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 2022-23
(For the batch admitted in 2022-23)
(R-22)

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

Excellence in quality education by keeping pace with rapidly changing technologies and to create man power of global standards in the field of Electrical and Electronics Engineering.

DEPARTMENT MISSION

To impart in-depth knowledge to students through inductive teaching and learning practices, so that they acquire the skill to innovate, excel and lead in their profession with values and ethics that will benefit society.

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)

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

- EEE students will be able to design and analyze Electrical and Power Electronic Circuits.

- 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 2022-23

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

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

SCHEME OF INSTRUCTION AND EXAMINATION (R-22)::B.E. - EEE : FIRST SEMESTER(2022 - 23)

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								
U22BS110MA	Calculus	3	-	-	3	60	40	3
U22BS010CH	Engineering Chemistry	3	-	-	3	60	40	3
U22ES120CS	Programming for Problem Solving	3	-	-	3	60	40	3
U22ES010CE	Basic Engineering Mechanics	3	-	-	3	60	40	3
U22PC110EE	Circuit Theory	3	-	-	3	60	40	3
U22MC010ME	Introduction to Entrepreneurship	1	-	-	2	40	30	0
PRACTICALS								
U22PC111EE	Electrical Circuits Lab	-	-	2	3	50	30	1
U22BS011CH	Chemistry Lab	-	-	2	3	50	30	1
U22ES121CS	Programming for Problem Solving Lab	-	-	2	3	50	30	1
U22ES111ME	Engineering Workshop-I	-	-	2	3	50	30	1
	Library/Sports/Proctorial Interaction	-	-	-	-	-	-	-
	PDC/CC/TC/RC	-	-	-	-	-	-	-
TOTAL		**16**	**-**	**8**		**540**	**350**	**19**
GRAND TOTAL		**24**				**990**		**19**

Note: Left over hours are allocated for Library/Sports/Proctorial Interaction/PDC/C C/TC /RC

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

DEPARTMENT OF MATHEMATICS

CALCULUS
(Common to All Branches)
SYLLABUS FOR B.E. I SEMESTER

L:T: P (Hrs/Week):3:0:0	SEE Marks: 60	Course Code: **U22BS110MA**
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
1. Identify convergence of infinite series using various tests. **2. Understand** The concepts of curvature, radius of curvature, evolutes and to expand functions using Taylor's series. **3. Acquire** knowledge of partial derivatives, and expand functions using Taylor's series functions of two real variables and, maxima- minima. **4. Study** the concepts of vector differentiation, Gradient, Divergence and Curl. **5. Learn** how to evaluate double and triple integrals, using change of order of integration and apply vector integration to transformation theorems	**1. Apply** an appropriate test to check the nature of the infinite series. **2. Compute** radius of curvature, evolute of a given curve and also to expand given function using Taylor's series. **3. Expand** the given function in terms of Taylor's series and find Maxima and minima of functions of several variables also using Lagrange's method of multipliers. **4. Use** gradient to evaluate directional derivatives and conservative vector field. **5. Apply** concepts of multiple integrals to evaluate area and volume and vector integration to transformation.

UNIT-I
INFINITE SERIES
Definition of Sequences- Series – Convergence and Divergence- Series of positive terms-Geometric series- p-series test - Comparison tests - D'Alemberts Ratio Test – Cauchy's root test - Alternating Series – Leibnitz test – Absolute and Conditional convergence.

UNIT- II

DIFFERENTIAL CALCULUS

Taylor's Series – Maclaurin's Series- Curvature- Radius of Curvature – Centre of Curvature –Evolutes. (Cartesian and Parametric co-ordinates)

UNIT –III

MULTIVARIABLE CALCULUS

Limits- Continuity -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 without and with constraints - Lagrange's Method of multipliers.

UNIT – IV

VECTOR DIFFERENTIAL CALCULUS

Scalar and Vector point functions -Vector Differentiation-Level Surfaces-Gradient of a scalar point function- Normal to a level surface- Directional Derivative – Divergence and Curl of a Vector field-Conservative vector field.

UNIT – V

MULTIPLE INTEGRALS: Double and Triple integrals (Cartesian) - Change of order of integration (Cartesian Coordinates)- Jacobian's-Change of the Variables(Cartesian to polar Coordinates)- Line integrals- Green's Theorem

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 40th. Edition, Khanna Publishers.

Reference Books:

1 Advanced Engineering Mathematics 8th 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 **http://mathworld.wolfram.com/topics**
2 **http://www.nptel.ac.in/course.php**

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

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

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

DEPARTMENT OF CHEMISTRY

ENGINEERING CHEMISTRY

SYLLABUS FOR B.E. I SEMESTER

L:T: P (Hrs/Week):3:0:0	SEE Marks: 60	Course Code: **U22BS110CH**
Credits: 3	CIE Marks: 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES The objectives of the course are:	**COURSE OUTCOMES** Upon the completion of this course students will 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. Get acquainted with different types of polymers and their applications. 4. Explain the concepts of engineering materials like nano materials and liquid crystals. 5. Know the principles of few analytical techniques.	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. Classify the polymers and discuss the synthesis and applications of few polymers. 4. Get expose to the classification, properties and applications of nanomaterials and liquid crystals. 5. Familiarize with the basic concepts of few analytical techniques.

UNIT-I: ELECTROCHEMISTRY

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. IUPAC convention of cell notation, cell reaction, concept of electrode potential, electromotive force (EMF). Electrochemical series – applications, 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. Principle and Applications of potentiometry – acid base and

redox reaction (Fe(II) Vs $KMnO_4$).

UNIT-II: BATTERY TECHNOLOGY

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 – numericals, Memory effect, flat discharge rate.

