With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING
(AUTONOMOUS)
Ibrahimbagh, Hyderabad-31
Approved by A.I.C.T.E., New Delhi and
Affiliated to Osmania University, Hyderabad-07

Sponsored
by
VASAVI ACADEMY OF EDUCATION
Hyderabad

SCHEME OF INSTRUCTION AND SYLLABI UNDER CBCS FOR
B.E. (EEE) I & II Semesters
With effect from 2025-26
(For the batch admitted in 2025-26)
(R-25)

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
Phones: +91-40-23146030, 23146031
Fax: +91-40-23146090

INSTITUTE VISION

Striving for a symbiosis of technological excellence and human values.

INSTITUTE MISSION

To arm young brains with competitive technology and nurture holistic development of the individuals for a better tomorrow.

DEPARTMENT VISION

Empowering Future Engineers in Electrical & Electronics Engineering with Technological Excellence and Human Values.

DEPARTMENT MISSION

To Arm Aspiring Engineers with Cutting-Edge Technology and Cultivate Holistic Development, Fostering a Synergy of Knowledge and Values for a Brighter Future.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO 1: Graduates will acquire technical competence to analyze, design and solve engineering problems in the field of Electrical and Electronics Engineering and use modern engineering tools, techniques and software.

PEO 2: Graduates will be able to acquire necessary skills and obtain employment and will be productive in the professional practice of Electrical and Electronics Engineering and related fields.

PEO 3: Graduates will be sensitive to professional and social contexts, committed to ethical action and engaged in lifelong learning skills.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO 1: EEE students will be able to design, analyze Power Systems & Electrical Machines to solve complex engineering problems.

PSO 2: EEE students will be able to design and analyze Electrical and Power Electronic Circuits.

PSO 3: EEE students will be able to use and apply modern software tools and techniques related to Electrical Engineering.

B.E. (EEE) PROGRAM OUTCOMES (PO's)	
PO1	**Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2	**Problem Analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3	**Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO4	**Conduct investigations of complex problems:** Use research based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO5	**Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO6	**The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO7	**Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO8	**Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9	**Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
P1O	**Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
P11	**Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
P12	**Lifelong learning:** Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS):: IBRAHIMBAGH, HYDERABAD – 500 031.
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
SCHEME OF INSTRUCTION AND EXAMINATION (R-25)::B.E. - EEE : FIRST SEMESTER(2025-26)

B.E (EEE) I Semester								
Course Code	**Name of the Course**	**Scheme of Instruction**			**Scheme of Examination**			**Credits**
		Hours per Week			**Duration in Hrs**	**Maximum Marks**		
		L	**T**	**P/D**		**SEE**	**CIE**	
THEORY								
U25BS110MA	Matrices & Calculus	3	-	-	3	60	40	3
U25HS010EH	English Language and Communication	2	-	-	3	60	40	2
U25BS110CH	Engineering Chemistry	2	-	-	3	60	40	2
U25ES110EE	Programming and Problem Solving for EEE	3	-	-	3	60	40	3
U25ES010CE	Basic Engineering Mechanics	2	-	-	3	60	40	2
U25PC110EE	Circuit Theory	3	-	-	3	60	40	3
U25MC010CE	Environmental Science	1	-	-	2	40	30	-
PRACTICALS								
U25HS011EH	English Language and Communication Skills Lab	-	-	2	3	50	30	1
U25BS011CH	Chemistry Lab	-	-	2	3	50	30	1
U25ES111EE	Programming and Problem Solving for EEE Lab	-	-	2	3	50	30	1
	Library/Sports/Mentor- Mentee Interaction	-	-	-	-	-	-	-
	TOTAL	**16**	**-**	**6**	**-**	**550**	**360**	**18**
	GRAND TOTAL	**22**				**910**		**18**

B.E students shall complete one NPTEL Certificate equivalent Course of 8 weeks equivalent to 2 Credits by the end of VI semester

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
9-5-81, Ibrahimbagh, Hyderbad-500031, Telangana State

DEPARTMENT OF MATHEMATICS

MATRICES & CALCULUS

SYLLABUS FOR B.E. I SEMESTER

(Common to Civil, EEE, ECE and Mech)

L:T: P (Hrs/Week):3:1:0	SEE Marks: 60	Course Code: **U25BS110MA**
Credits: 3	CIE Marks: 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES The course will enable the students to:	**COURSE OUTCOMES** At the end of the course students should be able to:
1. Study the concepts of rank of a matrix, System of linear equations and LU-Decomposition method.	**1. Compute** the rank of a given matrix and solution of a system by LU-Decomposition method.
2. Learn the concepts of eigen values, eigen vectors and diagonalization.	**2. Find** the characteristic equation, eigen values, and eigen vectors and to diagonalize a square matrix using similarity transformation.
3. Develop a deep understanding of the concepts and applications of Taylor's series, Maclaurin's series, curvature, radius of curvature, centre of curvature, and evolutes.	**3. Apply** the concepts of Taylor's series and Maclaurin's series to approximate functions and to find the curvature, radius, centre of curvature and evolutes of curves.
4. Learn the techniques for finding partial derivatives of functions of several variables, Taylor's series for functions of two variables and methods for finding maxima and minima of functions of several variables.	**4. Calculate** partial derivatives of functions of several variables and apply Taylor's series for functions of two variables, analyze functions to find maxima and minima.
5. Understand the fundamental concepts of infinite series and various tests for convergence.	**5. Identify** an appropriate test and determine nature of a series.

UNIT- I (08 classes)
MATRICES-I
Rank of a Matrix- Echelon form - Linearly Dependence and Independence of Vectors– Consistency and Inconsistency of Homogeneous and Non-Homogenous system of linear equations.

UNIT –II (08 classes)
MATRICES-II
Characteristic equation- Cayley - Hamilton Theorem (without proof) -Eigen values and Eigen vectors - Diagonalization using Orthogonal Transformation-Quadratic form- Reduction of Quadratic form to Canonical form.

UNIT – III (08 classes)
DIFFERENTIAL CALCULUS
Taylor's Series – Maclaurin's Series - Curvature - Radius of Curvature – Centre of Curvature – Evolutes (Cartesian and Parametric forms of the curves).

UNIT – IV (08 classes)
MULTIVARIBLE CALCULUS
Limits- Continuity (Concepts) - Partial Derivatives - Higher Order Partial Derivatives - Total Derivates - Derivatives of Composite and implicit functions - Taylor's series of functions of two variables - Maxima and Minima of functions of two variables - Lagrange's Method of multipliers.

UNIT-V (08 classes)
INFINITE SERIES
Introduction to Infinite Series - Nature of the Series – Series of positive terms - Geometric series- p-series test - Comparison tests – Limit form of comparison test - D'Alembert's Ratio Test – Cauchy's n^{th} root test - Alternating Series – Leibnitz test – Absolute Convergence.

Text Books:
1. Advanced Engineering Mathematics, Third Edition, R. K. Jain and S. R. K. Iyengar, Narosa Publishing House.
2. Higher Engineering Mathematics, B. S. Grewal $40^{th.}$ Edition, Khanna Publishers.

Reference Books:
1. Advanced Engineering Mathematics 8^{th} Edition by Erwin Kreyszig, John Wiley & Sons.
2. Differential Calculus by Shanti Narayan, S. Chand & Co
3. Vector Calculus – Schaum's outline series.

Online Resources:
1. https://onlinecourses.nptel.ac.in/noc24_ma03/preview
2. https://onlinecourses.nptel.ac.in/noc24_ma31/preview
3. https://onlinecourses.swayam2.ac.in/cec24_ma10/preview

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1.	No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2.	No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3.	No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Test: 90 minutes

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
9-5-81, Ibrahimbagh, Hyderbad-500031, Telangana State

DEPARTMENT OF HUMANITIES & SOCIAL SCIENCES

ENGLISH LANGUAGE AND COMMUNICATION

SYLLABUS FOR B.E. I SEMESTER

L:T: P (Hrs/Week):2:0:0	SEE Marks: 60	Course Code: **U25HS010EH**
Credits: 2	CIE Marks: 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	COURSE OUTCOMES
The course will enable the learners to: 1. Build greater confidence and proficiency in oral and written communication. 2. Equip themselves with essential language skills to analyze and articulate their point of views. 3. Develop the ability to engage in reading for reflection and enquiry. 4. Construct grammatically correct and contextually appropriate correct sentences. 5. Learn how project reports are written in their related field of study.	**At the end of the course the learners will be able to: -** 1. Demonstrate effective verbal and non-verbal communication skills and apply emotional intelligence and team-building concepts to real-life scenarios. 2. Listen actively and speak clearly and confidently in academic and professional contexts, including delivering structured presentations. 3. Employ reading techniques and write coherent, well-organized paragraphs, emails, and letters for different purposes and audiences. 4. Apply a broadened vocabulary and correct grammatical structures to construct meaningful and grammatically accurate sentences. 5. Analyse and appreciate literary texts, identifying themes, tone, and stylistic devices, and relate them to personal or societal contexts.

UNIT-1 1.0 Effective communication and Interpersonal skills (8hrs)

1.1 Role and Importance of Communication – Types of Communication (Verbal-non-verbal, formal- informal, oral, written, visual, intrapersonal, interpersonal and extra personal communication); styles, channels and barriers of communication.

