiety. Fundamental Duties ecutive – President, Prime
Module-1         Indian Constitution: Necessity of the Constitution         Indian constitution, Making of the Constitution         Module-2         Salient features of India Constitution. Prear         Rights (FR's) and its Restriction and limit         Module-3         Directive Principles of State Policy (DPS and its Scope and significance in Nation, U         Minister, Union Cabinet.         Module-4         Parliament - LS and RS, Parliamentary Content	titution, Societies before ar on, Role of the Constituent <b>(03 ho</b> mble of Indian Constitution rations in different Comple <b>(03 hou</b> SP's) and its present relution SP's) and its present relution for Executive : Parliame <b>(03 hou</b> ommittees, Important Parli	ad after the Constitution a Assembly. <b>urs of pedagogy)</b> on & Key concepts of th x Situations. building. <b>urs of pedagogy)</b> levance in Indian soc entary System, Union Exe <b>urs of pedagogy)</b> iamentary Terminologies.	e Preamble. Fundamenta eiety. Fundamental Duties ecutive – President, Prime
Module-1         Indian Constitution: Necessity of the Constitution         Indian constitution, Making of the Constitution         Module-2         Salient features of India Constitution. Prear         Rights (FR's) and its Restriction and limit         Module-3         Directive Principles of State Policy (DPS and its Scope and significance in Nation, U         Minister, Union Cabinet.         Module-4         Parliament - LS and RS, Parliamentary Content	titution, Societies before ar on, Role of the Constituent <b>(03 ho</b> mble of Indian Constitution rations in different Comple <b>(03 hou</b> SP's) and its present relution SP's) and its present relution funion Executive : Parliame <b>(03 hou</b> munittees, Important Parli dicial Reviews and Judicial	ad after the Constitution a Assembly. <b>urs of pedagogy)</b> on & Key concepts of th x Situations. building. <b>urs of pedagogy)</b> levance in Indian soc entary System, Union Exe <b>urs of pedagogy)</b> iamentary Terminologies.	e Preamble. Fundamenta eiety. Fundamental Duties ecutive – President, Prime
Module-1         Indian Constitution: Necessity of the Constitution         Indian constitution, Making of the Constitution         Module-2         Salient features of India Constitution. Prear         Rights (FR's) and its Restriction and limit         Module-3         Directive Principles of State Policy (DPS and its Scope and significance in Nation, U Minister, Union Cabinet.         Module-4         Parliament - LS and RS, Parliamentary Co         Supreme Court of India and other Courts, Juce	titution, Societies before ar on, Role of the Constituent <b>(03 hot</b> nble of Indian Constitution ations in different Comple <b>(03 hot</b> SP's) and its present rel Union Executive : Parliame <b>(03 hot</b> ommittees, Important Parli dicial Reviews and Judicial <b>(03 hot</b> Cabinet, Legislature - VS d	ad after the Constitution a Assembly. <b>urs of pedagogy)</b> on & Key concepts of th x Situations. building. <b>urs of pedagogy)</b> levance in Indian soce entary System, Union Exec <b>urs of pedagogy)</b> iamentary Terminologies. I Activism. <b>purs of pedagogy)</b> & VP, Election Commisse	e Preamble. Fundamenta eiety. Fundamental Duties ecutive – President, Prime Judicial System of India
Module-1         Indian Constitution: Necessity of the Constitution         Indian constitution, Making of the Constitution         Module-2         Salient features of India Constitution. Prear         Rights (FR's) and its Restriction and limit         Module-3         Directive Principles of State Policy (DPS and its Scope and significance in Nation, U Minister, Union Cabinet.         Module-4         Parliament - LS and RS, Parliamentary Co Supreme Court of India and other Courts, Juce Module-5         State Executive and Governer, CM, State C Process. Amendment to Constitution, and Im         Course outcome (Course Skill Set)         At the end of the course 22IC017/27 the st         C01       Analyse the basic structure of Ind         C02       Remember their Fundamental Rig	titution, Societies before ar on, Role of the Constituent <b>(03 hor</b> mble of Indian Constitution rations in different Comple <b>(03 hor</b> SP's) and its present relution SP's) and its present relution Executive : Parliame <b>(03 hor</b> mmittees, Important Parlia dicial Reviews and Judicial <b>(03 hor</b> cabinet, Legislature - VS a mportant Constitutional An extudent will be able to: ian Constitution. ghts, DPSP's and Fundame	nd after the Constitution a Assembly. urs of pedagogy) on & Key concepts of th x Situations. building. urs of pedagogy) levance in Indian soce entary System, Union Exec urs of pedagogy) famentary Terminologies. I Activism. purs of pedagogy) & VP, Election Commisses nendments till today. Emer ntal Duties (FD's) of our	e Preamble. Fundamenta eiety. Fundamental Duties cutive – President, Prime Judicial System of India sion, Elections & Electora ergency Provisions.
Module-1           Indian Constitution: Necessity of the Constitution           Indian constitution, Making of the Constitution           Module-2           Salient features of India Constitution. Prear           Rights (FR's) and its Restriction and limit           Module-3           Directive Principles of State Policy (DPS and its Scope and significance in Nation, U           Minister, Union Cabinet.           Module-4           Parliament - LS and RS, Parliamentary Co           Supreme Court of India and other Courts, Juce           Module-5           State Executive and Governer, CM, State C           Process. Amendment to Constitution, and In           Course outcome (Course Skill Set)           At the end of the course 22IC017/27 the st           C01         Analyse the basic structure of India	titution, Societies before ar on, Role of the Constituent <b>(03 hor</b> nble of Indian Constitution ations in different Comple <b>(03 hor</b> SP's) and its present relation SP's) and its present relation Union Executive : Parliame <b>(03 hor</b> <b>(03 hor</b> mmittees, Important Parlia dicial Reviews and Judicial <b>(03 hor</b> cabinet, Legislature - VS at aportant Constitutional An tudent will be able to: ian Constitution. thts, DPSP's and Fundame nt, political structure & con	and after the Constitution a Assembly. <b>urs of pedagogy)</b> on & Key concepts of th x Situations. building. <b>urs of pedagogy)</b> levance in Indian soce entary System, Union Exce <b>urs of pedagogy)</b> famentary Terminologies. I Activism. <b>purs of pedagogy)</b> & VP, Election Commisses nendments till today. Emce ntal Duties (FD's) of our des, procedures.	e Preamble. Fundamenta eiety. Fundamental Duties cutive – President, Prime Judicial System of India sion, Elections & Electora ergency Provisions.

#### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### Continuous Internal Evaluation(CIE):

#### Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration

#### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others.. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks

#### Semester End Examinations (SEE)

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

#### **Suggested Learning Resources:**

#### **Textbook:**

- 1. "Constitution of India" (for Competitive Exams) Published by Naidhruva Edutech Learning Solutions, Bengaluru. 2022.
- 2. "Introduction to the Constitution of India", (Students Edition.) by Durga Das Basu (DD Basu): Prentice –Hall, 2008.

#### **Reference Books:**

- 1. "Constitution of India, Professional Ethics and Human Rights" by Shubham Singles, Charles E. Haries, and et al: published by Cengage Learning India, Latest Edition 2019.
- 2. **"The Constitution of India"** by Merunandan K B: published by Merugu Publication, Second Edition, Bengaluru.
- 3. "Samvidhana Odu" for Students & Youths by Justice HN Nagamohan Dhas, Sahayana, kerekon.
- 4. M.Govindarajan, S.Natarajan, V.S.Senthilkumar, "Engineering Ethics", Prentice Hall, 2004.

#### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- $\checkmark$  For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions
- ✓ Seminars and assignments

Course Title:	Introduction to C++ Programming			
Course Code:		BPLCK105D/BPLCK205D	CIE Marks	50
Course Type (Theory	/Practical	Integrated	SEE Marks	50
/Integrated )			Total Marks	100
Teaching Hours/Wee	ek (L:T:P: S)	2:0:2	Exam Hours	03
Total Hours of Pedag	ogy	40 hours	Credits	03

#### **Course objectives**

- Understanding about object oriented programming and Gain knowledge about the capability to store information together in an object.
- Understand the capability of a class to rely upon another class and functions.
- Understand about constructors which are special type of functions.
- Create and process data in files using file I/O functions
- Use the generic programming features of C++ including Exception handling

#### **Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective

- 1. Chalk and talk
- 2. Onine demonstration
- **3.** Hands on problem solving

#### Module-1 (8 hours)

Introduction to Object Oriented Programming: Computer programming background- C++ overview. First C++ Program -Basic C++ syntax, Object Oriented Programming: What is an object, Classes, methods and messages, abstraction and encapsulation, inheritance, abstract classes, polymorphism.

#### **Textbook 1: Chapter 1(1.1 to 1.8)**

Module-2 (8 hours)

Functions in C++: Tokens – Keywords – Identifiers and constants – Operators in C++ – Scope resolution operator – Expressions and their types – Special assignment expressions – Function prototyping – Call by reference – Return by reference – Inline functions -Default arguments – Function overloading.

#### Textbook 2: Chapter 3(3.2,3.3,3.4,3.13,3.14,3.19, 3.20) , chapter 4(4.3,4.4,4.5,4.6,4.7,4.9) Module-3 (8 hours)

Inheritance & Polymorphism: Derived class Constructors, destructors-Types of Inheritance-Defining Derived classes, Single Inheritance, Multiple, Hierarchical Inheritance, Hybrid Inheritance.

#### Textbook 2: Chapter 6 (6.2,6.11) chapter 8 (8.1 to,8.8)

Module-4 (8 hours)

I/O Streams: C++ Class Hierarchy- File Stream-Text File Handling- Binary File Handling during file operations.

Textbook 1: Chapter 12(12.5), Chapter 13 (13.6,13.7)

#### Module-5 (8 hours)

Exception Handling: Introduction to Exception - Benefits of Exception handling- Try and catch blockThrow statement- Pre-defined exceptions in C++

## Textbook 2: Chapter 13 (13.2 to13.6)

Cours	o outcomo	(Course Skill Set)
Cours	e outcome	(Course Skill Set)
At the	end of the o	course the student will be able to:
	C01	Able to understand and design the solution to a problem using object-oriented
		programming concepts.
	CO2	
		Able to reuse the code with extensible Class types, User-defined operators and
		function Overloading.
	CO3	
		Achieve code reusability and extensibility by means of Inheritance and
		Polymorphism
	CO4	
		Implement the features of C++ including templates, exceptions and file handling for
		providing programmed solutions to complex problems.

Programming Assignments:

1. Write a C++ program to sort the elements in ascending and descending order.

2. Write a C++ program to find the sum of all the natural numbers from 1 to n.

3. Write a C++ program to swap 2 values by writing a function that uses call by reference technique.

4. Write a C++ program to demonstrate function overloading for the following prototypes.

*add(int a, int b) add(double a, double b)* 

5. Create a class named Shape with a function that prints "This is a shape". Create another class named Polygon inheriting the Shape class with the same function that prints "Polygon is a shape". Create two other classes named Rectangle and Triangle having the same function which prints "Rectangle is a polygon" and "Triangle is a polygon" respectively. Again, make another class named Square having the same function which prints "Square is a rectangle".Now, try calling the function by the object of each of these classes.