1.2 Emotional Intelligence: Self-awareness, Self- regulation, Motivation, Empathy and Social skills
1.3 Johari Window.
1.4 Persuasion techniques.
1.5 Stages of Team Building by Bruce Tuckman; Qualities of a team player/leader.

UNIT-2 2.0 Listening and Speaking skills (4hrs)

2.1 Importance of listening-- Types of listening; Note taking.
2.2 Speaking skills: Presentation Skills (on Projects/ Topics related to the branch).

UNIT-3 3.0 Reading and Writing skills (5hr)

3.1 Reading strategies- SQ3R (Survey, Question, Read, Recite &Review); Types of
Comprehension - Global, Factual and Inferential.
3.2 Features of Writing-Principles of writing paragraphs (Coherence, Cohesion& Unity); Use of
appropriate linkers/connectives; Focus on cause, effects, comparison, definition, classification
problem/ solution, process, argument.

3.3 Email-Etiquette.
3.4 Letter Writing.

UNIT-4 4.0 Vocabulary Building and Grammar (3hrs)

4.1Vocabulary Building: Synonyms, Antonyms, One-word substitutes; Words often Confused; Idioms.
4.2 Functional Grammar: Tense and Aspect; Subject-Verb agreement

UNIT-5 5.0 Reading for appreciation of literary texts (8hrs)

5.1 Prose text- Yesterday was Beautiful by Roald Dahl

5.2 Poem- Defeat by Kahlil Gibran

Prescribed textbook for theory:

Technical communication - Principles and Practice (2nd Edition 2014) - Meenakshi Raman and Sangeeta Sharma- Oxford University Press.

Additional reading:-

1. Abraham Lincolns letter to his son's school headmaster
2. On His Blindness by John Milton
3. Road not taken by Robert Frost
4. Mike Markel - Technical communication
5. The Soldier by Rupert Brooke.
6. Upheavals of Thought: The Intelligence of Emotions-Martha C. Nussbaum
7. Emotional intelligence – Daniel Goleman.
8. Experience & Education-John Dewey
9. Academic writing-Stephen Bailey
10. Biographies for vocabulary and grammar- Salim Ali & Charles Barbage.
11. Bruce Tuckman – Team Building

Suggested Reading

Paul V. Anderson – Technical Communication

E.Suresh Kumar, P. Sreehari and J. Savithri - Essential English

Reading comprehension - Nuttal.J.C - Orient Blackswan

Sunitha Mishra, C. Murali Krishna-Communication Skills for Engineers, Pearson, 2004.

M. Ashraf Rizvi. Effective Technical Communication. Tata McGraw Hill, 2005.

Allen and Waters. How English Works.

Willis Jane., English through English.

Mode of delivery: - Case-studies, Presentations-Power and Poster, Group Discussions, Research based projects, worksheets, Handouts, Lectures, Student presentations, Videos, Audio clips of Speeches, Team tasks etc.

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1.	No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2.	No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3.	No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Test: 90 minutes

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
9-5-81, Ibrahimbagh, Hyderbad-500031, Telangana State

DEPARTMENT OF CHEMISTRY

ENGINEERING CHEMISTRY

SYLLABUS FOR B.E. I - SEMESTER (For ECE & EEE branches

L:T:P (Hrs/Week): 2:0:0	SEE Marks: 60	Course Code: **U25BS120CH**
Credits: 2	CIE Marks: 40	Duration of SEE: 3 Hours

COURSE OBJECTIVES The course will enable the students to:	**COURSE OUTCOMES** At the end of the course, students should be able to:
1. Study types of conductance, variation of electrode potential and EMF and to acquaint with applications of Galvanic Cell. 2. Classify and compare various types of batteries and fuel cells. 3. Introduce the fundamental concepts and applications of nanomaterials and electrochemical sensors. 4. Get acquainted with engineering materials such as polymers and liquid crystals.	1. Construct a galvanic cell and calculate its EMF and pH wherever applicable. 2. Describe the construction, functioning and applications of the selected primary, secondary batteries and fuel cells. 3. Explain the synthesis and properties of nanomaterials along with working principle of electrochemical sensors. 4. Outline the properties associated with different types of engineering polymers and liquid crystals.

UNIT-I: ELECTRO CHEMISTRY

Introduction, conductance, types of conductance - specific, equivalent, molar conductance and their interrelationship - numericals. Principle and applications of conductometric titrations- strong acid *vs* strong base, week acid *vs* strong base and mixture of acids *vs* strong base.

Cells-electrolytic and electrochemical cells. concept of electrode potential, electromotive force (EMF). Nernst equation - derivation, applications and numericals. Types of electrodes – construction and working of calomel electrode (CE), quinhydrone electrode and glass electrode (GE). Determination of pH using glass electrode and quinhydrone electrode. Applications of potentiometry – acid base titrations.

UNIT-II: ENERGY STORAGE DEVICES (9)

Introduction – definition of cell and battery – Types of cells (reversible and irreversible cells). Battery characteristics: free energy change, electromotive force of battery, power density, energy density – numerical. Memory effect, flat discharge rate.

Primary batteries: Types-acidic, alkaline and reserve batteries. Construction and electrochemistry of Ag2O-Zn battery and lithium-V2O5 battery.

Secondary batteries: Construction and working of lead-acid and lithium ion battery – advantages, limitations and applications.

Fuel cells: Concept, types of fuel cells and merits. Construction, working and applications of methanol - oxygen fuel cell and phosphoric acid fuel cell.

UNIT-III: NANO MATERIALS AND SENSORS (10)

a) Nanomaterials: Introduction – concept of nanomaterials – quantum confinement and surface volume ratio. Applications of Nanomaterials.

Synthesis of nanomaterials: Top down and bottom-up approaches – Mechanical grinding by ball milling, sol gel method.

Carbon Nanotubes: Single walled carbon nanotubes (SWCNTs). Multi walled carbon nanotubes (MWCNTs), synthesis of CNTs – arc discharge method, Microscopic Characterization: Limitations of optical microscopy, Principle and block diagram of Scanning Electron Microscope (SEM).

b) Sensors: Introduction – characteristics of sensors, elements of sensors- receptor, transducer, Classification of sensors- working principle with an example of potentiometric sensors and amperometric sensors- Applications of Electrochemical sensors.

UNIT-IV: POLYMERS AND LIQUID CRYSTALS (10)

Introduction, degree of polymerization, functionality of monomers and its effect on the structure of polymers. Classification of polymers – i) homo and

co-polymers, ii) homo chain and hetero chain polymers. iii) plastics-elastomers, fibers and resins. Molecular weight – number average and weight average molecular weight, numericals. Glass transition temperature (T_g) and factors affecting T_g.

Plastics: Thermo plastics and Thermo sets. Preparation, properties and engineering applications of PVC, Bakelite and Nylon 6,6.

Elastomers: Preparation, properties and engineering applications of Buna-S.

Biodegradable polymers: Concept, preparation and uses of polylactic acid and polyvinyl alcohol.

Conducting polymers: Definition – classification, mechanism of conduction in (p-doped and n-doped) polyacetylene and engineering applications.

Liquid Crystals:

Introduction, classification of liquid crystals – Thermotropic and Lyotropic liquid crystals – Chemical constitution & liquid crystalline behavior. Molecular ordering in liquid crystals – Nematic, Smectic and Cholestric liquid crystals – Applications.

Text Books:

1. P. C. Jain, M Jain Engineering Chemistry, Dhanapathi Rai publishing company (17th edition), New Delhi.
2. O. G. PALANNA, Engineering Chemistry, TMH Edition.

Learning Resources:

1. B. H. Mahan, University Chemistry.
2. B. L. Tembe, Kamaluddin and M. S. Krishnan, Engineering Chemistry (NPTEL Web-book).
3. P. W. Atkins, Physical Chemistry.
4. S. S. Dara, S Chand and sons, Engineering Chemistry, New Delhi.
5. Puri, Sharma and Pathania, Principles of Physical Chemistry, Vishal Publishing Co.
6. D. Dhara, IIT Kharagpur, NPTEL Polymer Chemistry Course.
7. Gowarikar V R, Polymer chemistry, V Edition.

8. S M Lindsay, Introduction to Nanoscience, Oxford University press.
9. Sashi Chawla, Text book of Engineering Chemistry, Dhanapathi Rai & Co, New Delhi.
10. J.C. Kuriacose and Rajaram, Chemistry in Engineering and Technology.
11. Wiley Engineering Chemistry, Wiley India pvt Ltd, II edition.
12. Peter Grundler, Chemical sensors, An introduction for scientists and engineers, Springers
13. Chemistry of Nanomaterials by CNN Rao.

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1. No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2. No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3. No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Test: 90 minutes

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
9-5-81, Ibrahimbagh, Hyderbad-500031, Telangana State

Department of Electrical & Electronics Engineering

PROGRAMMING AND PROBLEM SOLVING FOR EEE

SYLLABUS FOR B.E. I SEMESTER

L:T: P (Hrs/Week):3:0:0	SEE Marks: 60	Course Code: **U25ES110EE**
Credits: 3	CIE Marks: 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
1 Acquire problem solving skills. 2 Develop flow charts. 3 Understand structured programming concepts. 4 Write programs in C Language.	1 Design flowcharts and algorithms for solving a given problem using the fundamentals of programming. 2 Apply decision making, looping constructs and functions to develop programs for a given problem. 3 Store data using arrays and perform searching and sorting operations on the data. 4 Design programs on string handling and operations on arrays using dynamic memory management techniques. 5 Develop programs to store data and perform operations using structures and files.

UNIT-I

Introduction to Computers: Computer Systems, Computing Environments, Computer Languages, Creating and Running Programs, SoftwareDevelopment, Flowcharts. Number Systems (Binary, Octal, Decimal andHexadecimal), Representation of Numbers (Fixed and Floating Point).

Introduction to C Language: Background, C Programs, Identifiers, Types, Variables, Constants, Input/Output, Expressions, Precedence and

Associativity, Side Effects, Evaluating Expressions, Type Conversion, Bitwise Operators.

UNIT-II:

Selection: Logical Data and Operators, if… else, switch Statements, StandardFunctions.

Repetition: Loops, while, for, do-while Statements, Loop Examples, applications to circuits, break,continue, goto.

Functions: Designing Structured Programs, Functions Basics, User Defined Functions, Inter-Function Communication, Standard Functions, Scope, Storage Classes-Auto, Register, Static.

UNIT-III:

Recursion: Recursive Functions.

Arrays: Concepts, Using Arrays in C, Inter-Function Communication, Array Applications, Two-Dimensional Arrays, Multidimensional Arrays, Linear Search and Binary Search, Selection Sort and Bubble Sort, Insertion sort.

UNIT-IV:

Pointers: Introduction, Pointers for Inter-Function Communication, Pointers to Pointers, Compatibility, Arrays and Pointers, Pointer Arithmetic and Arrays, Passing on Array to a Function, Memory Allocation Functions, Array of Pointers, Programming Applications.

Strings: Concepts, C Strings, String Input/Output, Functions, Arrays of Strings, String Manipulation Functions.

UNIT-V: Type Definition (typedef), Enumerated Types.

Structure: Definition and Initialization of Structures, Accessing Structures, NestedStructures, Arrays of Structures, Unions.

Input and Output: Files, Streams, Standard Library Input/Output Functions, Character Input/Output Functions.

Learning Resources:

1. Forouzan B.A & Richard F. Gilberg, A Structured Programming Approach usingC,3rd Edition(2013), Cengage Learning.
2. Brian W. Kernighan and Dennis M. Ritchie, The C Programming

Language, 2nd
Edition (2006), Prentice-Hall.
3. Rajaraman V, The Fundamentals of Computer, 4th Edition(2006), Prentice-Hall of India
4. Steve Oualline, Practical CProgramming,3rd Edition(2006),O'Reilly Press.
5. Jeri R. Hanly, Elliot B. Koffman, Problem Solving and Program Design inC, 5thEdition (2007), Pearson Education.
6. Balagurusamy E, Programming in ANSI C, 4th Edition(2008), TMG.
7. Gottfried, Programming with C, 3rd Edition(2010), TMH.
8. R G Dromey, How to Solve it byComputer,1st Edition(2006), PearsonEducation.

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1. No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2. No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3. No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Test: 90 minutes

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
9-5-81, Ibrahimbagh, Hyderbad-500031, Telangana State

DEPARTMENT OF CIVIL ENGINEERING

BASIC ENGINEERING MECHANICS
(Common to CSE, CSE AIML, ECE, EEE**)**
SYLLABUS FOR B.E. I SEMESTER

L:T: P (Hrs/Week):2:0:0	SEE Marks: 60	Course Code: **U25ES010CE**
Credits: 2	CIE Marks: 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES Objectives of this course are to:	**COURSE OUTCOMES** At the end of the course, students will be able to:
1. Explain the resolution of a system of forces (coplanar, concurrent, non-concurrent) and compute their resultant. 2. Solve particle equilibrium problem using equation of equilibrium 3. Determine forces in the members of a truss 4. Perform analysis of bodies lying on rough surfaces. 5. Locate the centroid of a body and also compute the area moment of inertia of standard sections.	1. Determine resultant of forces acting on a body. 2. Analyse equilibrium of a body subjected to a system of forces. 3. Perform analysis of trusses using method of joints and method of sections. 4. Solve problem of bodies subjected to friction. 5. Find the location of centroid and calculate moment of inertia.

UNIT-I: Force Systems: Rectangular components, moment, couple and resultant of two dimensional force systems.

UNIT-II: Equilibrium of Force Systems: Free body diagram, Equations of equilibrium, Equilibrium of two dimensional force systems.

UNIT-III: Determinate Trusses: Analysis of plane trusses like Warren truss, Pratt truss, Fink truss etc using method of joints and method of sections.

UNIT-IV: Friction: Laws of friction. Application to simple systems, Connected systems Wedge friction.

UNIT-V: Centroid and Moment of Inertia: Centroids of lines, areas, Moment of inertia of areas for regular bodies (T, I & C-Sections)

Learning Resources:

1. Singer F.L "Engineering Mechanics", Harper & Collins, Singapore, 3rd Edition 2023.
2. Timoshenko S.P and Young D.H "Engineering Mechanics", McGraw Hill International Edition, 2017
3. Andrew Pytel., JaanKiusalaas., "Engineering Mechanics", 4th edition, Cengage Learning, 2015.
4. Beer F.P & Johnston E.R Jr. "VectorMechanics for Engineers", TMH, 2019.
5. Hibbeler R.C, "Engineering Mechanics", 4th edition, Pearson Education, 2017.
6. Tayal A.K., "Engineering Mechanics – Statics & Dynamics", 4th Edition, Umesh Publications, 2011.
7. Basudeb Bhattacharyya., "Engineering Mechanics", Oxford University Press, 2014, 2nd Edition
8. Meriam. J. L. and Kraige L.G., "Engineering Mechanics", Volume-I Statics, John Wiley & Sons, 2017.
9. NPTEL Course (www.nptel.ac.in)
10. Virtual labs (www.vlab.co.in)

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1. No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2. No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3. No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Test: 90 minutes

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

9-5-81, Ibrahimbagh, Hyderbad-500031, Telangana State

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

CIRCUIT THEORY

SYLLABUS FOR B.E. I SEMESTER

L:T: P (Hrs/Week):3:0:0	SEE Marks: 60	Course Code: **U25PC110EE**
Credits: 3	CIE Marks: 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
The objective of Circuit theory is to provide a thorough understanding of the fundamentals of electric circuits such that the student would develop an in depth know ledge of circuit elements (active and passive), their characteristics and their functioning to analyze and apply to many engineering problems.	1. Describe the elements of electrical circuits and apply basic laws and principles to determine desired values. 2. Apply basic Electrical concepts to analyze dc electrical circuits. 3. Apply basic Electrical concepts to analyze ac electrical circuits. 4. Apply network theorems to analyze Electrical circuits 5. Apply concepts of three phase circuits to analyze them.

UNIT-I: Electric Circuit fundamentals:

Charge and Current, Voltage, Power and energy, Passive sign convention, Passive circuit elements R, L and C and their V-I relationships, Description of independent and dependent sources, Ohm's law, KCL, KVL, Series and parallel circuits, Current and voltage division principles, Source transformation, Wye – Delta transformation, Delta-Wye transformation.

UNIT-II: DC Circuit Analysis:

Nodal and mesh analyses containing independent and dependent sources.

AC Circuit Fundamentals: Definition and computation of average value, RMS value of periodic signals, form factor and peak factor, Definition of phasor, Phasor domain conversions.

UNIT-III: AC Circuit Analysis:
Network analysis techniques in phasor domain, Steady state response of RLC circuits subjected to sinusoidal excitation. Definition of instantaneous power, complex power and Power factor. Power in single phase ac circuits.

Unit IV: Network Theorems:
Linearity, Superposition, Thevenin's, Norton's, Maximum Power Transfer and Tellegen's Theorem with DC and AC excitation, Reciprocity Theorem

Unit V: Three phase circuits:
Balanced three phase voltages, three phase power, Wye and Delta Connected systems, Calculations of voltage, current and power in three phase circuits for balanced and unbalanced loads. Three phase power measurement using two wattmeters.

Learning Resources:

1. Charles K.Alexander& Matthew N.O.Sadiku, Fundamentals of ElectricCircuits,Tata McGraw-Hili, 6th Edition, 2019.
2. W.H.Hayt, J.E.Kimmerly, Engineering Circuit Analysis, McGraw Hill, 8thEdition, 2013
3. M.E. Van Valkenburg, Network Analysis, Prentice Hall of India, 3rd Edition,2019
4. David A.Bell, Electric Circuits ,Oxford university Press, SeventhEdition,2015

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1. No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2. No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3. No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Test: 90 minutes

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF CIVIL ENGINEERING
ENVIRONMENTAL SCIENCE
(Common to Civil, ECE, EEE &Mech.)
SYLLABUS FOR B.E.I-SEMESTER

L:T:P(Hrs/week):1:0:0	SEE Marks:40	Course Code: **U25MC010CE**
Credits : -	CIE Marks:30	Duration of SEE: 2 Hours

COURSE OBJECTIVES In this subject the students will	**COURSE OUTCOMES** Upon the completion of this course students will be able to
1. Explain the scope and fundamental principles of environmental science, including key concepts such as ecosystem structure, function, and biodiversity. 2. Characterize genetic, species, and ecosystem diversity, and articulate the various values of biodiversity. 3. Analyze the causes, effects, and control measures for air, water, and land pollution—and apply major regulatory frameworks 4. Evaluate the environmental impacts of food-related practices and propose sustainable, health-oriented alternatives. 5. Assess renewable energy resources and design integrated, engineering-based solutions that meet environmental, legal, and societal requirements.	1. Define and illustrate core environmental science concepts—ecosystem structure, energy flow and levels of biodiversity. 2. Apply key legislative frameworks to real-world scenarios involving air, water, and land resource management. 3. Analyze the environmental fate and impacts of agricultural inputs on food systems, recommending sustainable practices. 4. Compare and evaluate major renewable energy technologies in terms of availability, efficiency, cost, and environmental footprint. 5. Integrate scientific data, legal requirements, and engineering principles to design a mini-project addressing a local environmental challenge.