6.Suppose we have three classes Vehicle, FourWheeler, and Car. The class Vehicle is the base class, the class FourWheeler is derived from it and the class Car is derived from the class FourWheeler. Class Vehicle has a method 'vehicle' that prints 'I am a vehicle', class FourWheeler has a method 'fourWheeler' that prints 'I have four wheels', and class Car has a method 'car' that prints 'I am a car'. So, as this is a multi-level inheritance; we can have access to all the other classes methods from the object of the class Car. We invoke all the methods from a Car object and print the corresponding outputs of the methods.

So, if we invoke the methods in this order, car(), fourWheeler(), and vehicle(), then the output will be

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I am a car

I have four wheels

I am a vehicle

Write a C++ program to demonstrate multilevel inheritance using this.

7. Write a C++ program to create a text file, check file created or not, if created it will write some text into the file and then read the text from the file.

8.Write aC++ program to write and read time in/from binary file using fstream

9. Write a function which throws a division by zero exception and catch it in catch block. Write a C++ program to demonstrate usage of try, catch and throw to handle exception.

10. Write a C++ program function which handles array of bounds exception using C++.

#### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

### **Continuous Internal Evaluation(CIE):**

The CIE marks for the theory component of the IC shall be **30 marks** and for the laboratory component **20 Marks**.

## CIE for the theory component of the IC

- Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.
- Two Assignments/two quizzes/ seminars/one field survey and report presentation/onecourse project totaling20 marks.

Total Marks scored (test + assignments) out of 80 shall be scaled down to 30 marks

## CIE for the practical component of the IC

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted at the end of the semester.
- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.

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• The laboratory test **(duration 03 hours)** at the end of the 15<sup>th</sup> week of the semester /after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to **05 marks**.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

• The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

#### Semester End Examination (SEE): SEE for IC

Theory SEE will be conducted by University as per the scheduled time table, with common question papers for the course (duration 03 hours)

- 1. The question paper will have ten questions. Each question is set for 20 marks.
- 2. There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.
- 3. The students have to answer 5 full questions, selecting one full question from each module.

The theory portion of the Integrated Course shall be for both CIE and SEE, whereas the practical

#### portion will have a CIE component only. Questions mentioned in the SEE paper shall include

#### questions from the practical component).

#### Passing standard:

- The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks-30) in the theory component and 08 (40% of maximum marks -20) in the practical component. The laboratory component of the IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 04/05 questions to be set from the practical component of IPCC, the total marks of all questions should not be more than 30 marks.
- SEE will be conducted for 100 marks and students shall secure 35% of the maximum marks to qualify for the SEE. Marks secured will be scaled down to 50.

#### Suggested Learning Resources:

**Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year)** Textbooks

1. Bhushan Trivedi, "Programming with ANSI C++", Oxford Press, Second Edition, 2012.

2. Balagurusamy E, Object Oriented Programming with C++, Tata McGraw Hill Education Pvt.Ltd , Fourth Edition 2010.

Web links and Video Lectures (e-Resources):

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Weblinks and Video Lectures (e-Resources):

- 1. Basics of C++ https://www.youtube.com/watch?v=BClS40yzssA
- 2. Functions of C++ <u>https://www.youtube.com/watch?v=p8ehAjZWjPw</u>

Tutorial Link:

- 1. https://www.w3schools.com/cpp/cpp\_intro.asp
- 2. https://www.edx.org/course/introduction-to-c-3

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

• Assign small tasks to Develop and demonstrate using C++

COs	POs						
	1	2	3	4	5	6	7
CO1							
CO2							
CO3							
CO4							

26.10.2022

#### **Theory - 01 Credit Course** Scientific Foundations of Health

Course Title:	Scientific Foundation	is of Health	
Course Code:	BSFHK158/258	CIE Marks	50
Course Type (Theory / Drestical / Interneted)	Theory	SEE Marks	50
Course Type (Theory/Practical /Integrated)		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01
The course Scientific Foundations of Healt	· · · · ·		
1. To know about Health and wellness	(and its Beliefs) & It's bal	lance for positive mind	set.
2. To Build the healthy lifestyles for go	ood health for their better f	uture.	
3. To Create a Healthy and caring relat	ionships to meet the requir	ements of good/social/	positive life.
4. To learn about Avoiding risks and h	armful habits in their camp	ous and outside the carr	pus for their bright future
5 To Prevent and fight against harmful	l diseases for good health t	hrough positive minds	ef

#### To Prevent and fight against harmful diseases for good health through positive mindset

#### **Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective:

Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

(i) Direct instructional method (Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools),

(iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion, (vii) Following the method of expeditionary

learning Tools and techniques, (viii) Use of audio visual methods.

Apart from conventional lecture methods, various types of innovative teaching may be adapted so that the delivered lesson can progress the students In theory	
Module-1	(03 hours of pedagogy)
Good Health & It's balance for positive mindset: Health -Importa	nce of Health, Influencing factors of Health,
Health beliefs, Advantages of good health, Health & Behavior, Health & So	ciety, Health & family, Health & Personality,
Psychological disorders-Methods to improve good psychological health, Char	nging health habits for good health.
Module-2	(03 hours of pedagogy)
Building of healthy lifestyles for better future: Developing healthy di	et for good health, Food & health, Nutritional
guidelines for good health, Obesity & overweight disorders and its managem	ent, Eating disorders, Fitness components for
health Wellness and physical function How to avoid exercise injuries Module-3	(03 hours of pedagogy)
Creation of Healthy and caring relationships : Building communicat	on skills, Friends and friendship - Education,
the value of relationship and communication skills, Relationships for Better	or worsening of life, understanding of basic
instincts of life (more than a biology), Changing health behaviours through se	ocial engineering.
Module-4	(03 hours of pedagogy)
Avoiding risks and harmful habits : Characteristics of health compron	nising behaviors, Recognizing and avoiding of
addictions, How addiction develops, Types of addictions, influencing factor	s of addictions, Differences between addictive
people and non addictive people & their behaviors. Effects of addictions Such	as, how to recovery from addictions.
Module-5	(03 hours of pedagogy)
Preventing & fighting against diseases for good health: How to pro	tect from different types of infections, How to
reduce risks for good health, Reducing risks & coping with chronic conditio	ns, Management of chronic illness for Quality

of life, Health & Wellness of youth :a challenge for upcoming future, Measuring of health & wealth status.

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#### Course outcome (Course Skill Set) :

At the en	nd of the course Scientific Foundations of Health (22SFH18/28) the student will be able to:
C01	To understand and analyse about Health and wellness (and its Beliefs) & It's balance for positive mindset.
C02	Develop the healthy lifestyles for good health for their better future.
CO3	Build a Healthy and caring relationships to meet the requirements of good/social/positive life.
C04	To learn about Avoiding risks and harmful habits in their campus and outside the campus for their bright future.
C05	Prevent and fight against harmful diseases for good health through positive mindset.

#### Assessment Details (both CIE and SEE) :

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### Continuous Internal Evaluation(CIE) :

#### Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration.

#### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others.. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

#### The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks

#### **Semester End Examinations (SEE)**

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

#### Suggested Learning Resources:

#### **Textbook:**

- 1. "Scientific Foundations of Health" Study Material Prepared by Dr. L Thimmesha, Published in VTU University Website.
- 2. "Scientific Foundations of Health", (ISBN-978-81-955465-6-5) published by Infinite Learning Solutions, Bangalore 2022.
- 3. **Health Psychology A Textbook,** FOURTH EDITION by Jane Ogden McGraw Hill Education (India) Private Limited Open University Press.

#### **Reference Books:**

- 1. Health Psychology (Second edition) by Charles Abraham, Mark Conner, Fiona Jones and Daryl O'Connor Published by Routledge 711 Third Avenue, New York, NY 10017.
- 2. **HEALTH PSYCHOLOGY (Ninth Edition)** by SHELLEY E. TAYLOR University of California, Los Angeles, McGraw Hill Education (India) Private Limited Open University Press.
- 3. SWAYAM / NPTL/ MOOCS/ We blinks/ Internet sources/ YouTube videos and other materials / notes.
- **4. Scientific Foundations of Health (Health & Welness) General Books** published for university and colleges references by popular authors and published by the reputed publisher.

#### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- ✓ For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions, Seminars and assignments

## Theory - 01 Credit Course Professional Writing Skills in English

Course Title:	Professional Writing S	kills in English	
Course Code:	BPWSK206-106	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01
<ul> <li>Course objectives:</li> <li>The course Professional Writing Skills in Eng</li> <li>1. To Identify the Common Errors in W</li> <li>2. To Achieve better Technical writing</li> <li>3. To read Technical proposals properl</li> <li>4. To Acquire Employment and Workp</li> <li>5. To learn about Techniques of Inform</li> </ul> Teaching-Learning Process These are sample Strategies, which teacher can Teaching -Learning more effective: Teachers shall involve the combination of different methodor requirements of the Global employment market. <ul> <li>(i) Direct instructional method (Low/Old Telearning (Combination of both), (iv) Enquiry</li> <li>(v) Personalized learning, (vi) Problems base</li> <li>Tools and techniques, (viii) Use of audio vist</li> </ul> Apart from conventional lecture methods, various adapted so that the delivered lesson can progress the skills in general.	Vriting and Speaking of Eng and Presentation skills for e y and make them to write go place communication skills. nation Transfer through press use to accelerate the attainm all adopt suitable pedagogy for plogies which suit modern techn chnology), (ii) Flipped classroo y and evaluation based learning ed learning through discussion, ual methods through language I types of innovative teaching te he students In theoretical applied	lish. employment. bod technical reports. entation in different le ent of the various cours effective teaching - learn hological tools and softw oms (High/advanced Tect , (vii) Following the meth Labs in teaching of of LS chniques through videos, ed and practical skills in t	se outcomes and make ning process. The pedagogy are's to meet the present hnological tools), (iii) Blended od of expeditionary learning BRW skills. , animation films may be seaching of communicative
Language Lab: To augment LSRW, gramm Grammar, Vocabulary) through tests, activitie can be referred as per the AICTE / VTU guid Module-1	es, exercises etc., comprehen elines.		
Identifying Common Errors in Writing			cation in parts of speech
Use of verbs and phrasal verbs, Auxiliary ver in Subject-verb agreement, Sequence of Tens	bs and their forms, Subject	Verb Agreement (Con	cord Rules), Common errors
Module-2	(03 hou	rs of pedagogy)	
		1 0 00 0	
Nature and Style of sensible writing: OrConclusion, Importance of Proper Punctuatiand Corrections activities. Misplaced modifieModule-3Technical Reading and Writing PraceSignificance of Reports, Types of Reports.Characteristics of Technical Proposals. Scient& Sentence Improvement, Cloze Test and Th	on, Precise writing and Terrs, Contractions, Collocations, (03 hou etices: Technical writing p Introduction to Technical atific Writing Process. Gran	ragraphs in Document chniques in Essay wri Word Order, Errors due rs of pedagogy) rocess, Introduction t Proposals Writing, T	ting, Sentence arrangements to the Confusion of words. o Technical Reports writing ypes of Technical Proposals.
Conclusion, Importance of Proper Punctuati and Corrections activities. Misplaced modifie Module-3 Technical Reading and Writing Prace Significance of Reports, Types of Reports. Characteristics of Technical Proposals. Scient	on, Precise writing and Terrs, Contractions, Collocations, (03 hour ctices: Technical writing p Introduction to Technical atific Writing Process. Gram eme Detection Exercises.	ragraphs in Document chniques in Essay wri Word Order, Errors due rs of pedagogy) rocess, Introduction t Proposals Writing, T	iting, Sentence arrangements to the Confusion of words. o Technical Reports writing ypes of Technical Proposals
Conclusion, Importance of Proper Punctuati and Corrections activities. Misplaced modifie Module-3 Technical Reading and Writing Prace Significance of Reports, Types of Reports. Characteristics of Technical Proposals. Scient & Sentence Improvement, Cloze Test and Th Module-4 Professional Communication for Employ Improving Listening Skills. Reading Co official/employment/business Letters, Resum Blog Writing and Memos.	on, Precise writing and Terrs, Contractions, Collocations, (03 hourestices: Technical writing pointroduction to Technical attific Writing Process. Grameme Detection Exercises. (03 hourestices) (03 hourestices) (04 hourestices) (05 hourestices)	ragraphs in Document chniques in Essay writ Word Order, Errors due <b>rs of pedagogy)</b> rocess, Introduction t Proposals Writing, T mar – Voices and Re <b>rs of pedagogy)</b> nension, Types of Lit effective reading. Jo Writing effective resu	iting, Sentence arrangements to the Confusion of words. o Technical Reports writing ypes of Technical Proposals ported Speech, Spotting Error istening, Listening Barriers, b Applications, Types of
Conclusion, Importance of Proper Punctuati and Corrections activities. Misplaced modifie Module-3 Technical Reading and Writing Prace Significance of Reports, Types of Reports. Characteristics of Technical Proposals. Scient & Sentence Improvement, Cloze Test and Th Module-4 Professional Communication for Employ Improving Listening Skills. Reading Con official/employment/business Letters, Resum	on, Precise writing and Terrs, Contractions, Collocations, (03 hourestices: Technical writing pointroduction to Technical attific Writing Process. Grameme Detection Exercises. (03 hourestices) (03 hourestices) (03 hourestices) (03 hourestices)	ragraphs in Document chniques in Essay write Word Order, Errors due (ITS of pedagogy) rocess, Introduction to Proposals Writing, To mar – Voices and Re (ITS of pedagogy) nension, Types of Lite effective reading. Jo Writing effective result (ITS of pedagogy)	iting, Sentence arrangements to the Confusion of words. o Technical Reports writing ypes of Technical Proposals ported Speech, Spotting Error istening, Listening Barriers, b Applications, Types of ume for employment, Emails,

## 26.10.2022

#### Course outcome (Course Skill Set)

At the end	d of the course the student will be able to:
C01	To understand and identify the Common Errors in Writing and Speaking.
CO2	To Achieve better Technical writing and Presentation skills.
CO3	To read Technical proposals properly and make them to Write good technical reports.
CO4	Acquire Employment and Workplace communication skills.
CO5	To learn about Techniques of Information Transfer through presentation in different level.

#### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### **Continuous Internal Evaluation(CIE):**

#### Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration

#### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (To have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

#### The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks

#### **Semester End Examinations (SEE)**

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

#### **Suggested Learning Resources:**

#### Textbook:

- 1) "Professional Writing Skills in English" published by Fillip Learning Education (ILS), Bangalore 2022.
- 2) **"Functional English"** (As per AICTE 2018 Model Curriculum) (ISBN-978-93-5350-047-4) Cengage learning India Pvt Limited [Latest Edition 2019].

#### **Reference Books:**

- 1) English for Engineers by N.P.Sudharshana and C.Savitha, Cambridge University Press 2018.
- 2) Technical Communication by Gajendra Singh Chauhan and Et al, (ISBN-978-93-5350-050-4), Cengage learning India Pvt Limited [Latest Revised Edition] 2019.
- 3) Technical Communication Principles and Practice, Third Edition by Meenakshi Raman and Sangeetha Sharma, Oxford University Press 2017.
- 4) High School English Grammar & Composition by Wren and Martin, S Chandh & Company Ltd 2015.
- 5) Effective Technical Communication Second Edition by M Ashraf Rizvi, McGraw Hill Education (India) Private

#### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- ✓ For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions, Seminars and assignments

Sem	ester(Mecha	nical Engineer	ing Stream)	academic year 20 (For the students	who att	end th	e 1st sen	nester	under P	hysics G	roup)		
		8			4 2		ching s/Week		Examination				
SI. No	Course and Course Code		Course Title		Concerting Tutorial Tutoria Tutoria Tutorial Tutorial Tutorial Tutorial Tut		VOS	Duration in hours	CIE Marks	SEE Marks	Total Marks	Constant.	
3.5.		ni Teastanasso		ne le	L	T	P	S	2 0400.00				- 33
1	*ASC(IC)	BMATM201	Mathematics-II for Mechanical Engg Stream	Maths	2	2	2	0	03	50	50	100	(
2	#ASC(IC)	BCHEM202	Applied Chemistry for ME Stream	Chemistry	2	2	2	0	03	50	50	100	- 30
3	ESC	BCEDK203 Computer-Aided Engineering Drawing		Civil/Mech Engg dept	2	0	2	0	03	50	50	100	(
4	ESC-II	BESCK204x	Engineering Science Course-II	Respective Engg Dept	3	0	0	0	03	50	50	100	1
PLC-II		BETCK205x	Programming Language Course-II		3	0	0	0	03	· · · · ·			
5		12 E	OR	Any Dept			0.			50	50	100	03
ETC-II BETCK205x		BETCK205x	Emerging Technology Course-II		3	0	0	0	03	8			
		BPWSK206	Professional Writing Skills in English		~		¢		01	50	50	100	01
6	AEC	8	OR	Humanities	1	0	0	0					
		BENGK206 Communicative English		12									
-	8	BICOK207	Indian Constitution	35	6	26		26	¢	6	8	100	
7	HSMS		OR	Humanities	1	0	0	0	01	50	50		ā
		BKSKK207 BKBKK207	Samskrutika Kannada/ Balake Kannada			- FR		45.0 ()	south a	0,910			
		BSFHK258	Scientific Foundations for Health	Anu	1	0	0	0	01				
8	AEC/SEC	OR		Any Dept	5	-	2			50	50	100	- 19
~	-enclosedrebiciti	BIDTK258	Innovation and Design Thinking	Debr	1	0	0	0	01				_
0	AEC/SEC	BIDTK258	2	Dept TOTAL	1	0	0	0	01	400	5	00	

	(ESC-II) Engineering Science Courses-II				(ETC-II) Emerging Technology Courses-II						
Code	Title	L	Т	P	Code	Title	L	Т	P		
BESCK204A	Introduction to Civil Engineering	3	0	0	BETCK205A	Smart materials and Systems	3	0	(		
BESCK204B	Introduction to Electrical Engineering	3	0	0	BETCK205B	Green Buildings	3	0	0		
BESCK204C	Introduction to Electronics Communication	3	0	0	BETCK205C	Introduction to Nano Technology	3	0	0		
BESCK204D	Introduction to Mechanical Engineering	3	0	0	BETCK205D	Introduction to Sustainable Engineering	3	0	0		
BESCK204E	Introduction to C Programming	2	0	2	BETCK205E	Renewable Energy Sources	3	0	0		
					BETCK205F	Waste Management	3	0	(		
		87.3		8-0	BETCK205G	Emerging Applications of Biosensors	3	0	(		
		26 - 31		5-3	BETCK205H	Introduction to Internet of Things(IoT)	3	0	(		
		35.8		8-8	BETCK2051	Introduction to Cyber Security	3	0	(		
(PLC-II) Prop	gramming Language Courses-II	-80 -8	_	a s	BETCK205J	Introduction to Embedded System	3	0	(		
Code	Title	L	Т	P			-	x-2			
BPLCK205A	Introduction to Web Programming	2	0	2		·			Г		
BPLCK205B	Introduction to Python Programming	2	0	2			8	8-8	t		
BPLCK205C	Basics of JAVA programming	2	0	2				89			
BPLCK205D	Introduction to C++ Programming	2	0	2	_				T		
The course	BESCK205E, Introduction to C Programm	ing,	and	all	courses unde	er PLC and ETC groups can be taught by fact	ulty o	of A	N		

The students must select one course from either ETC-II or PLC-II group. ٠

If students study the subject from ETC-I in 1<sup>st</sup> semester he/she has to select the course from PLC-II in the 2<sup>nd</sup> semester and vice-versa

Course Introduction to Ele	ectronics & Communication		
Title:			
Course Code:	BESCK104C/204C	CIE Marks	50
Course Type	Theory	SEE Marks	50
(Theory/Practical/Integrated)		Total Marks	100
Teaching Hours/Week (L:T:P: S)	3:0:0:0	Exam Hours	03
Total Hours of Pedagogy	40 hours	Credits	03

## **Course objectives**

1. To prepare students with fundamental knowledge/ overview in the field of Electronics and Communication Engineering.

2. To equip students with a basic foundation in electronic engineeringrequired for comprehending the operation and application of electronic ircuits, logic design, embedded systems, and communication systems.

3.Professionalism & Learning Environment: To inculcate in first-year engineering students an ethical and professional attitude by providing an academic environment inclusive of effective communication, teamwork, ability to relate engineering issues to a broader social context, and life-long learning needed for a successful professional career.

## **Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective

1. Lecturer method (L) does not mean only the traditional lecture method, but a different type of teaching method may be adopted to develop the outcomes.

2.Arrange visits to nearby PSUs such as BHEL, BEL, ISRO, etc., and small-scale hardware Industries to give brief information about the electronics manufacturing industry.

- 3. Show Video/animation films to explain the functioning of various analog and digital circuits.
- 4. Encourage collaborative (Group) Learning in the class

5. Ask at least three HOTS (Higher-order Thinking) questions in the class, which promotes criticalthinking

6. Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develop thinking skills such as the ability to evaluate, generalize, and analyze information rather than simply recall it.

7. Topics will be introduced in multiple representations.

8. Show the different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.

9. Discuss how every concept can be applied to the real world - and when that's possible, it helpsimprove the students' understanding.

Module-1 (8 hours)

**Power Supplies** –Block diagram, Half-wave rectifier, Full-waverectifiers and filters, Voltage regulators, Output resistanceand voltage regulation, Voltage multipliers.

**Amplifiers** – Types of amplifiers, Gain, Input and output resistance, Frequency response, Bandwidth, Phase shift, Negativefeedback, multi-stage amplifiers (Text 1)

#### Module-2(8 hours )

16-2-2023

**Oscillators** – Barkhausen criterion, sinusoidal and non-sinusoidal oscillators, Ladder network oscillator, Wein bridge oscillator, Multivibrators, Single-stage astable oscillator, Crystal controlled oscillators (Only Concepts, working, and waveforms. No mathematical derivations)

**Operational amplifiers -**Operational amplifier parameters, Operational amplifier characteristics, Operational amplifier configurations, Operational amplifier circuits.