UNIT-I: Environmental Science Fundamentals and Ecosystem Diversity: Definition and importance of Environmental Science, Ecosystem: classification, structure, and function, Diversity: genetic, species, and ecosystem

level. Biodiversity values: productive, consumptive, ethical, social, cultural, optional, Biodiversity Acts and Laws: The Biological Diversity Act2002, Environment (Protection) Act- 1986.

UNIT-II: Air, Water, and Land Resources: Air Pollution: The Air (Prevention and Control of Pollution) Act- 1981, Water Resource: Freshwater availability on Earth, Drinking water quality standards | IS 10500:1991, Water pollution: effects and control measures, Case studies. Land Resource: Desertification, Land degradation: causes, effects, and control, Case studies

UNIT-III: Food Resources and Environmental Issues: Food Resource: Fertilizer and pesticide problems, Eutrophication, Biomagnification, Balanced diet, Effects of processed food, Case studies

UNIT-IV: Renewable Energy Resources and current relevant issues: Importance of renewable energy sources: Solar, Wind, Tidal, Ocean thermal, Geothermal, Biomass, Biofuel, Biogas, Hydrogen energy, Case studies, Climate change adaptation Sustainability, life cycle assessment, use of AI in disaster risk reduction.

Learning Resources:

1. Deswal S. and Deswal A., A Basic Course on Environmental studies, Dhanpat Rai & Co Pvt. Ltd. 2021.
2. Anubha Kaushik and C.P Kaushik Environmental Studies, 4th Edition 2019
3. Benny Joseph, Environmental Studies, Tata McGraw-Hill, 2017.
4. Suresh K. Dhameja, Environmental Studies, S.K. Kataria & Sons, 2024.
5. De A.K., Environmental Chemistry, New Age International, 2021.
6. Rajagopalan R., Environmental Studies, Second Edition, Oxford University Press, 2015.

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1. No. of Internal Tests	: 1	Max. Marks for each Internal Test	:	30
2. No. of Assignments	: 2	Max. Marks for each Assignment	:	5
3. No. of Quizzes	: 2	Max. Marks for each Quiz Test	:	5

Duration of Internal Test: 90 minutes

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
9-5-81, Ibrahimbagh, Hyderbad-500031, Telangana State

DEPARTMENT OF HUMANITIES & SOCIAL SCIENCES

ENGLISH LANGUAGE AND COMMUNICATION SKILLS LAB
SYLLABUS FOR B.E. I SEMESTER

L:T: P (Hrs/Week):0:0:2	SEE Marks: 50	Course Code: **U25HS011EH**
Credits: 1	CIE Marks: 30	Duration of SEE : 3 Hours

COURSE OBJECTIVE The objective of the course is to	**COURSE OUTCOMES** On completion of the course, students will be able to
1. Understand the fundamentals of English phonetics, including sound classification and pronunciation of commonly mispronounced and foreign words. 2. Enhance listening comprehension and ear training through stress, intonation, and exposure to historical speeches and pronunciation patterns. 3. Develop effective public speaking and presentation skills by analysing model speeches and practicing structured delivery techniques. 4. Build collaborative communication abilities through group discussions, focusing on initiation, continuation, and closure strategies. 5. Strengthen reading comprehension and analytical skills, including paraphrasing and summarizing, using diverse reading strategies and text types.	1. Accurately identify and pronounce English consonant and vowel sounds, including words with silent letters and foreign-origin terms used in English. They will also demonstrate improved listening and speech recognition skills through analysis of famous speeches and application of intonation and stress patterns. 2. Deliver structured public speeches and group presentations confidently, adhering to best practices for content and visual aid usage. They will engage effectively in group discussions, displaying clarity of thought, respect for others' opinions, and logical progression. 3. Apply advanced reading techniques (e.g., SQ3R, scanning, skimming) to comprehend, paraphrase, and summarize content from diverse sources including technical and journalistic texts.

1.0 PHONETICS LAB- TOPICS (8hrs)

1.1 Introduction to English Phonetics:
Classification of consonants and vowel sounds and related symbols. Pronunciation of commonly mispronounced words. Pronunciation of Foreign words in English.

1.2 Aspects of language learning and ear training activities- Word stress and intonation, Pronunciation of silent letters and Foreign words used in English Longman Dictionary of contemporary English- 6th Edition, 2020. Listening to famous speeches from history followed by while listening and post listening exercises.

2.0 INTERACTIVE COMMUNICATION SKILLS LAB-TOPICS (8hrs)

2.1 Public speaking:
Dos and don'ts of public speaking. Listening and analysing speeches of great personalities in history, TED talks, Documentaries and Movies.

2.2 Presentation Skills:
Dos and Don'ts of power point presentations, group presentations (branch specific topics)

2.3 Group discussion:
Objectives of GD, Types of GDs; Initiating, Continuing, and concluding a GD.

3.0 READING SKILLS LAB – TOPICS (8hrs)

3.1 Sub-skills of reading - SQ3R – skimming, scanning, extensive and intensive reading.
3.2 Teaching different types of texts for comprehension-short stories and technical articles.
3.3 Newspaper reading and paraphrasing/summarising.
3.4 Interview skills: For Practical examinations and general HR interviews.

Prescribed textbook for laboratory:

1. Speak Well: Jayshree Mohanraj, KandulaNirupa Rani and Indira Babbellapati - Orient Black Swan
2. Longman Dictionary of Contemporary English – 6th Edition, 2020.(The students will be given the PDF format)

Learning Resources:

1. Balasubramanian: A textbook of English phonetics for Indian students, Macmillan, 2008.
2. Priyadarshini Patnaik: Group discussion and interviews, Cambridge University Press India private limited 2011.
3. Daniel Jones: Cambridge English Pronouncing Dictionary - A Definitive guide to contemporary English Pronunciation.
4. Reading Cards (Eng400): Orient Black Swan. Reading Squabble - Hadfield.

No. of Internal Tests:	01	Max. Marks for Internal Test:	12
Marks for assessment of each experiment			18
Duration of Internal Test: **3 Hours**			

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

9-5-81, Ibrahimbagh, Hyderbad-500031, Telangana State

DEPARTMENT OF CHEMISTRY

CHEMISTRY LAB

SYLLABUS FOR B.E. I SEMESTER

L:T: P (Hrs/Week):0:0:2	SEE Marks: 50	Course Code: **U25BS011CH**
Credits: 1	CIE Marks: 30	Duration of SEE : 3 Hours

COURSE OBJECTIVES The course will enable the students to:	**COURSE OUTCOMES** At the end of the course, students should be able to:
1. Describe the quantitative analytical techniques 2. Learn the skills to handle the instruments 3. Apply the theoretical principles in experiments	1. Estimate the amount of metals in the given solutions. 2. Analyze the hardness, alkalinity and chloride content of a given water sample. 3. Determine the concentration a given solution by conductometry, potentiometry and pH metry. 4. Use the principle of colorimetry in the estimation of Permanganate / Copper (II) in a given solution.

Note: Minimum of Ten experiments of the following.

1. 1. Preparation of standard FAS or oxalic acid solution and standardization of $KMnO_4$ or NaOH solution.
2. Estimation of Iron(II) in the given solution by permanganometry.
3. Estimation of chromium(VI) in the given solution by standardized FAS.
4. Estimation of copper(II) in given solution by Iodometry.
5. Estimation of total hardness of given water sample.
6. Estimation of alkalinity of a given sample.
7. Conductometric acid-base titrations -Determination of strength of given acids (HCl *Vs* NaOH and CH_3COOH *Vs* NaOH).
8. Conductometric acid-base titrations- Determination of strength of acids in a given mixture of acids (HCl and CH_3COOH *Vs* NaOH)
9. Determination of strength of a given acid by Potentiometry.

10. Determination of concentration of a given $FeSO_4$ using redox titration by Potentiometry.
11. Determination of strength of a given acid by pH metry.
12. Determination of strength of permanganate or copper by Colorimetry.

Text Books:

1. G H Jeffery, J Bassett, J Mendham, R C Denney, Vogel's text book of quantitative chemical analysis, Fifth Edition.
2. M S Kaurav, Engineering chemistry with laboratory experiments, PHI learning (P) ltd, New Delhi.
3. Sunita rattan, Experiments in applied chemistry, S K Kataria & Sons (2010)
4. A text book on experiments and calculation Engg. S.S. Dara.