Text 1)

#### Module-3 (8 hours)

**Boolean Algebra and Logic Circuits:** Binary numbers, Number Base Conversion, octal & Hexa Decimal Numbers, Complements, Basic definitions, Axiomatic Definition of Boolean Algebra, Basic Theorems and Properties of Boolean Algebra, Boolean Functions, Canonical and Standard Forms, Other Logic Operations, Digital Logic Gates (Text 2: 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7) **Combinational logic**: Introduction, Design procedure, Adders- Half adder, Full adder (Text 2:4.1, 4.2, 4.3)

### Module-4 (8 hours)

**Embedded Systems** – Definition, Embedded systems vs general computing systems, Classification of Embedded Systems, Major application areas of Embedded Systems, Elements of an Embedded System, Core of the Embedded System, Microprocessor vs Microcontroller, RISC vs CISC **Sensors and Interfacing** – Instrumentation and control systems, Transducers, Sensors, Actuators, LED, 7-Segment LED Display. (Text 3)

Module-5 (8 hours)

**Analog Communication Schemes** – Modern communication system scheme, Information source, and input transducer, Transmitter, Channel or Medium – Hardwired and Soft wired, Noise, Receiver, Multiplexing, Types of communication systems.Types of modulation (only concepts) – AM, FM, Concept of Radio wave propagation (Ground, space, sky)

**Digital Modulation Schemes**: Advantages of digital communication over analog communication, ASK, FSK, PSK, Radio signal transmission Multiple access techniques. (Text 4)

## Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination (SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

**Continuous Internal Evaluation (CIE):** 

Three Tests each of 20 Marks;

- 1<sup>st</sup>, 2<sup>nd,</sup> and 3<sup>rd</sup> tests shall be conducted after completion of the syllabus of 30-35%, 70-75%, and 90-100% of the course/s respectively.
- Assignments/Seminar/quiz/group discussion /field survey & report presentation/ course project/Skill development activities, suitably planned to attain the COs and POs for a total of 40 Marks.

If the nature of the courses requires assignments/Seminars/Quizzes/group discussion two evaluation components shall be conducted. If course project/field survey/skill development activities etc then the evaluation method shall be one.

Total CIE marks (out of 100 marks) shall be scaled down to 50 marks

## Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

•

Suggested Learning Resources:

Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year) 1.Mike Tooley, 'Electronic Circuits, Fundamentals & Applications',4thEdition, Elsevier, 2015. DOI https://doi.org/10.4324/9781315737980. eBook ISBN9781315737980

2. Digital Logic and Computer Design, M. Morris Mano, PHI Learning, 2008 ISBN-978-81-203-0417-84.

3. K V Shibu, 'Introduction to Embedded Systems', 2nd Edition, McGraw Hill Education (India), Private Limited, 2016

4. S L Kakani and Priyanka Punglia, 'Communication Systems', New Age International Publisher, 2017.

## Mechanical Engineering and Allied branches(Chemistry group)

CourseTitle:	Applied Chemistry for Mechanical Engineering stream					
CourseCode:	BCHEM202/202	CIEMarks	50			
Course		SEEMarks	50			
Course Type(Theory/Practical/Integrated)	Integrated	Total Marks	100			
TeachingHours/Week(L:T:P:S) <sup>1</sup>	2:2:2:0	Exam Hours	03			
TotalHoursofPedagogy	40hoursTheory+1 0to12Labslots	Credits	04			

## Courseobjectives

• Toenablestudentstoacquireknowledgeonprinciplesofchemistryforengineeringapplicat ions.

- Todevelopanintuitiveunderstandingofchemistrybyemphasizingtherelatedbranchesofe ngineering.
- Toprovidestudentswithasolidfoundationinanalyticalreasoningrequiredtosolvesocietal problems.

## Teaching-LearningProcess

 $These are samples trategies, which teacher can use to accelerate the attainment of the various cours eout comes and make {\tt Teaching-Learning} more effective$ 

- Tutorial&remedialclassesforneedystudents(notregularT/R)
- ConductingMakeupclasses/Bridgecoursesforneedystudents
- $\bullet \ \ Demonstration of concept seither by building models or by industry visit$
- Experimentsinlaboratoriesshallbeexecutedinblendedmode(conventionalornon-conventionalmethods)
- UseofICT–Onlinevideos,onlinecourses
- Useofonlineplatformsforassignments/Notes/Quizzes(Ex.Googleclassroom)

## Module-1:Energy;Source,ConversionandStorage(8hr)

**Fuels:**Introduction,calorificvalue,determinationofcalorificvalueusingbombcalorimeter, numericalproblemsonGCVandNCV.

 ${\it Green fuels:} Introduction, power alcohol, synthesis and applications of biodiesel.$ 

High energy fuels: Production of hydrogen by electrolysis of water and its

advantages. **Energy devices:** Introduction, construction, working, and applications of Photovoltaic cells, Li-ionbatteryandmethanol-oxygen fuelcell.

**Self-learning:**Plasticrecyclingtofuelsandits monomersorotherusefulproducts.

## Module-2:CorrosionScienceandEngineering(8hr)

**Corrosion:**Introduction,electrochemicaltheoryofcorrosion,typesofcorrosion-differential metal, differential aeration (waterline and pitting),stress corrosion (causticembrittlement). **Corrosioncontrol:**Metalcoating-galvanization,surfaceconversioncoating-anodizationand cathodic protection-sacrificial anode method. Corrosion testing by weight loss method.Corrosionpenetrationrate (CPR)-numericalproblems.

 ${\it Metalfinishing:} Introduction, technological importance. Electroplating: Introduction, technological importance. The second  

<sup>1.</sup> NOTE: Where verthe contact hours are not sufficient, tutorial hours can be converted to the ory hours.

Electroplatingofchromium(hardanddecorative).Electrolessplating:Introduction,electrolesspl atingofnickel.

**Self-learning:**Factorsaffectingtherateofcorrosion,**f**actorsinfluencingthenatureand qualityofelectrodeposit(Currentdensity, concentrationofmetalion,pHandtemperature).

## Module-3:MacromoleculesforEngineeringApplications(8hr)

Polymers:Introduction,methodsofpolymerization(CondensationandFreeradical),molecularweight;numberaverageandweight

average, numerical problems. Synthesis, properties and industrial applications of polyvinyl chloride (PVC) and polystyrene.

 ${\it Fibers:} Introduction, synthesis, properties and industrial applications of Kevlar and Polyester.$ 

**Plastics:**Introduction,synthesis,propertiesandindustrialapplicationsofpoly(methylmethacr ylate)(PMMA)andTeflon.

**Composites:**Introduction,propertiesandindustrialapplicationsofcarbon-basedreinforced composites (graphene/carbon nano-tubes as fillers) and metal matrix polymercomposites. **Lubricants**:Introduction,classification,propertiesandapplicationsoflubricants.

**Self-learning:** Biodegradable polymer: Introduction, synthesis, properties and applicationsofpolylacticacid(PLA).

## Module-4:PhaseRuleandAnalyticalTechniques(8hr)

**Phase rule:** Introduction, Definition of terms: phase, components, degree of freedom, phaseruleequation.Phase diagram:Twocomponent-lead-silversystem.

Analytical techniques: Introduction, principle, instrumentation of potentiometric sensors; its application in the estimation of iron, Optical sensors (colorimetry); its application in the estimation of the esti

**Self-learning:**Determinationofviscosityofbiofuelanditscorrelationwithtemperature.

## Module-5:MaterialsforEngineeringApplications(8hr)

**Alloys**:Introduction,classification,composition,propertiesandapplicationsofStainlessSteel,B rassandAlnico.

 $\label{eq:ceramics} Ceramics: Introduction, classification based on chemical composition, properties and applications of perovskites (CaTiO_3).$ 

Nanochemistry: Introduction, size-

dependentproperties of nanomaterial (surface area, catalytical and thermal), synthesis of nanoparticles by sol-gel, and co-precipitation method. **Nanomaterials:** Introduction, properties and engineering applications of carbon nanotubes and graphene.

**Self-learning:Abrasives**: Introduction, classification, properties and applications of silicon carbide (carborundum).

## **PRACTICALMODULE**

<u>A-Demonstration(anytwo)offline/virtual:</u>

 ${\it A1. Synthesis of polyure than e}$ 

A2.PreparationofureaformaldehyderesinA

3. Synthesis of iron oxide

nanoparticles A4. Determination of acid value

ofbiofuel

<u>B-Exercise(compulsorilyany4tobeconducted):</u>

B1.Conductometricestimationofacidmixture

B2.PotentiometricestimationofFASusingK<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>

B3.DeterminationofpKaofvinegarusingpHsensor(Glasselectrode)

B4.DeterminationofrateofcorrosionofmildsteelbyweightlossmethodB5.

EstimationoftotalhardnessofwaterbyEDTAmethod

## <u>C-StructuredEnguiry (compulsorilyany4tobeconducted):</u>

C1. Estimation of Copper present in electroplating effluent by optical sensor

(colorimetry)C2.DeterminationofViscositycoefficientoflubricant(Ostwald'sviscometer)

C3. Estimation of iron in TMT bar by diphenyl amine/external indicator

methodC4.EstimationofSodiumpresentinsoil/effluentsampleusingflamephotometr y

C5.DeterminationofChemicalOxygenDemand(COD)ofindustrialwastewatersample

## <u>D-OpenEndedExperiments(anvtwo):</u>

D1.Estimationofpercentageofironinsteel

D2.ElectroplatingofdesiredmetalonsubstrateD3.Sy

nthesisofbiodiesel

D4.SynthesisofAluminiumOxidenanoparticle

Cours	eoutcom	e(Coı	urseSkillSet]	: Attheendo	fthecourse,	thest	udentwillb	eable	to:	
CO1.	Identify	the	terms	processes	involved	in	scientific	and	engineeri	ing
		anda	applications							
CO2.	Explaintl	nephe	enomenaofch	emistrytode	scribethem	ethoo	lsofengine	ering		
	processe	S								
CO3.	Solvethe	probl	emsin chemi	strythatarep	ertinentine	ngine	eringappl	icatio	ns	
<b>CO4</b> .	Applythe	basic	conceptsofch	nemistrytoex	plaintheche	emica	lpropertie	sand	processes	
CO5.	Analyze	prop	oerties	processes	associated	wit	h chemic	al su	ubstances	in
	-	and	nultidisciplin	ı						
	arysituat	ions								

## AssessmentDetails(bothCIEandSEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). Astudent shall be deemed to have satisfied the academic requirements and earned the credits allottedtoeach subject/course if the student secures not less than 35% (18 Marksout of 50) in these mester-end examination (SEE), and a minimum of 40% (40 marks out of 100) in the sum total oftheCIE(ContinuousInternalEvaluation)andSEE(SemesterEndExamination)takentogether.

## **ContinuousInternalEvaluation(CIE)**:

The CIE marks for the theory component of the IC shall be **30 marks** and for the laboratory component 20 Marks.

## **CIE for the theory component of the IC**

- Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.
- Two Assignments/two quizzes/ seminars/one field survey and report presentation/one-course project totalling 20 marks.

Total Marks scored (test + assignments) out of 80 shall be scaled down to **30 marks** 

## **CIE for the practical component of the IC**

• On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted

at the end of the semester.

- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.
- The laboratory test (duration 03 hours) at the end of the 15<sup>th</sup> week of the semester /after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to 05 marks.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

• The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

## Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English/Kannada). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.