No. of Internal Tests:	01	Max. Marks for Internal Test:	12
Marks for assessment of each experiment			18
Duration of Internal Test: **3 Hours**			

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING
(AUTONOMOUS)
9-5-81, Ibrahimbagh, Hyderbad-500031, Telangana State

Department of Electrical & Electronics Engineering

Programming and Problem Solving for EEE Lab
SYLLABUS FOR B.E. I SEMESTER

L:T: P (Hrs/Week):0:0:2	SEE Marks: 50	Course Code: **U25ES111EE**
Credits: 1	CIE Marks: 30	Duration of SEE : 3 Hours

COURSE OBJECTIVES The course will enable the students to:	**COURSE OUTCOMES** On completion of the course, students will be able to
1. Understand the fundamentals of programming in C Language 2. Write, compile and debug programs in C. 3. Formulate solution to problems and implement in C. 4. Effectively choose programming components to solve computing problems.	1. Choose appropriate data type for implementing programs in C language. 2. Design and implement modular programs involving input output operations, decision making and looping constructs. 3. Implement search and sort operations on arrays. 4. Apply the concept of pointers for implementing programs on dynamic memory management and string handling. 5. Design and implement programs to store data in structures and files.

Programming Exercise:

1. Programs to illustrate operators
2. Programs to illustrate selection control statements
3. Programs to illustrate loop control statements
4. Programs to illustrate nested loop control statements.
5. Programs to illustrate functions and recursion
6. Programs to illustrate one dimensional arrays, searching and sorting.

7. Programs to illustrate two dimensional arrays
8. Programs on pointers: pointer to arrays, pointer to functions.
9. Functions for string manipulations.
10. Programs on structures and unions.
11. Finding the number of characters, words and lines of given text file.
12. File handling programs.

Learning Resources:

1. Forouzan B.A & Richard F. Gilberg, A Structured Programming Approach using C, 3rd Edition(2013), Cengage Learning.
2. Brian W. Kernighan and Dennis M. Ritchie, The C Programming Language, 2nd Edition (2006), Prentice-Hall.
3. Steve Oualline, Practical CProgramming,3rd Edition(2006),O'ReillyPress.
4. Balagurusamy E, Programming in ANSI C, 4th Edition(2008), TMG.

No. of Internal Tests:	01	Max. Marks for Internal Test:	12
Marks for day-to-day laboratory class work			18
Duration of Internal Test: **2 Hours**			

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS):: IBRAHIMBAGH, HYDERABAD – 500 031.

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

SCHEME OF INSTRUCTION AND EXAMINATION (R-25):: B.E. - EEE : SECOND SEMESTER (2025-26)

B.E (EEE) II Semester								
Course Code	**Name of the Course**	**Scheme of Instruction**			**Scheme of Examination**			**Credits**
		Hours per Week			**Duration in Hrs**	**Maximum Marks**		
		L	**T**	**P/D**		**SEE**	**CIE**	
THEORY								
U25BS210MA	Differential Equations & Vector Calculus	3	-	-	3	60	40	3
U25BS210PH	Quantum Mechanics for Engineers	2	-	-	3	60	40	2
U25ES210EE	Object Oriented Programming using C++	3	-	-	3	60	40	3
U25PC220EE	Electrical Network Analysis	3	-	-	3	60	40	3
U25ES030CE	Basic Engineering Drawing	1	-	2	3	60	40	2
U25HS010EH	Human values and Professional Ethics -I	1	-	-	2	40	30	1
U25HS040EX	Learning to Learn	1	-	-	2	40	30	1
PRACTICALS								
U25BS211PH	Applied Physics Lab	-	-	2	3	50	30	1
U25ES021ME	Workshop Practice	-	-	2	3	50	30	1
U25ES211EE	Object Oriented Programming using C++ Lab	-	-	2	3	50	30	1
U25PC221EE	Electrical Network Analysis Lab	-	-	2	3	50	30	1
	Library/Sports/Mentor- Mentee Interaction	-	-	-	-	-	-	-
	PDC/CC/TC/RC	-	-	-				
	TOTAL	**14**	**-**	**10**	-	**580**	**380**	**19**
	GRAND TOTAL	**24**				**960**		**19**

B.E students shall complete one NPTEL Certificate Course of 8 weeks equivalent to 2 Credits by the end of VI semester

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
9-5-81, Ibrahimbagh, Hyderbad-500031, Telangana State

DEPARTMENT OF MATHEMATICS

DIFFERENTIAL EQUATIONS & VECTOR CALCULUS
(Common to Civil, EEE, ECE, Mech.)

SYLLABUS FOR B.E. II SEMESTER

L:T: P (Hrs/Week):3:0:0	SEE Marks: 60	Course Code:**U25BS210MA**
Credits: 3	CIE Marks: 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES The course will enable the students to:	**COURSE OUTCOMES** At the end of the course students should be able to:
1. Understand the fundamental concepts and solution of first-order Differential Equations, as well as their applications in modeling real-world phenomena. **2. Develop** the ability to solve homogeneous and non-homogeneous Linear differential equations with constant coefficients, and their applications to LCR circuits. **3. Study** the concepts of vector differentiation, Directional derivative, Divergence and Curl of a vector point function. **4. Learn** the concepts of evaluation of double integrals and changing the order of integration. **5. Understand** the concepts Improper integrals Beta, Gamma functions and their properties.	**1. Solve** various types of first-order Differential Equations, model and analyze physical systems such as LR circuit and find orthogonal trajectories of Cartesian curves. **2. Solve** homogeneous and non-homogeneous Linear differential equations with constant coefficients, including those arising in LCR circuits. **3. Find** the gradient of a scalar point function, divergence and curl of vector field and its applications. **4. Evaluate** the double integrals and also evaluate the double integrals by changing the order of integration and by change of variables. **5. Evaluate** Improper integrals using Beta, Gamma functions.

UNIT – I (08 classes)
ORDINARY DIFFERENTIAL EQUATIONS OF FIRST ORDER
Exact differential equations - Integrating factors - Clairaut's equation - Applications: Orthogonal trajectories (Cartesian families) - LR Circuit.

UNIT – II (08 classes)
HIGHER ORDER LINEAR DIFFERENTIAL EQUATIONS
Solutions of Homogeneous and Non-Homogeneous linear equations of the form f(D)y = r(x) with constant coefficients $[\text{Where } r(x) = e^{ax},\ \sin(ax+b)(or)\cos(ax+b),\ x^k,\ e^{ax}V(x)]$ - Method of Variation of Parameters- LCR circuits.

UNIT – III (08 classes)
VECTOR CALCULUS
Scalar and Vector point function and their derivatives - Level Surface - Gradient of a scalar point function - Normal to a level surface - Directional Derivative – Divergence and Curl of a Vector Field – Solenoidal and Irrotational vectors - Conservative vector field.

UNIT – IV (08 classes)
DOUBLE INTEGRALS
Double integrals (Cartesian) - Change of order of integration (Cartesian Coordinates) - Change of the Variables (Cartesian to Polar Coordinates in two dimensions).

UNIT – V (08 classes)
SPECIAL FUNCTIONS
Definition of Improper Integrals- Beta function - Gamma function - Relations between Beta & Gamma function - Properties of Beta and Gamma functions.

Text Books:
1.Advanced Engineering Mathematics 3rd Edition, R.K.Jain & S.R.K.Iyengar, Narosa Publishing House.
2.Higher Engineering Mathematics 40thEdition Dr. B.S Grewal, Khanna Publishers.
3.A Text book of Engineering Mathematics, N.P. Bali& Manish Goyal, Laxmi Publications.

Reference Books:

1. Advanced Engineering Mathematics, by Wylie & Barrett, Tata Mc Graw Hill, New Delhi.
2. Advanced Engineering Mathematics, 8th Edition by Erwin Kreyszig, John Wiley & Sons, Inc.
3. Complex Variables and applications, J.W.Brown and R.V.Churchill, 7th Edition, Tata Mc Graw Hill,2004.

Online Resources:

1. https://onlinecourses.swayam2.ac.in/cec24_ma09/preview
2. https://onlinecourses.nptel.ac.in/noc24_ma03/preview

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1. No. of Internal Tests	: 2	Max. Marks for each Internal Test	:	30
2. No. of Assignments	: 3	Max. Marks for each Assignment	:	5
3. No. of Quizzes	: 3	Max. Marks for each Quiz Test	:	5

Duration of Internal Test: 90 minutes

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
9-5-81, Ibrahimbagh, Hyderbad-500031, Telangana State

DEPARTMENT OF PHYSICS

Quantum Mechanics for Engineers

SYLLABUS FOR B.E. II – SEMESTER (Common to ECE and EEE)

L:T: P (Hrs/Week):2:0:0	SEE Marks: 60	Course Code: **U25BS210PH**
Credits: 2	CIE Marks: 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES**
1. To appreciate the merits of quantum mechanics over classical mechanics. 2. To arrive at the expression for carrier concentration in semiconductors and analyze various semiconductor devices 3. To comprehend advantages of superconductors 4. To introduce basics of quantum bit theory.	1. To apply quantum mechanical laws and interpret quantum tunnelling phenomenon. 2. To estimate required carrier concentration and elucidate working of optoelectronic devices 3. To explore SQUIDs and formulate different types of superconducting qubits 4. To interpret various types of qubits and their probable advantages

UNIT-I: FUNDAMENTALS OF QUANTUM MECHANICS

de Broglie waves and their properties, wave packet, wave function and its significance, Schrodinger time dependent and independent wave equations. Eigen values and Eigen functions of one-dimensional infinite square-well potential (particle in a box). Potential barrier problem and tunnelling phenomenon.

UNIT-II: PHYSICS OF SEMICONDUCTORS AND DEVICES

Kronig-Penny model, effective mass of an electron, Fermi energy level and variation of Fermi energy level with temperature, density of states, expression for intrinsic equilibrium carrier concentration, conductivity of intrinsic and extrinsic semiconductors, Hall effect and its applications.