There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

## SuggestedLearningResources:

## Books(TitleoftheBook/Nameoftheauthor/Nameofthepublisher/EditionandYear)

- 1. WileyEngineeringChemistry,WileyIndiaPvt.Ltd.NewDelhi,2013-2<sup>nd</sup>Edition.
- 2. EngineeringChemistry,Satyaprakash&ManishaAgrawal,KhannaBookPublishing,Delhi
- 3. ATextBookofEngg.Chemistry,ShashiChawla,DhanpatRai&Co.(P)Ltd.
- 4. EssentialsofPhysicalChemistry,Bahl&Tuli,S.ChandPublishing
- 5. AppliedChemistry,SunitaRattan,Kataria5.EngineeringChemistry,Baskar,Wiley
- 6. EngineeringChemistry–I,D.GrourKrishana,VikasPublishing
- ATextbookofEngineeringChemistry,SSDara&Dr.SSUmare,SChand&CompanyLtd., 12<sup>th</sup> Edition, 2011.
- 8. ATextBookofEngineeringChemistry,R.V.GadagandNityanandaShetty,I.K.InternationalPublishingh ouse. 2<sup>nd</sup>Edition,2016.
- 9. TextBookofPolymerScience,F.W.Billmeyer,JohnWiley&Sons,4<sup>th</sup>Edition,1999.
- 10. NanotechnologyAChemicalApproachtoNanomaterials,G.A.Ozin&A.C.Arsenault,RSCPublishing,200 5.
- CorrosionEngineering,M.G.Fontana,N.D.Greene,McGrawHillPublications,NewYork,3rdEdition,199
   6.
- 12. Linden'sHandbookofBatteries,KirbyW.Beard,FifthEdition,McGrawHill,2019.
- 13. OLEDDisplayFundamentalsandApplications,TakatoshiTsujimura,Wiley–Blackwell,2012
- 14. Supercapacitors:Materials,Systems,andApplications,MaxLu,FrancoisBeguin,ElzbietaFrackowiak, Wiley-VCH;1stedition,2013.
- 15. "HandbookonElectroplatingwithManufactureofElectrochemicals",ASIAPACIFICBUSINESSPRESS Inc., 2017. Dr.H. Panda,

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16.	ExpandingtheVisionofSensorMaterials.NationalResearchCouncil1995,Washington,DC:TheNation
	alAcademies Press. doi:10.17226/4782.
17.	EngineeringChemistry,EditedbyDr.MaheshBandDr.RoopashreeB,SunstarPublisher,Bengaluru,ISB N978-93-85155-70-3, 2022
18.	HighPerformanceMetallicMaterialsforCostSensitiveApplications,F.H.Froes,etal.JohnWiley&Sons, 2010
19.	InstrumentalMethodsofAnalysis,Dr.K.R.Mahadik and
	Dr.L.Sathiyanarayanan,NiraliPrakashan,2020
20.	PrinciplesofInstrumentalAnalysis,DouglasA.Skoog,F.JamesHoller,StanleyR.CrouchSeventhEdition, CengageLearning, 2020
21.	PolymerScience,VRGowariker,NVViswanathan,Jayadev,Sreedhar,NewageInt.Publishers,4thEditior, 2021
22.	$Engineering Chemistry, PCJ ain \& Monica Jain, Dhanpat RaiPublication, 2015-16 {}^{\rm th} Edition.$
23.	$Nanostructured materials and nanote chnology, HariSingh, Nalwa, academic press, 1^{st}Edition, 2002.$
24.	$Nanote chnology Principles and Practices, Sulabha KKulkarni, Capital Publishing Company, 3^{rd} Edition 2014$
25.	Principlesofnanotechnology,Phanikumar,Scitechpublications,2 <sup>nd</sup> Edition,2010.
26.	ChemistryforEngineeringStudents,B.S.JaiPrakash,R.Venugopal,Sivakumaraiah&PushpaIyengar.,SubashPublications.5 <sup>th</sup> Edition, 2014
	ChemistryforEngineeringStudents,B.S.JaiPrakash,R.Venugopal,Sivakumaraiah&PushpaIyengar.,S ubashPublications,5 <sup>th</sup> Edition, 2014 "EngineeringChemistry",O.G.Palanna,TataMcGrawHillEducationPvt.Ltd.NewDelhi,FourthReprint, 2015.
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27. Che 28.	<pre>ubashPublications,5<sup>th</sup>Edition, 2014 "EngineeringChemistry",O.G.Palanna,TataMcGrawHillEducationPvt.Ltd.NewDelhi,FourthReprint, 2015. mistryofEngineeringmaterials,MaliniS,KSAnanthaRaju,CBSpublishersPvtLtd., LaboratoryManualEngg.Chemistry,AnupmaRajput,DhanpatRai&amp;Co. EblinksandVideoLectures(e-Resources):     http://libgen.rs/     https://nptel.ac.in/downloads/122101001/     https://nptel.ac.in/courses/104/103/104103019/</pre>
27. Che 28.	<pre>ubashPublications,5<sup>th</sup>Edition, 2014 "EngineeringChemistry",O.G.Palanna,TataMcGrawHillEducationPvt.Ltd.NewDelhi,FourthReprint, 2015. mistryofEngineeringmaterials,MaliniS,KSAnanthaRaju,CBSpublishersPvtLtd., LaboratoryManualEngg.Chemistry,AnupmaRajput,DhanpatRai&amp;Co. eblinksandVideoLectures(e-Resources):     http://libgen.rs/     https://nptel.ac.in/downloads/122101001/     https://nptel.ac.in/courses/104/103/104103019/     https://ndl.iitkgp.ac.in/</pre>
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27. Che 28. <b>W</b>	<pre>ubashPublications,5thEdition, 2014 "EngineeringChemistry",0.G.Palanna,TataMcGrawHillEducationPvt.Ltd.NewDelhi,FourthReprint, 2015. mistryofEngineeringmaterials,MaliniS,KSAnanthaRaju,CBSpublishersPvtLtd., LaboratoryManualEngg.Chemistry,AnupmaRajput,DhanpatRai&amp;Co. eblinksandVideoLectures(e-Resources):</pre>

- https://www.vlab.co.in/broad-area-chemical-sciences
- <u>https://demonstrations.wolfram.com/topics.php</u>
- <u>https://interestingengineering.com/science</u>

			COsa	ndPOs	Mappin	ıg(Indiv	vidualt	eacher	hastofi	llup)		
	РО											
	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012
C01	3	1	1				1					
CO2	3	1	1				1					
CO3	3	1	1				1					
<b>CO4</b>	3	1	1				1					
CO5	3	1	1				1					

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## II Semester

Course Title: Mathematics-II for Mechanical Engineering stream								
Course Code:	BMATM201	CIE Marks	50					
Course Type	Integrated	SEE Marks	50					
(Theory/Practical/Integrated)		Total Marks	100					
Teaching Hours/Week (L:T:P: S)	2:2:2:0	Exam Hours	03					
Total Hours of Pedagogy	40 hours Theory + 10 to 12 Lab slots	Credits	04					

Course objectives: The goal of the course Mathematics-II for Mechanical Engineering stream(22MATM21) is to

- **Familiarize** the importance of Integral calculus and Vector calculus essential for Mechanical engineering.
- Analyze Mechanical engineering problems by applying Partial Differential Equations.
- **Develop** the knowledge of solving Mechanical engineering problems numerically.

## **Teaching-Learning Process**

## Pedagogy (General Instructions):

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

- 1. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted so that the delivered lessons shall develop students' theoretical and applied mathematical skills.
- 2. State the need for Mathematics with Engineering Studies and Provide real-life examples.
- 3. Support and guide the students for self-study.
- 4. You will also be responsible for assigning homework, grading assignments and quizzes, and documenting students' progress.
- 5. Encourage the students to group learning to improve their creative and analytical skills.
- 6. Show short related video lectures in the following ways:
  - As an introduction to new topics (pre-lecture activity).
  - As a revision of topics (post-lecture activity).
  - As additional examples (post-lecture activity).
  - As an additional material of challenging topics (pre-and post-lecture activity).
  - As a model solution of some exercises (post-lecture activity).

## Module-1:Integral Calculus (8 hours)

## Introduction to Integral Calculus in Mechanical Engineering applications.

**Multiple Integrals:** Evaluation of double and triple integrals, evaluation of double integrals by change of order of integration, changing into polar coordinates. Applications to find Area and Volume by double integral.Problems.

**Beta and Gamma functions:** Definitions, properties, relation between Beta and Gamma functions. Problems.

Self-Study: Volume by triple integration, Center of gravity.

Applications: Applications to mathematical quantities (Area, Surface area, Volume), Analysis of probabilistic models.

(RBT Levels: L1, L2 and L3)

### Module-2:Vector Calculus(8 hours)

Introduction to Vector Calculus in Mechanical Engineering applications.

**Vector Differentiation:** Scalar and vector fields. Gradient, directional derivative, curl and divergence - physical interpretation, solenoidal and irrotational vector fields. Problems.

**Vector Integration:** Line integrals, Surface integrals. Applications to work done by a force and flux. Statement of Green's theorem and Stoke's theorem. Problems.

Self-Study: Volume integral and Gauss divergence theorem.

**Applications:** Heat and mass transfer, oil refinery problems, environmental engineering, velocity and acceleration of moving particles, analysis of streamlines.

(RBT Levels: L1, L2 and L3)

## Module-3:Partial Differential Equations (PDEs)(8 hours)

Importance of partial differential equations for Mechanical Engineering application.

Formation of PDE's by elimination of arbitrary constants and functions. Solution of nonhomogeneous PDE by direct integration. Homogeneous PDEs involving derivatives with respect to one independent variable only. Solution of Lagrange's linear PDE.Derivation of one-dimensional heat equation and wave equation.

**Self-Study:** Solution of the one-dimensional heat equation and wave equation by the method of separation of variables.

Applications: Vibration of a rod/membrane.

(RBT Levels: L1, L2 and L3)

Module-4:Numerical Methods -1(8 hours)

**Importance of numerical methods for discrete data in the field of Mechanical Engineering.** Solution of algebraic and transcendental equations: Regula-Falsi and Newton-Raphson methods (only formulae). Problems.

Finite differences, Interpolation using Newton's forward and backward difference formulae, Newton's divided difference formula and Lagrange's interpolation formula (All formulae without proof). Problems.

**Numerical integration**: Trapezoidal, Simpson's  $(1/3)^{rd}$  and  $(3/8)^{th}$  rules(without proof). Problems.

Self-Study: Bisection method, Lagrange's inverse Interpolation.

**Applications:** Finding approximate solutions to solve mechanical engineering problems involving numerical data.

(RBT Levels: L1, L2 and L3)

Module-5:Numerical Methods -2(8 hours)

Introduction to various numerical techniques for handling Mechanical Engineering applications.

## Numerical Solution of Ordinary Differential Equations (ODEs):

Numerical solution of ordinary differential equations of first order and first degree - Taylor's series method, Modified Euler's method, Runge-Kutta method of fourth order and Milne's predictor-corrector formula (No derivations of formulae). Problems.

Self-Study: Adam-Bashforth method.

Applications: Finding approximate solutions to solve mechanical engineering problems.

## (RBT Levels: L1, L2 and L3)

	f Laboratory experiments (2 hours/week per batch/ batch strength 15)
	sessions + 1 repetition class + 1 Lab Assessment
1	Program to compute surface area, volume and centre of gravity
2	Evaluation of improper integrals
3	Finding gradient, divergent, curl and their geometrical interpretation
4	Verification of Green's theorem
5	Solution of one-dimensional heat equation and wave equation
6	Solution of algebraic and transcendental equations by Regula-Falsi and Newton-Raphson method
7	Interpolation/Extrapolation using Newton's forward and backward difference formula
8	Computation of area under the curve using Trapezoidal, Simpson's (1/3) <sup>rd</sup> and (3/8) <sup>th</sup> rule
9	Solution of ODE of first order and first degree by Taylor's series and Modified Euler's
	method
10	Solution of ODE of first order and first degree by Runge-Kutta 4 <sup>th</sup> order and Milne's
	predictor-corrector method
Sugges	ted software's: Mathematica/MatLab/Python/Scilab
	e outcome (Course Skill Set)
	end of the course the student will be able to:
CO1	Apply the knowledge of multiple integrals to compute area and volume.
CO2	Understand the applications of vector calculus refer to solenoidal, irrotational vectors, line integral and surface integral.
CO3	Demonstrate partial differential equations and their solutions for physical interpretations.
CO4	Apply the knowledge of numerical methods in solving physical and engineering phenomena.
CO5	Get familiarize with modern mathematical tools namely
	Mathematica/MatLab/Python/Scilab
Accord	ment Details (both CIF and SFF)

#### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### **Continuous Internal Evaluation(CIE):**

Integrated Course (IC): Theory Integrated with practical Courses. (4 Credits)

The CIE marks for the theory component of the IC shall be **30 marks** and for the laboratory component **20 Marks**.