Optoelectronic Devices: Principle, construction and working of LED, photodiode, solar cell and applications**.**

UNIT-III: SUPERCONDUCTIVITY

Introduction to superconductivity, General properties of superconductors: Zero resistivity, persistent currents, critical temperature, Critical magnetic field, critical current density, effect of pressure on T_C, Isotope effect, entropy, Meissner effect, London penetration depth, Type I and Type II superconductors-fundamentals of BCS Theory - Josephson's Junctions-Josephson's dc and ac effects–SQUID- High temperature superconductors- Applications of superconductors.

UNIT-IV: BASICS OF QUANTUM BIT THEORY

Introduction to Ket and Bra vectors, Qubits, superposition, entanglement, interference, decoherence of qubits, difference between quantum and classical computers.

Physical implementation of qubits (very qualitative description)

Solid State Qubits: Semiconducting Qubits- quantum dots, spins

Superconducting Qubits: Charge, Flux and Phase

Applications of quantum computers.

Learning Resources:

1. Donald A Neamen, Semiconductor Physics and Devices, 3rd edition, Tata McGraw 2008.
2. S.O. Kasap, Optoelectronic and Photonics: Principles and Practices, Pearson, 2001
3. S O Pillai, Solid State Physics, 8th edition, New Age International Publishers, 2018

4. M.N. Avadhanulu and P.G. Kshirsagar and TVS Arun Murthy, A Textbook Engineering Physics, 11th edition, S. Chand, 2019.
5. Quantum Mechanics: Theory and Applications" by Ajoy Ghatak and S. Lokanathan, Springer-Verlag New York Inc., 2004.
6. Quantum Computation and Quantum Information Michael A. Nielsen & Isaac L. Chuang, 10th Anniversary Edition, Cambridge University Press

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1. No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2. No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3. No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Test: 90 minutes

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
9-5-81, Ibrahimbagh, Hyderbad-500031, Telangana State

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Object Oriented Programming using C++

SYLLABUS FOR B.E. II SEMESTER

L:T: P (Hrs/Week):3:0:0	SEE Marks: 60	Course Code:**U25ES210EE**
Credits: 3	CIE Marks: 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES The course will enable the students to:	**COURSE OUTCOMES** On completion of the course, students will be able to
• Understand basic notions of object oriented programming. • Acquire object-oriented problem solving skills. • Write programs in C++.	1. Explain Object Oriented Programming concepts using C++. 2. Design programs using functions, input/output operations, decision making and looping constructs. 3. Create classes using object oriented design principles. 4. Design programs to implement inheritance, polymorphism. 5. Design programs to implement exception handling.

UNIT-I

Introduction to C++: Programming paradigms, Object Oriented Programming Concepts, Advantages and Applications of OOP.

C Concepts: Variables and Assignments, Input and Output, Data Types, Expressions, SimpleFlow Control and Control Structures.

I/O Streams as an introduction to Classes and Objects.

UNIT-II

Functions: Call by Value, Call by Reference, Recursion, Testing and Debugging Functions.

Arrays: Introduction to Arrays, Arrays in Functions, Programming with Arrays and Multidimensional Arrays, Dynamic Arrays.

UNIT-III

Constructors, Destructors, CopyConstructors.

Static Polymorphism: Function and Operator Overloading, Friend Functions.

UNIT-IV

Inheritance: The Notion of Inheritance, Derived Classes, Overriding, Virtual Base Class. Runtime Polymorphism, Virtual Functions, Abstract class.

UNIT-V

Function Templates and Class Templates.

Exception Handling: Exception Handling Basics, Programming Techniques forException Handling

Learning Resources:

1. Walter Savitch, "Problem solving with C++", 6th Edition, Pearson Education,2009.

2. Behrouz A. Forouzan, Richard F. Gilberg, "Computer Science, A StructuredApproach using C++", 2nd Edition, Cengage Learning, 2010.

3.E. Balaguruswamy, "Object-Oriented Programming with C++", 6thEdition, Tata Mc-Graw Hill, 2013.

4.K.R.VenuGopal, Rajkumar Buyya, T.RaviShankar, "Mastering C++", 2nd Edition,McGraw Hill , 2013.

5.S.B. Lippman. J Lajoie , "C++ Primer" 3rd Edition, AW Publishing Company,2007.

6.Paul Dietel, Harvey Dietel, "C++ How to Program", 6th Edition, PHI, 2010.

7.Bjarne Stroustrup, "The C++ Programming Language", 4th Edition, Addison-Wesley, 2013.

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1. No. of Internal Tests	: 2	Max. Marks for each Internal Test	:	30
2. No. of Assignments	: 3	Max. Marks for each Assignment	:	5
3. No. of Quizzes	: 3	Max. Marks for each Quiz Test	:	5

Duration of Internal Test: 90 minutes

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
9-5-81, Ibrahimbagh, Hyderbad-500031, Telangana State

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING
Electrical Network Analysis

SYLLABUS FOR B.E. II SEMESTER

L:T:P (Hrs./week): 3:0:0	SEE Marks: 60	Course Code: **U25PC220EE**
Credits: 3	CIE Marks: 40	Duration of SEE: 3Hrs

COURSE OBJECTIVES Objectives of this course are to:	**COURSE OUTCOMES** At the end of the course, students will be able to:
The objective of Electrical Network Analysis is to provide the Knowledge on transient and steady state analysis of electrical circuits, Resonance, coupled circuits and two port network parameters. Also provide the Laplace approach to analyse electrical networks.	At the end of this course, students will demonstrate the ability to 1. Analyse the transient and steady-state response of first order and second order electrical circuits. 2. Apply and analyse the resonance in electrical circuits 3. Analyse the coupled circuits. 4. Analyse the two port networks. 5. Apply Laplace transforms to analyse the electrical circuits

Unit I: Solution of First order networks
Introduction, Terminology: Time constant, natural response, forced response; The source free RC circuit, Source free RL circuit, Singularity functions, Step response of an RC circuit, Step response of an RL circuit.

Unit II: Solution of Second order networks
Introduction, Finding initial and final values, The Source free series RLC circuit, Source free parallel RLC circuit, Step response of a series RLC circuit, Step response of a parallel RLC circuit, General second order circuits.

Unit III: Dual networks. Resonance and Magnetically Coupled Circuits

Duality and dual networks; series and parallel resonances; Mutual inductance, energy in a coupled circuit, Mutual coupled circuits, Dot Convention in coupled circuits.

Unit IV: Two Port Networks

Two Port Networks, terminal pairs, relationship of two port variables, impedance parameters, admittance parameters, transmission parameters and hybrid parameters, interconnections of two port networks.

Unit V: Electrical Circuit Analysis Using Laplace Transforms:

Review of Laplace Transform: Definition, properties; Inverse Laplace Transform; Analysis of electrical circuits using Laplace Transform for standard inputs, Circuit element models, Analysis of transformed network with initial conditions. Transfer function representation, Poles and Zeros.

Learning Resources:

1. C. K. Alexander and M. N. O. Sadiku, "Fundamentals of Electric Circuits", Tata McGraw Hill Education, 2013.
2. W. H. Hayt and J. E. Kemmerly, "Engineering Circuit Analysis", Tata McGraw Hill Education, 2013.
3. D. Roy Choudhury, "Networks and Systems", New Age International Publications, 1998.
4. M. E. Van Valkenburg, "Network Analysis", Prentice Hall, 2006.
5. K. V. V. Murthy and M. S. Kamath, "Basic Circuit Analysis", Jaico Publishers, 1999.

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1.	No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2.	No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3.	No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Test: 90 minutes

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

9-5-81, Ibrahimbagh, Hyderbad-500031, Telangana State

DEPARTMENT OF CIVIL ENGINEERING

Basic Engineering Drawing

(Common to EEE & ECE)

SYLLABUS FOR B.E. II SEMESTER

L:T:P (Hrs./week): 1:0:2	SEE Marks: 60	Course Code: **U25ES030CE**
Credits: 2	CIE Marks: 40	Duration of SEE: 3Hrs

COURSE OBJECTIVES Objectives of this course are to:	**COURSE OUTCOMES** At the end of the course, students will be able to:
1. Impart skills in using drawing instruments to convey exact and complete information of the object. 2. Construct conic sections and regular polygons. 3. Construct the orthographic projections of points, lines, planes and solids.	1. Understand the fundamentals of drawing, Draw polygons and Conics. 2. Draw the orthographic projections of points and straight lines. 3. Draw the orthographic projections of planes inclined to both reference planes. 4. Draw the orthographic projections of solids inclined to one reference plane.

UNIT-I: Introduction to Engineering Drawing: Necessity of Engineering Drawing for engineers, Use of Drawing Instruments, Types of Lines, Lettering practice, Dimensioning and its methods, Conic sections by eccentricity method, Regular polygons given the length of side.

UNIT-II: Orthographic Projections: Principles of orthographic projections, conventions, projections of points placed in different quadrants.

Projections of straight lines inclined to one and two reference planes placed infirst quadrant – Determination of final projections given true length and

inclinations; Determination of true length and inclinations given projections ($\theta+\phi<90°$Only)

UNIT-III: Projections of Planes: Projections of perpendicular planes, oblique planes- cases of an element of plane in HP or VP only.

UNIT-IV: Projections of Regular Solids: Projections of prism, cylinder, pyramid and cone in simple positions and axis inclined to one reference plane.