#### CIE for the theory component of the IC

• Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.

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  - Two Assignments/two quizzes/ seminars/one field survey and report presentation/one-course project totalling 20 marks.

Total Marks scored (test + assignments) out of 80 shall be scaled down to **30 marks** 

CIE for the practical component of the IC

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted at the end of the semester.
- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.
- The laboratory test (duration 03 hours) at the end of the 15<sup>th</sup> week of the semester/after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to 05 marks.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

## Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for 100 marks. The medium of the question paper shall be English/Kannada). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

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## Suggested Learning Resources:

Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year) Text Books

- 1. **B. S. Grewal**: "Higher Engineering Mathematics", Khanna Publishers, 44<sup>th</sup>Ed., 2021.
- 2. E. Kreyszig: "Advanced Engineering Mathematics", John Wiley & Sons, 10<sup>th</sup>Ed., 2018.

### **Reference Books**

- 1. V. Ramana: "Higher Engineering Mathematics" McGraw-Hill Education, 11<sup>th</sup> Ed., 2017
- 2. Srimanta Pal & Subodh C.Bhunia: "Engineering Mathematics" Oxford University Press, 3<sup>rd</sup>Ed., 2016.
- 3. **N.P Bali and Manish Goyal**: "A Textbook of Engineering Mathematics" Laxmi Publications, 10<sup>th</sup>Ed., 2022.
- 4. **C. Ray Wylie, Louis C. Barrett:** "Advanced Engineering Mathematics" McGraw Hill Book Co., New York, 6<sup>th</sup> Ed., 2017.
- 5. **Gupta C.B, Sing S.R and Mukesh Kumar:** "Engineering Mathematic for Semester I and II", Mc-Graw Hill Education(India) Pvt. Ltd 2015.
- 6. **H.K. Dass and Er. Rajnish Verma:** "Higher Engineering Mathematics" S.Chand Publication, 3<sup>rd</sup> Ed.,2014.
- 7. James Stewart: "Calculus" CengagePublications, 7<sup>th</sup>Ed., 2019.

#### Web links and Video Lectures (e-Resources):

- <u>http://nptel.ac.in/courses.php?disciplineID=111</u>
- <u>http://www.class-central.com/subject/math(MOOCs)</u>
- <u>http://academicearth.org/</u>
- VTU e-Shikshana Program
- VTU EDUSAT Program

#### Activity-Based Learning (Suggested Activities in Class)/Practical-Based Learning

- Quizzes
- Assignments
- Seminar

### COs and POs Mapping (Individual teacher has to fill up)

COs	POs								
	1	2	3	4	5	6	7		
CO1									
CO2									
CO3									
CO4									
CO5									
Level 3- Hig	ghly Mapped,	Level 2-Mo	derately Map	ped, Level	1-Low Mapped	, Level 0- N	ot Mapped		

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Course Code		BCEDK203/203	CIE Marks	50
Teaching Hour/W	Veek (L:T·P·S)	2:0:2:0	SEE Marks	50
=	eaching - Learning	40	Total Marks	100
Credits	8	03	Exam Hours	03
Course Learning	Objectives:			
0	•	basic principles and convention	ons of engineering drawing	
Cl	LO2: To use drawing as	a communication mode		
Cl	LO3: To generate pictor	ial views using CAD software		
		development of surfaces		
	LO5: To visualize engin			
0	ng (General Instruction			
	_	owerful engineering communi		
-	•	selected by the teacher for har	nds on practice to induce the fe	el of
fruitfulness	-			
** *	•	resentation, Charts, Videos, sh	all be used to enhance visualiz	ation before
hands onpra				
• •		•	ts. (Example: For rectangular	prism / object;
		an be used. Similarly for other		
-	-	ng orthographic and pictorialv		
• Make use of	sketch book with graph	sheets for manual / preparato	rysketching	
Introduction: for	CIE only	Module-1		
drawing, Scales. In RPP & LPP of 2. coordinate points, mirror, rotate, trim <b>Orthographic Pro</b> Introduction to Or Orthographic proj Orthographic proj First quadrant only	ntroduction to Computer D/3D environment. Sele axes, polylines, squar a, extend, break, chamfer <b>ojections of Points, Lin</b> thographic projections: ( ections of lines (Placed i	Aided Drafting software, Co- ection of drawing sheet size e, rectangle, polygons, spline r, fillet and curves. es and Planes: Orthographic projections of po in First quadrant only). ngle, square, rectangle, pentag on method).	Drawing, Free hand sketching ordinate system and reference and scale. Commands and cre es, circles, ellipse, text, move bints in 1 <sup>st</sup> and 3 <sup>rd</sup> quadrants. gon, hexagon, and circular lam	planes HP, VF eation of Lines e, copy, off-set
		Module-2		
Orthographic Pr	ojection of Solids:	1910uult-2		
Orthographic proj	ection of right regular	solids ( <b>Solids Resting on H</b> Cones, Cubes &Tetrahedron.	P only): Prisms & Pyramids	(triangle, squa

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#### Module-3

#### **Isometric Projections:**

Isometric scale, Isometric projection of hexahedron (cube), right regular prisms, pyramids, cylinders, cones and spheres. Isometric projection of combination of two simple solids.

#### Conversion of simple isometric drawings into orthographic views.

Problems on applications of Isometric projections of simple objects / engineering components.

Introduction to drawing views using 3D environment (For CIE only).

#### Module-4

#### **Development of Lateral Surfaces of Solids:**

Development of lateral surfaces of right regular prisms, cylinders, pyramids and cones resting with base on HP only. Development of lateral surfaces of their frustums and truncations.

Problems on applications of development of lateral surfaces like funnels and trays.

Problems on applications of development of lateral surfaces of transition pieces connecting circular duct and rectangular duct (For CIE Only)

#### Module-5

#### Multidisciplinary Applications & Practice (For CIE Only):

**Free hand Sketching;** True free hand, Guided Free hand, Roads, Buildings, Utensils, Hand tools & Furniture's etc **Drawing Simple Mechanisms;** Bicycles, Tricycles, Gear trains, Ratchets, two-wheeler cart & Four-wheeler carts to dimensions etc

**Electric Wiring and lighting diagrams;** Like, Automatic fire alarm, Call bell system, UPS system, Basic power distribution system using suitable software

**Basic Building Drawing;** Like, Architectural floor plan, basic foundation drawing, steel structures- Frames, bridges, trusses using Auto CAD or suitable software,

**Electronics Engineering Drawings**- Like, Simple Electronics Circuit Drawings, practice on layers concept. **Graphs & Charts**: Like, Column chart, Pie chart, Line charts, Gantt charts, etc. using Microsoft Excel or any suitable software.

#### **Course Outcomes**

At the end of the course the student will be able to:

- CO 1. Drawand communicate the objects with definite shape and dimensions
- CO 2. Recognize and Draw the shape and size of objects through different views
- **CO 3.** Develop the lateral surfaces of the object
- CO 4. Create a Drawing views using CAD software.
- CO 5. Identify the interdisciplinary engineering components or systems through its graphical representation.

#### Assessment Details (both CIE and SEE):

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks) and that for SEE minimum passing marks is 35% of the maximum marks (18 marks). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination (SEE), and a minimum of 40% (40 marks out of 100) in the sum of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) takentogether.

#### **Continuous Internal Evaluation (CIE)**

- CIE shall be evaluated for max. marks of 100 and later the same shall be scaled-down to 50 marks as detailed below:
- CIE component should comprise of Continuous evaluation of Drawing work of students as and when the Modules are covered based onbelow detailed weightage.

Module	Max. Marks	Evaluation Weightage in marks	
	Weightage	Computer display and print out	Sketching
		(a)	(b)
Module 1	15	10	05
Module 2	20	15	05
Module 3	20	20	00
Module 4	20	20	00
Module 5	25	15	10
Total	100	80	20
Consideration of Class work		Total of [(a) + (b)] = 100 Scaled down to 30 Marks	

- At least one **Test** covering all the modules is to be conducted for 100 marks and evaluation to be based SEE pattern, and the same is to be scaled down to **20Marks**.
- The final CIE = Class work marks + Test marks

#### Semester End Examination (SEE)

- SEE shall be conducted and evaluated for maximum marks 100. Marks obtained shall be accounted for SEE final marks, reducing it by50%
- Question paper shall be set jointly by both Internal and External Examiner and made available for each batch as per schedule. *Questions are to be set preferably from TextBooks*.
- Related to Module-1: One full question can be set either from "points & lines" or "planes".
- Evaluation shall be carried jointly by both theexaminers.
- Scheme of Evaluation: *To be defined by the examiners jointly and the same shall be submitted to the university along with questionpaper.*
- One full question shall be set from each of the Module from Modules 1,2,3 and 4 as per the below tabled weightage details. *However, the student may be awarded full marks, if he/she completes solution on computer display withoutsketch.*

Module	Max. Marks	Evaluation Weightage in marks			
	Weightage Computer display and print out		Preparatory sketching		
		(a)	(b)		
Module 1	20	15	05		
Module 2	30	25	05		
Module 3	25	20	05		
Module 4	25	20	05		
Total	100	80	20		
Considerat	tion of SEE Marks	Total of (a) + (b) $\div$ 2 = Final SEE	marks		

### Suggested Learning Resources:

### **Text Books**

- S.N. Lal, & T Madhusudhan:, Engineering Visulisation, 1st Edition, Cengage, Publication
- Parthasarathy N. S., Vela Murali, Engineering Drawing, Oxford University Press, 2015.