Learning Resource:

1. Bhatt N.D. "Elementary Engineering Drawing", Charotar Publishers,54th Edition, 2023.
2. Basanth Agrawal, Agrawal C.M " Engineering Drawing" Second Edition, Tata McGraw Hill,2019
3. Thomas E French, Charles J Vierck, Robert J. Foster,"Engineering Drawing and Graphic Technology",Mc Graw Hill Education, 1993.
4. GillP.S."Engineering Drawing: Geometrical Drawing",S K Kataria & sons,13th Edition, 2021.
5. Venugopal.K"Engineering Drawing and Graphics Plus Autocad",New Age International (P) Ltd., New Delhi,2011.
6. Siddiquee A.N" Engineering Drawing with a Primer on Autocad",Prentice hall of India Ltd., New Delhi,2004.
7. BVR Gupta, M RajaRoy, "Engineering Drawing with AutoCad",IK Int Pvt Ltd,2020.
8. NPTELCourse(www.nptel.ac.in)
9. Virtuallabs(www.vlab.co.in)

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1. No. of Internal Tests	: 2	Max. Marks for each Internal Test	:	30
2. No. of Assignments	: 3	Max. Marks for each Assignment	:	5
3. No. of Quizzes	: 3	Max. Marks for each Quiz Test	:	5

Duration of Internal Test: 90 minutes

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
9-5-81, Ibrahimbagh, Hyderbad-500031, Telangana State

DEPARTMENT OF HUMANITIES & SOCIAL SCIENCES

HUMAN VALUES AND PROFESSIONAL ETHICS-I
(Common to all branches) SYLLABUS FOR B.E. II SEMESTERS

L:T: P (Hrs/Week):1:0:0	SEE Marks: 40	Course Code: **U25HS020EH**
Credits: 1	CIE Marks: 30	Duration of SEE : 3 Hours

COURSE OBJECTIVES students able to:	**COURSE OUTCOMES** The students acquire the ability to
1. Get a holistic perspective of value-based education. 2. Grasp the meaning of basic human aspirations vis-a-vis the professional aspirations 3. Understand professionalism in harmony with self and society. 4. Develop ethical human conduct and professional competence. 5. Enrich their interactions with the world around, both professional and personal.	1. Understand the significance of value inputs in a classroom and start applying them in their life and profession 2. Distinguish between Personal and Professional life goals–constantly evolving into better human beings and professionals. 3. Work out the strategy to actualize a harmonious environment wherever they work. 4. Distinguish between ethical and unethical practices, and start implementing ethical practices 5. Apply ethics and values in their personal and professional interactions.

UNIT-1 HARMONY WITH SELF AND FAMILY

Understanding and living in harmony at various levels-with self, family, society and nature and the Ethical and moral values**:** which include self-sufficiency, self-determination, self-advocacy, self-competence, self-direction, self-efficacies, self-regulation, self-reliance, and self-responsibility. This also includes

Family values involving all the ideas of how you want to live your family life, and they are often passed down from previous generations.

1.1 Self-Values and Ethics
1.2 Family – Values and Ethics
1.3 Self-Care Practices

UNIT-2 PROFESSIONAL VALUES AND BEHAVIOUR

At the level of individuals: as socially and ecologically responsible engineers and technologists. Team Work: Developing Credibility and building trust by having open and truthful communication. This includes recognizing the value of time and respecting time of self and others.

2.1 Professional Ethics – Individual
2.2 Professional Behaviour - Body Language and Etiquette
2.3 Professional Ethics – Team

UNIT-3 SOCIAL VALUES

Values of service, social justice, dignity and worth of the person Importance of human relationships, integrity, and competence.

3.1 Understanding Social Values
3.2 Importance of relationship
3.3 Diversity and Inclusion

UNIT -4 SPIRITUAL VALUES

Developing individual practice has to do with having a sense of peace and purpose. Spiritual values, namely, benevolence, charity, dignity, forbearance, hope, humility, kindness, love, modesty, peace, perseverance, piety, repentance, righteous, sacredness, sincerity, steadfastness, striving, trusting, truthfulness, unity, and wisdom.

4.1 Exploring Different Traditions
4.2 Values in Action
4.3 Spirituality in Everyday Life

MODE of DELIVERY

• Questionnaires • Quizzes • Case-studies • Observations and practice • Home and classroom assignments	• Discussions • Skits • Short Movies/documentaries • Team tasks and individual tasks • Research based tasks • Viva

Relevant Websites, CD's and Documentaries

- https://plato.stanford.edu/

Learning Resources:

learn.talentsprint.com

1. Sapiens: A Brief History of Humankind By Yuval Noah Harari
2. How to Think About What You Don't Know: The Art of Counterfactual Thinking by Judith Lichtenberg
3. Ethics in the Professions by Charles E. W. Tessera
4. Thinking in Ethics: A Practical Guide to Right and Wrong by Jeanne Halifax

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1. No. of Internal Tests	:	1	Max. Marks for each Internal Test	:	20
2. No. of Assignments	:	2	Max. Marks for each Assignment	:	5
3. No. of Quizzes	:	2	Max. Marks for each Quiz Test	:	5

Duration of Internal Test: 90 minutes

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
9-5-81, Ibrahimbagh, Hyderbad-500031, Telangana State

DEPARTMENT OF HUMANITIES & SOCIAL SCIENCES

Learning to Learn
(Common to all branches) SYLLABUS FOR B.E. II SEMESTERS

L:T:P (Hrs/Week): 1:0:0	SEE Marks: 40	Course Code: **U25HS040EH**
Credits: 1	CIE Marks: 30	Duration of SEE: 2 Hours

COURSE OBJECTIVES	COURSE OUTCOMES
The course will enable the learners to: 1. Understand the importance of a growth mindset and personal learning styles. 2. Learn techniques to improve memory retention and focus for effective learning. 3. Develop practical time management skills to prioritize tasks effectively. 4. Help students understand questions, structure answers effectively, and manage time for improved exam performance.	At the end of the course the learners will be able to: 1. Students will be able to adopt a growth mindset and customize learning strategies based on their strengths. 2. Students will apply mnemonic devices, active recall, and focus strategies to enhance their learning process. 3. Students will implement time-blocking and prioritization techniques for better productivity. 4. Students will apply strategies to interpret questions and write clear, effective answers within time limits.

Overview:
In an era shaped by rapid change and evolving technologies, the ability to learn continuously is a core skill for personal and professional success. This course is designed to help engineering students become self-directed, adaptable learners. By exploring mindset, memory techniques, focus strategies, time management, and reflection, students will develop learning habits that support lifelong growth and workplace readiness.

UNIT-1: Foundations of Learning

Builds a strong base for lifelong learning through mindset, self-awareness, and personal learning styles.

1.1 Growth Mindset
1.2 Understanding Learning Styles
1.3 Overcoming Procrastination

Learning Outcomes:

- Cultivate a growth mindset to embrace challenges and persist in learning
- Identify personal learning preferences and adapt strategies accordingly
- Recognize and overcome common learning barriers like procrastination

UNIT-2: Memory and Focus

Equips students with practical strategies to improve attention and information retention.

2.1 Techniques for Focus and Attention
2.2 Spaced Repetition and Active Recall
2.3 Mind Mapping for Retention

Learning Outcomes:

- Practice focused learning using tools like Pomodoro and distraction management
- Enhance memory with scientifically supported methods like spaced repetition and recall

Use visual techniques such as mind maps to organize and retain complex content

UNIT-3: Managing Time Effectively

Enables students to manage academic and personal responsibilities through smart scheduling and prioritization.

3.1 Prioritization (Eisenhower Matrix)
3.2 Time Management Tools
3.3 Balancing Academics and Personal Goals

Learning Outcomes:

- Prioritize tasks using structured models for better academic planning
- Use digital or physical tools to track goals, deadlines, and productivity
- Design a sustainable routine that aligns academic success with well-being

UNIT-4: Strategic Exam Skills Decoded

Focuses on building strategic approaches to tackle exams effectively, with emphasis on comprehension, answer structuring, and time-bound performance.

4.1 Understanding the Question
4.2 Structuring the Answer
4.3 Customizing Answers for Impact

Learning Outcomes:

- Interpret exam questions accurately and identify the expected response type and depth.
- Construct well-structured, relevant answers tailored to the marks and keywords in the question.
- Recognize and eliminate common answer-writing errors like digression and unnecessary detail.