### **Reference Books**

- *Bhattacharya S. K.*, Electrical Engineering Drawing, New Age International publishers, second edition 1998, reprint2005.
- Chris Schroder, Printed Circuit Board Design using AutoCAD, Newnes, 1997.
- *K S Sai Ram* Design of steel structures, , Third Edition byPearson
- Nainan p kurian Design of foundation systems, Narosapublications
- A S Pabla, Electrical power distribution, 6th edition, Tata Mcgrawhill
- *Bhatt, N.D., Engineering Drawing: Plane and Solid Geometry*, 53<sup>rd</sup> edition, Charotar Publishing House Pvt. Limited, 2019.
- *K. R. Gopalakrishna, & Sudhir Gopalakrishna*: Textbook Of Computer Aided Engineering Drawing, 39<sup>th</sup>Edition, Subash Stores, Bangalore,2017

### **COs and POs Mapping (**CO-PO mappings are only **Indicative)**

COs						P	Os					
	1	2	3	4	5	6	7	8	9	10	11	12
C01	3	2			3	1		1	1	3		2
CO2	3	2			3	1		1	1	3		2
CO3	3	2			3	1		1	1	3		2
CO4	3	3			3	1	1		1	3		1
CO5	3	2			3				1	3		2

Level 3- Highly Mapped, Level 2-Moderately Mapped, Level 1-Low Mapped, Level 0- Not Mapped

## Theory - 01 Credit Course Indian Constitution

Course Title:	Indian Constitution		
Course Code:		CIE Marks	50
Course Type (Theory/Practical /Integrated)	BIGOK107-207	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy Course objectives :	15 hours	Credits	01
<ul> <li>The course INDIAN CONSTITUTION (22) <ol> <li>To know about the basic structure of</li> <li>To know the Fundamental Rights (F</li> <li>To know about our Union Governm</li> <li>To know the State Executive &amp; Ele</li> <li>To learn the Amendments and Emer</li> </ol> </li> <li>Teaching-Learning Process These are sample Strategies, which teacher make Teaching –Learning more effective: To process. The pedagogy shall involve the com <ol> <li>Direct instructional method ( Low/O (iii) Blended learning (Combination learning (xi) Brecklarms head learning</li> </ol></li></ul>	f Indian Constitution. R's), DPSP's and Fundament, political structure & c ctions system of India. gency Provisions, other in r can use to accelerate the feachers shall adopt suitabination of different metho- ld Technology), (ii) Flipp of both), (iv) Enquiry and	nental Duties (FD's) of ou codes, procedures. nportant provisions given the attainment of the varia- ble pedagogy for effective odologies which suit mode ed classrooms (High/adva	by the constitution. ous course outcomes and teaching - learning ern technological tools. nced Technological tools),
<ul><li>learning, (vi) Problems based learnir</li><li>(ii) Apart from conventional lecture met animation films may be adapted so t practical skills.</li></ul>	hods, various types of inn		-
Module-1	(03 ho	urs of pedagogy)	
Indian Constitution: Necessity of the Const Indian constitution, Making of the Constitution	itution, Societies before a on, Role of the Constituen	nd after the Constitution a t Assembly.	doption. Introduction to the
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## Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

### Continuous Internal Evaluation(CIE):

Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration

### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others.. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks

### Semester End Examinations (SEE)

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

### **Suggested Learning Resources:**

### **Textbook:**

- 1. "Constitution of India" (for Competitive Exams) Published by Naidhruva Edutech Learning Solutions, Bengaluru. 2022.
- 2. "Introduction to the Constitution of India", (Students Edition.) by Durga Das Basu (DD Basu): Prentice –Hall, 2008.

### **Reference Books:**

- 1. "Constitution of India, Professional Ethics and Human Rights" by Shubham Singles, Charles E. Haries, and et al: published by Cengage Learning India, Latest Edition 2019.
- 2. **"The Constitution of India"** by Merunandan K B: published by Merugu Publication, Second Edition, Bengaluru.
- 3. "Samvidhana Odu" for Students & Youths by Justice HN Nagamohan Dhas, Sahayana, kerekon.
- 4. M.Govindarajan, S.Natarajan, V.S.Senthilkumar, "Engineering Ethics", Prentice Hall, 2004.

### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- ✓ For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions
- ✓ Seminars and assignments

Course Title:	Introduction to C++ Programming				
Course Code:		BPLCK105D/BPLCK205D	CIE Marks	50	
Course Type (Theory/Practical		Integrated	SEE Marks	50	
/Integrated )			Total Marks	100	
Teaching Hours/We	eek (L:T:P: S)	2:0:2	Exam Hours	03	
Total Hours of Peda	gogy	40 hours	Credits	03	

### **Course objectives**

- Understanding about object oriented programming and Gain knowledge about the capability to store information together in an object.
- Understand the capability of a class to rely upon another class and functions.
- Understand about constructors which are special type of functions.
- Create and process data in files using file I/O functions
- Use the generic programming features of C++ including Exception handling

### **Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective

- 1. Chalk and talk
- 2. Onine demonstration
- **3.** Hands on problem solving

### Module-1 (8 hours)

Introduction to Object Oriented Programming: Computer programming background- C++ overview. First C++ Program -Basic C++ syntax, Object Oriented Programming: What is an object, Classes, methods and messages, abstraction and encapsulation, inheritance, abstract classes, polymorphism.

### **Textbook 1: Chapter 1(1.1 to 1.8)**

Module-2 (8 hours)

Functions in C++: Tokens – Keywords – Identifiers and constants – Operators in C++ – Scope resolution operator – Expressions and their types – Special assignment expressions – Function prototyping – Call by reference – Return by reference – Inline functions -Default arguments – Function overloading.

### Textbook 2: Chapter 3(3.2,3.3,3.4,3.13,3.14,3.19, 3.20) , chapter 4(4.3,4.4,4.5,4.6,4.7,4.9) Module-3 (8 hours)

Inheritance & Polymorphism: Derived class Constructors, destructors-Types of Inheritance-Defining Derived classes, Single Inheritance, Multiple, Hierarchical Inheritance, Hybrid Inheritance.

## Textbook 2: Chapter 6 (6.2,6.11) chapter 8 (8.1 to,8.8)

Module-4 (8 hours)

I/O Streams: C++ Class Hierarchy- File Stream-Text File Handling- Binary File Handling during file operations.

Textbook 1: Chapter 12(12.5), Chapter 13 (13.6,13.7)

### Module-5 (8 hours)

Exception Handling: Introduction to Exception - Benefits of Exception handling- Try and catch blockThrow statement- Pre-defined exceptions in C++

## Textbook 2: Chapter 13 (13.2 to13.6)

Course		(Courses Chrill Cat)
Cours	e outcome	(Course Skill Set)
At the	end of the o	course the student will be able to:
	CO1	Able to understand and design the solution to a problem using object-oriented
		programming concepts.
	CO2	
		Able to reuse the code with extensible Class types, User-defined operators and
		function Overloading.
	CO3	
		Achieve code reusability and extensibility by means of Inheritance and
		Polymorphism
	C04	
	001	Implement the features of C++ including templates, exceptions and file handling for
		providing programmed solutions to complex problems.

Programming Assignments:

1. Write a C++ program to sort the elements in ascending and descending order.

2. Write a C++ program to find the sum of all the natural numbers from 1 to n.

3. Write a C++ program to swap 2 values by writing a function that uses call by reference technique.

4. Write a C++ program to demonstrate function overloading for the following prototypes.

*add(int a, int b) add(double a, double b)* 

5. Create a class named Shape with a function that prints "This is a shape". Create another class named Polygon inheriting the Shape class with the same function that prints "Polygon is a shape". Create two other classes named Rectangle and Triangle having the same function which prints "Rectangle is a polygon" and "Triangle is a polygon" respectively. Again, make another class named Square having the same function which prints "Square is a rectangle".Now, try calling the function by the object of each of these classes.

6.Suppose we have three classes Vehicle, FourWheeler, and Car. The class Vehicle is the base class, the class FourWheeler is derived from it and the class Car is derived from the class FourWheeler. Class Vehicle has a method 'vehicle' that prints 'I am a vehicle', class FourWheeler has a method 'fourWheeler' that prints 'I have four wheels', and class Car has a method 'car' that prints 'I am a car'. So, as this is a multi-level inheritance; we can have access to all the other classes methods from the object of the class Car. We invoke all the methods from a Car object and print the corresponding outputs of the methods.

So, if we invoke the methods in this order, car(), fourWheeler(), and vehicle(), then the output will be

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I am a car

I have four wheels

I am a vehicle

Write a C++ program to demonstrate multilevel inheritance using this.

7. Write a C++ program to create a text file, check file created or not, if created it will write some text into the file and then read the text from the file.

8.Write aC++ program to write and read time in/from binary file using fstream

9. Write a function which throws a division by zero exception and catch it in catch block. Write a C++ program to demonstrate usage of try, catch and throw to handle exception.

10. Write a C++ program function which handles array of bounds exception using C++.

## Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

## **Continuous Internal Evaluation(CIE):**

The CIE marks for the theory component of the IC shall be **30 marks** and for the laboratory component **20 Marks**.

## CIE for the theory component of the IC

- Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.
- Two Assignments/two quizzes/ seminars/one field survey and report presentation/onecourse project totaling20 marks.

Total Marks scored (test + assignments) out of 80 shall be scaled down to 30 marks

## CIE for the practical component of the IC

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted at the end of the semester.
- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.

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 The laboratory test (duration 03 hours) at the end of the 15<sup>th</sup> week of the semester /after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to 05 marks.

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

## Semester End Examination (SEE): SEE for IC

Theory SEE will be conducted by University as per the scheduled time table, with common question papers for the course (duration 03 hours)

- 1. The question paper will have ten questions. Each question is set for 20 marks.
- 2. There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.
- 3. The students have to answer 5 full questions, selecting one full question from each module.

The theory portion of the Integrated Course shall be for both CIE and SEE, whereas the practical

## portion will have a CIE component only. Questions mentioned in the SEE paper shall include

## questions from the practical component).

## Passing standard:

- The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks-30) in the theory component and 08 (40% of maximum marks -20) in the practical component. The laboratory component of the IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 04/05 questions to be set from the practical component of IPCC, the total marks of all questions should not be more than 30 marks.
- SEE will be conducted for 100 marks and students shall secure 35% of the maximum marks to qualify for the SEE. Marks secured will be scaled down to 50.

## Suggested Learning Resources:

**Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year)** Textbooks

1. Bhushan Trivedi, "Programming with ANSI C++", Oxford Press, Second Edition, 2012.

2. Balagurusamy E, Object Oriented Programming with C++, Tata McGraw Hill Education Pvt.Ltd , Fourth Edition 2010.

Web links and Video Lectures (e-Resources):

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Weblinks and Video Lectures (e-Resources):

- 1. Basics of C++ https://www.youtube.com/watch?v=BClS40yzssA
- 2. Functions of C++ <u>https://www.youtube.com/watch?v=p8ehAjZWjPw</u>

Tutorial Link:

- 1. https://www.w3schools.com/cpp/cpp\_intro.asp
- 2. https://www.edx.org/course/introduction-to-c-3

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

• Assign small tasks to Develop and demonstrate using C++

COs	POs						
	1	2	3	4	5	6	7
CO1							
CO2							
CO3							
CO4							

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### **Theory - 01 Credit Course** Scientific Foundations of Health

Course Title:	Scientific Foundation	s of Health	
Course Code:	BSFHK158/258	CIE Marks	50
	Theory	SEE Marks	50
Course Type (Theory/Practical /Integrated)		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01
Course objectives The course Scientific Foundations of Heal	· · · · · ·		
1. To know about Health and wellness	· · · · · ·	-	t.
2. To Build the healthy lifestyles for go	ood health for their better for	iture.	
3. To Create a Healthy and caring relat	ionships to meet the requir	ements of good/social/po	ositive life.

- 4. To learn about Avoiding risks and harmful habits in their campus and outside the campus for their bright future
- To Prevent and fight against harmful diseases for good health through positive mindset 5.

### **Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching -Learning more effective:

Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

(i) Direct instructional method (Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools),

(iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning,

(v) Personalized learning, (vi) Problems based learning through discussion, (vii) Following the method of expeditionary learning Tools and techniques, (viii) Use of audio visual methods.

Apart from conventional lecture methods various types of innovative teaching techniques through videos, animation films

Apart from conventional lecture methods, various types of innovative teach may be adapted so that the delivered lesson can progress the students In the	0 I 0 ,			
Module-1	(03 hours of pedagogy)			
Good Health & It's balance for positive mindset: Health -Import	rtance of Health, Influencing factors of Health,			
Health beliefs, Advantages of good health, Health & Behavior, Health &	Society, Health & family, Health & Personality,			
Psychological disorders-Methods to improve good psychological health, Changing health habits for good health.				
Module-2	(03 hours of pedagogy)			
Building of healthy lifestyles for better future: Developing healthy	diet for good health, Food & health, Nutritional			
guidelines for good health, Obesity & overweight disorders and its manage	ement, Eating disorders, Fitness components for			
health Wellness and physical function How to avoid exercise iniuries				
Module-3	(03 hours of pedagogy)			
Creation of Healthy and caring relationships : Building communic	ation skills, Friends and friendship - Education,			
the value of relationship and communication skills, Relationships for Bet	ter or worsening of life, understanding of basic			
instincts of life (more than a biology), Changing health behaviours through	social engineering.			
Module-4	(03 hours of pedagogy)			
Avoiding risks and harmful habits : Characteristics of health compr	omising behaviors, Recognizing and avoiding of			
addictions, How addiction develops, Types of addictions, influencing fact	tors of addictions, Differences between addictive			
addictions, How addiction develops, Types of addictions, influencing fact people and non addictive people & their behaviors. Effects of addictions Su				
people and non addictive people & their behaviors. Effects of addictions Su	ch as, how to recovery from addictions. (03 hours of pedagogy)			

of life, Health & Wellness of youth :a challenge for upcoming future, Measuring of health & wealth status.

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### Course outcome (Course Skill Set) :

At the en	nd of the course Scientific Foundations of Health (22SFH18/28) the student will be able to:
C01	To understand and analyse about Health and wellness (and its Beliefs) & It's balance for positive mindset.
C02	Develop the healthy lifestyles for good health for their better future.
CO3	Build a Healthy and caring relationships to meet the requirements of good/social/positive life.
C04	To learn about Avoiding risks and harmful habits in their campus and outside the campus for their bright future.
C05	Prevent and fight against harmful diseases for good health through positive mindset.

### Assessment Details (both CIE and SEE) :

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

### **Continuous Internal Evaluation(CIE) :**

### Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration.

### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others.. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

### The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks

### **Semester End Examinations (SEE)**

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

### **Suggested Learning Resources:**

### **Textbook:**

- 1. "Scientific Foundations of Health" Study Material Prepared by Dr. L Thimmesha, Published in VTU University Website.
- 2. "Scientific Foundations of Health", (ISBN-978-81-955465-6-5) published by Infinite Learning Solutions, Bangalore 2022.
- 3. **Health Psychology A Textbook,** FOURTH EDITION by Jane Ogden McGraw Hill Education (India) Private Limited Open University Press.

### **Reference Books:**

- 1. Health Psychology (Second edition) by Charles Abraham, Mark Conner, Fiona Jones and Daryl O'Connor Published by Routledge 711 Third Avenue, New York, NY 10017.
- 2. **HEALTH PSYCHOLOGY (Ninth Edition)** by SHELLEY E. TAYLOR University of California, Los Angeles, McGraw Hill Education (India) Private Limited Open University Press.
- 3. SWAYAM / NPTL/ MOOCS/ We blinks/ Internet sources/ YouTube videos and other materials / notes.
- **4. Scientific Foundations of Health (Health & Welness) General Books** published for university and colleges references by popular authors and published by the reputed publisher.

### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- ✓ For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions, Seminars and assignments

## Theory - 01 Credit Course Professional Writing Skills in English

Course Title:	Professional Writing S		
Course Code:	BPWSK206-106	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01
<b>Course objectives:</b> The course Professional Writing Skills in Eng	olish (22PWS26) will enable	e the students	
-			
2. To Achieve better Technical writing			
3. To read Technical proposals proper		sou technical reports.	
4. To Acquire Employment and Workj			1
5. To learn about Techniques of Inform	nation Transfer through pres	sentation in different lev	el.
Teaching-Learning Process	was to appel anote the attain m	ant of the work and source	, autoom oo and maleo
These are sample Strategies, which teacher can Teaching –Learning more effective: Teachers sh			
shall involve the combination of different method			
requirements of the Global employment market.	ologies which suit modern teen	nological tools and softwa	te s to meet the present
(i) Direct instructional method ( Low/Old Te	echnology), (ii) Flipped classro	oms (High/advanced Tech	nological tools), (iii) Blended
learning (Combination of both), (iv) Enquir			5 ,, ( )
(v) Personalized learning, (vi) Problems base			d of expeditionary learning
Tools and techniques, (viii) Use of audio vis	ual methods through language	Labs in teaching of of LSI	RW skills.
Apart from conventional lecture methods, various	types of innovative teaching te	chniques through videos,	animation films may be
adapted so that the delivered lesson can progress t	he students In theoretical applie	ed and practical skills in te	aching of communicative
skills in general.			
Language Lab : To augment LSRW, gramm			
Grammar, Vocabulary) through tests, activiti		nsive web-based learnir	ig and assessment systems
can be referred as per the AICTE / VTU guid			
Module-1 Identifying Common Errors in Writing	U3 NOU	rs of pedagogy)	ation in north of support
Use of verbs and phrasal verbs, Auxiliary ver	rbs and their forms, Subject		ord Rules), Common errors
	1 .1	T WICC	
in Subject-verb agreement, Sequence of Tens	ses and errors identification	in Tenses. Words Confu	
in Subject-verb agreement, Sequence of Tens Module-2		in Tenses. Words Confu I <b>rs of pedagogy)</b>	
	(03 hou	rs of pedagogy)	ised/Misused.
Module-2	(03 hours and the second secon	ragraphs in Documents	ised/Misused.
Module-2 Nature and Style of sensible writing: O	(03 hours rganizing Principles of Partion, Precise writing and Te	r <b>s of pedagogy)</b> ragraphs in Documents chniques in Essay writ	s, Writing Introduction and ing, Sentence arrangements
Module-2 Nature and Style of sensible writing: Or Conclusion, Importance of Proper Punctuat	<b>(03 hou</b> <b>rganizing</b> Principles of Par ion, Precise writing and Te ers, Contractions, Collocations,	r <b>s of pedagogy)</b> ragraphs in Documents chniques in Essay writ	s, Writing Introduction and ing, Sentence arrangements
Module-2 Nature and Style of sensible writing: On Conclusion, Importance of Proper Punctuati and Corrections activities. Misplaced modifie	(03 hours rganizing Principles of Par ion, Precise writing and Te ers, Contractions, Collocations, (03 hours)	rrs of pedagogy) ragraphs in Documents chniques in Essay writ , Word Order, Errors due t Irs of pedagogy)	s, Writing Introduction and ing, Sentence arrangements o the Confusion of words.
Module-2 Nature and Style of sensible writing: Of Conclusion, Importance of Proper Punctuati and Corrections activities. Misplaced modifie Module-3	(03 hour rganizing Principles of Par ion, Precise writing and Te ers, Contractions, Collocations, (03 hour ctices: Technical writing p	ragraphs in Documents chniques in Essay writ Word Order, Errors due t <b>Irs of pedagogy)</b> process, Introduction to	s, Writing Introduction and ing, Sentence arrangements o the Confusion of words.
Module-2 Nature and Style of sensible writing: Or Conclusion, Importance of Proper Punctuati and Corrections activities. Misplaced modifie Module-3 Technical Reading and Writing Pra	(03 hou rganizing Principles of Par ion, Precise writing and Te ers, Contractions, Collocations, (03 hou ctices: Technical writing p Introduction to Technical	rs of pedagogy) ragraphs in Documents chniques in Essay writ , Word Order, Errors due t rs of pedagogy) process, Introduction to Proposals Writing, Ty	s, Writing Introduction and ing, Sentence arrangements o the Confusion of words. Technical Reports writing pes of Technical Proposals
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Module-2 Nature and Style of sensible writing: On Conclusion, Importance of Proper Punctuati and Corrections activities. Misplaced modifie Module-3 Technical Reading and Writing Pra Significance of Reports, Types of Reports. Characteristics of Technical Proposals. Scien & Sentence Improvement, Cloze Test and Th	(03 hours rganizing Principles of Par ion, Precise writing and Te ers, Contractions, Collocations, (03 hours) (03 hours) (04 hours) (05 hours)	ars of pedagogy) ragraphs in Documents chniques in Essay writ , Word Order, Errors due t ars of pedagogy) rocess, Introduction to Proposals Writing, Ty mmar – Voices and Rep	s, Writing Introduction and ing, Sentence arrangements o the Confusion of words. Technical Reports writing pes of Technical Proposals
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Module-2 Nature and Style of sensible writing: On Conclusion, Importance of Proper Punctuati and Corrections activities. Misplaced modifie Module-3 Technical Reading and Writing Pra Significance of Reports, Types of Reports. Characteristics of Technical Proposals. Scien & Sentence Improvement, Cloze Test and Th Module-4 Professional Communication for Emplo Improving Listening Skills. Reading Co official/employment/business Letters, Resum Blog Writing and Memos. Module-5	(03 hou rganizing Principles of Par- ion, Precise writing and Te ers, Contractions, Collocations, (03 hou ctices: Technical writing p Introduction to Technical ntific Writing Process. Gran neme Detection Exercises. (03 hou yment: Listening Comprel omprehension, Tips for on the vs. Bio Data, Profile, CV. (03 hou (03 hou	ars of pedagogy) ragraphs in Documents chniques in Essay writ , Word Order, Errors due to the start of pedagogy) process, Introduction to Proposals Writing, Ty mar – Voices and Rep (rs of pedagogy) hension, Types of Lis effective reading. Job Writing effective resur- to fessional Interviews, Construction results (Construction)	s, Writing Introduction and ing, Sentence arrangements o the Confusion of words. Technical Reports writing pres of Technical Proposals orted Speech, Spotting Erro stening, Listening Barriers, Applications, Types of ne for employment, Emails, haracteristics and Strategies ommunication Skills and its

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### Course outcome (Course Skill Set)

At the end	d of the course the student will be able to:
C01	To understand and identify the Common Errors in Writing and Speaking.
CO2	To Achieve better Technical writing and Presentation skills.
CO3	To read Technical proposals properly and make them to Write good technical reports.
CO4	Acquire Employment and Workplace communication skills.
CO5	To learn about Techniques of Information Transfer through presentation in different level.

## Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

### Continuous Internal Evaluation(CIE):

## Two Unit Tests each of 30 Marks (duration 01 hour)

- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration

### Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (To have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

## The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks

## Semester End Examinations (SEE)

SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiple choice questions). The time allotted for SEE is **01 hour**. The student must secure a minimum of 35% of the maximum marks for SEE.

## Suggested Learning Resources:

## Textbook:

- 1) "Professional Writing Skills in English" published by Fillip Learning Education (ILS), Bangalore 2022.
- 2) **"Functional English"** (As per AICTE 2018 Model Curriculum) (ISBN-978-93-5350-047-4) Cengage learning India Pvt Limited [Latest Edition 2019].

## **Reference Books:**

- 1) English for Engineers by N.P.Sudharshana and C.Savitha, Cambridge University Press 2018.
- 2) Technical Communication by Gajendra Singh Chauhan and Et al, (ISBN-978-93-5350-050-4), Cengage learning India Pvt Limited [Latest Revised Edition] 2019.
- 3) Technical Communication Principles and Practice, Third Edition by Meenakshi Raman and Sangeetha Sharma, Oxford University Press 2017.
- 4) High School English Grammar & Composition by Wren and Martin, S Chandh & Company Ltd 2015.
- 5) Effective Technical Communication Second Edition by M Ashraf Rizvi, McGraw Hill Education (India) Private

### Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- ✓ For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions, Seminars and assignments