Suggested Books

1. Mindset: The New Psychology of Success by Carol S. Dweck
2. Make It Stick: The Science of Successful Learning by Peter C. Brown, Henry L. Roediger III, and Mark A. McDaniel
3. Eat That Frog! by Brian Tracy
4. How to Write Better Essays by Bryan Greetham

Learning Resources:

learn.talentsprint.com

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1. No. of Internal Tests	: 1	Max. Marks for each Internal Test	:	20
2. No. of Assignments	: 1	Max. Marks for each Assignment	:	5
3. No. of Quizzes	: 1	Max. Marks for each Quiz Test	:	5

Duration of Internal Test: 90 minutes

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
9-5-81, Ibrahimbagh, Hyderbad-500031, Telangana State

DEPARTMENT OF PHYSICS

APPLIED PHYSICS LAB
SYLLABUS FOR B.E. II SEMESTER
(Common to ECE and EEE)

L:T: P (Hrs/Week):0:0:2	SEE Marks: 50	Course Code: **U25BS211PH**
Credits: 1	CIE Marks: 30	Duration of SEE : 3 Hours

COURSE OBJECTIVES students able to:	**COURSE OUTCOMES** The students acquire the ability to
• to study and discuss the characteristics of a given device • to identify probable errors and take in the readings and known possible precautions • to compare the experimental and theoretical values and draw possible conclusions. • To interpret the results from the graphs drawn using experimental values. • To write the record independently with appropriate results.	1. Conduct experiment independently and in team to record the measurements 2. Outline the precautions required to be taken for each experiment 3. Compare the experimental results with standard values and estimate errors 4. Draw graphs and interpret the results with respect to graphical and theoretical values 5. Write the summary of the experiment and draw appropriate conclusions

1. Study of I-V characteristics of P-N Junction diode.
2. Study of I-V characteristics of Zener Diode
3. Study of I-V characteristics of LED and Photodiode
4. Study of I-V characteristics of solar cell and to calculate fill factor and efficiency.
5. Determination of energy gap of a given semiconductor by four probe method
6. Hall's effect- Determination of Hall's coefficient, carrier concentration of given

semiconductor

7. Helmholtz coil –calculation of magnetic field along the axis of a solenoid
8. B-H curve-estimation of Hysteresis loss of a ferromagnetic sample
9. Determination of wavelength of laser light.
10. Calculation of numerical aperture, acceptance angle and power loss due to bending of an optical fiber.
11. Study of resonance in LCR series and parallel circuits and estimation of band width & Q- factor
12. Determination of Seebeck coefficient.
13. Determination of Dielectric constant.

Each student should perform at least 10 (Ten) experiments.

No. of Internal Tests:	01	Max. Marks for Internal Test:	12
Marks for day-to-day laboratory class work			18
Duration of Internal Test: **3 Hours**			

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
9-5-81, Ibrahimbagh, Hyderbad-500031, Telangana State

DEPARTMENT OF MECHANICAL ENGINEERING

WORKSHOP PRACTICE
SYLLABUS FOR B.E. I-SEMESTER
(Common to Civil & EEE branches)

SYLLABUS FOR B.E. II SEMESTER

L:T: P (Hrs/Week):0:0:2	SEE Marks: 50	Course Code: **U25ES021ME**
Credits: 1	CIE Marks: 30	Duration of SEE : 3 Hours

COURSE OBJECTIVES students able to:	**COURSE OUTCOMES** The students acquire the ability to
1. know basic workshop processes, adopt safety practices while working with various tools 2. Identify, select and use various marking, measuring, striking holding, and cutting tools & equipment.	1. Construct models related to carpentry, plumbing and welding trades using appropriate tools and techniques. 2. Measure and inspect finished components accurately using suitable measuring instruments. 3. Apply basic electrical and electronics engineering concepts to design and assemble simple electrical circuits, verify their functionality, and perform component soldering with proper safety and technique.

List of the Experiments:

ELECTRICAL & ELECTRONICS:
1. Two lamps in(a)series(b) parallel with 3 pin plug and switches
2. Staircase wiring and Tube light wiring
3. (a) Identification of electronic components
   (b) Soldering practice

CARPENTRY:
1. Half-lap joint
2. Dove-tail joint
3. Bridle joint

PLUMBING:

1. Introduction of tools, joints, couplings and valves etc.
2. Pipe thread cutting and making single joint with coupling and tap connection.
3. Water shower connection with reducer coupling

WELDING

1. Bead formation using arc welding
2. Butt joint & T joint using arc welding
3. Lap joint using gas welding

ADDITIONAL EXPERIMENTS

1. Electrical & Electronics: LT Distribution with loads (Demo)
2. Carpentry: Wood turning operation (demo)
3. Demonstration of 3D printing of a component
4. Welding: Spot welding (demo)

Learning Resources:

1. Hajra Choudhury S.K., Hajra Choudhury A.K., Nirjar Roy S.K. "Element of Workshop Technology" Vol-I 2008 & Vol-II 2010 Media Promoters & Publishers Pvt. Limited, Mumbail
2. Kalpakjian S. and Steven S. Schmid, "Manufacturing Engineering and Technology" 4th Edition, Pearson Education India Edition, 2002.
3. Gowri P., Hariharan and Surech Babu A., "Manufacturing Technology-I", Pearson Education 2008.
4. P. Kannaiah & K.L. Narayana "Workshop manual" 2nd Ed., Scitech publications (I) Pvt. Ltd., Hyderabad.
5. B.L. Juneja, "Workshop Practice", Cengage Learning India Pvt. Limited, 2014.
6. www.technologystudent.com

The break-up of CIE : Internal Tests + Assignments + Quizzes

1	No. of Internal Tests	:	1
2	Max. Marks for internal tests	:	12
3	No. of Quizzes Marks for day-to-day laboratory class work	:	18

Duration of Internal Test: 2 Hours

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
9-5-81, Ibrahimbagh, Hyderbad-500031, Telangana State

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

OBJECT ORIENTED PROGRAMMING USING C++ LAB
SYLLABUS FOR B.E. II SEMESTER

L:T: P (Hrs/Week):0:0:2	SEE Marks: 50	Course Code: **U25ES211EE**
Credits: 1	CIE Marks: 30	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
• Write, compile and debug programs in C++. • Formulate problems and implement in C++. • Acquire skills to solve computing problems.	• Write and debug programs in C++ language • Choose appropriate data types, functions, decision and looping constructs to develop C++ programs. • Implement OOP functionalities such as class, overloading, dynamic memory allocation. • Develop programs using Inheritance, polymorphism. • Develop programs using Templates and Exception Handling

LIST OF EXPERIEMNTS

1. Programs on matrix and complex numbers using classes.
2. Programs on control statements.
3. Programs on loop statements.
4. Programs using constructors, destructors and copy constructors.
5. Programs on dynamic memory allocation for arrays.
6. Programs to demonstrate friend class.
7. Programs to demonstrate function overloading.
8. Programs to demonstrate operator overloading.
9. Programs to demonstrate inheritance.
10. Programs on virtual functions, dynamic polymorphism.

11. Programs on function templates, class templates.
12. Programs on exception handling

SUGESTED BOOKS:

1. Walter Savitch, "Problem solving with C++", 6th Edition, Pearson Education Publishing, 2009.
2. Behrouz A. Forouzan, Richard F. Gilberg, "Computer Science, A Structured Approach using C++", 2nd Edition, Cengage Learning, 2010.
3. Balaguruswamy, "Object-Oriented Programming with C++", 6th Edition, Tata Mc-GrawHill, 2013.

No. of Internal Tests:	01	Max. Marks for Internal Test:	12
Day-to-day laboratory class work which will be awarded based on the average of assessment for each experiment considering at the end of the course			18
Duration of Internal Test: **3 Hours**			

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
9-5-81, Ibrahimbagh, Hyderbad-500031, Telangana State

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Electrical Network Analysis Lab

SYLLABUS FOR B.E. II SEMESTER

L:T: P (Hrs/Week):0:0:2	SEE Marks: 50	Course Code: **U25PC221EE**
Credits: 1	CIE Marks: 30	Duration of SEE : 3 Hours

COURSE OBJECTIVES The course will enable the students to	**COURSE OUTCOMES** On completion of the course, students will be able to
The objective of Electrical Circuits Laboratory is to provide Under Graduate Engineer a thorough understanding on the fundamentals of electric circuits with hands-on experience, so that the student will acquire in depth knowledge on circuit elements, their characteristics and their functioning to analyze and apply to many engineering problems.	1. Apply fundamental laws and find the unknown quantity (voltage/Current) in circuits with suitable analysis. 2. Analyze the power and power factor in AC circuits. 3. Analyze the Step response of first order and second order circuits. 4. Analyze the characteristics of resonance in electrical circuits. 5. Analyze the Coupled circuits and two-port network parameters.

List of Experiments

1. Series and parallel circuits with DC excitation.
2. Determination of power and Power factor in single phase ac circuits.
3. Superposition theorem.
4. Thevenin's and Norton's theorems.
5. Determination of maximum power transfer in a circuit.
6. Measurement of cumulative three-phase power in a balanced three phase circuit.

7. Step response of series R-L and series R-C circuit.
8. Step response of series R-L-C circuit.
9. Characteristics of Series resonance
10. Polarity test in coupled circuits and determination of mutual inductance.
11. Determination of impedance and admittance parameters of a two-port network.
12. Determination of hybrid parameters and transmission parameters a two-port network.

Virtual Lab Experiments:

Lab title: Analog Signals, Network and Measurement Virtual Laboratory

Link: https://asnm-iitkgp.vlabs.ac.in/List%20of%20experiments.html

1. Verification of Norton Theorem
2. Verification of Thevenin Theorem
3. Verification of Tellegen's Theorem
4. Verification of Superposition Theorem
5. Verification of Millman's Theorem
6. Three Phase Power Measurement
7. R-L-C Circuit Analysis
8. Tests on Single Phase Transformer
9. Verification of Compensation Theorem
10. Verification of Reciprocity Theorem
11. Verification of Maximum Power Transfer Theorem
12. Determination of different parameters of Two-port network and verification of their interrelations
13. Frequency response of R-L-C series Circuit

From the above experiments, each student should perform at least 10 (Ten) experiments.

No. of Internal Tests:	01	Max. Marks for Internal Test:	12
Marks for day-to-day laboratory class work			18
Duration of Internal Test: **2 Hours**			