Primary batteries: Construction and electrochemistry of Zn-C battery, Zn-Ag_2O battery and lithium-V_2O_5 battery.

Secondary batteries: Construction and working of lead-acid, Ni-Cd 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, phosphoric acid fuel cell and Molten carbonate fuel cell.

UNIT-III: POLYMER CHEMISTRY

Introduction, degree of polymerization, functionality of monomers and its effect on the structure of polymers. Classification of polymers – a) homo and co-polymers, b) homo chain and hetero chain polymers. c) plastics, elastomers, fibers and resins.

Types of Polymerizations – Addition and condensation polymerization.

Glass transition temperature (Tg), factors affecting Tg.

Molecular weight – number average and weight average molecular weight, numericals.

Plastics: Thermo plastics and thermosets – preparation, properties and applications of a) Aramid (Kevlar) b) Poly methyl methacrylate(PMMA)

Biodegradable polymers: Concept, preparation and uses of ploy lactic acid.

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

Polymer composites: Introduction, advantages of composites over conventional materials, fiber reinforced composites Kevlar, Carbon and Glass FRCs and their applications.

UNIT-IV: ENGINEERING MATERIALS

Nanomaterials

Introduction – concept of nanomaterials – quantum confinement and surface volume ratio – catalytic and electrical properties.

Types of Nanomaterials**:** carbon nanotubes, quantum dots, nanowires, nanocrystals.
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 and laser ablation methods.
Applications of Nanomaterials.

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.

UNIT-V: INSTRUMENTAL METHODS OF ANALYSIS

Spectroscopy: Principle, block diagram, Applications of Atomic Absorption Spectroscopy (AAS).

Microscopic techniques: Introduction, Limitations of optical microscopy. Significance of de Broglie's equation, Principle and block diagram of Scanning Electron Microscope (SEM), Atomic Force Microscope (AFM).

Thermal Analysis: Principle, block diagram of Thermogravimetric Analysis (TGA) and analysis of calcium oxalate. Principle, block diagram of Differential Scanning Calorimetry (DSC) and analysis of TG of a polymer.

Text Books:

1. P. C. Jain, M Jain Engineering Chemistry, Dhanapathi Rai and sons (16^{th} edition), New Delhi.
2. Sashi Chawla, Text book of Engineering Chemistry, Dhanapathi Rai &sons, New Delhi.
3. O. G. PALANNA, Engineering Chemistry, TMH Edition.
4. Wiley Engineering chemistry, Wiley India pvt Ltd, II edition.
5. Chemistry in engineering and technology by J.C. Kuriacose and Rajaram.

Learning Resources:

1. University chemistry, by B. H. Mahan
2. Engineering Chemistry (NPTEL Web-book), by B. L. Tembe, Kamaluddin and M. S. Krishnan
3. Physical Chemistry, by P. W. Atkins
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. NPTEL Polymer Chemistry Course, D. Dhara, IIT Kharagpur.
7. Polymer chemistry by Gowariker
8. Introduction to Nanoscience, by S m Lindsay, Oxford 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

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

Department of Computer Science & Engineering

PROGRAMMING FOR PROBLEM SOLVING

SYLLABUS FOR B.E. I SEMESTER

L:T: P (Hrs/Week):3:0:0	SEE Marks: 60	Course Code: **U22ES120CS**
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, Software Development, Flowcharts. Number Systems (Binary, Octal, Decimal and Hexadecimal), 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, Statements, Bitwise Operators.

UNIT-II:

Selection: Logical Data and Operators, if... else, switch Statements, Standard Functions.

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

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

UNIT-III:

Recursion: Recursive Functions, Preprocessor Commands.

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.

UNIT-IV:

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

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, Nested Structures, Arrays of Structures, Structures and Functions, Pointers to Structures, Self Referential 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 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. 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 in C, 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), Pearson Education.

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

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

DEPARTMENT OF CIVIL ENGINEERING

BASIC ENGINEERING MECHANICS
(Common to Civil, CSE, ECE, EEE & Mechanical Engineering)

SYLLABUS FOR B.E. I SEMESTER

L:T: P (Hrs/Week):3:0:0	SEE Marks: 60	Course Code: **U22ES010CE**
Credits: 3	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, spatial, 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 and composite 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 and polar moment of inertia of a given section.

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

UNIT-II: Equilibrium of Force Systems: Free body diagram, Equations of equilibrium, Equilibrium of planar and spatial system.

UNIT-III: Determinate Trusses: Analysis of plane trusses like Warren girder, 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 and belt friction, Wedge friction.

UNIT-V: Centroid and Moment of Inertia: Centroids of lines, areas and volumes, Moment of inertia of areas, Composite areas, Polar moment of inertia, Radius of gyration.

Learning Resources:

1. Singer F.L "Engineering Mechanics", Harper & Collins, Singapore, 3rd Edition 2011.
2. Timoshenko S.P and Young D.H "Engineering Mechanics", McGraw Hill International Edition, 2017
3. Andrew Pytel., JaanKiusalaas., "Engineering Mechanics", Cengage Learning, 2014.
4. Beer F.P & Johnston E.R Jr. "VectorMechanics for Engineers", TMH, 2019.
5. Hibbeler R.C, "Engineering Mechanics", Pearson Education, 2017.
6. Tayal A.K., "Engineering Mechanics – Statics & Dynamics", Umesh Publications, 2011.
7. Basudeb Bhattacharyya., "Engineering Mechanics", Oxford University Press, 2014.
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

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: **U22PC110EE**
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.

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

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

Department of Mechanical Engineering

Introduction to Entrepreneurship

SYLLABUS FOR B.E.I-SEMESTER

L:T:P(Hrs/week):1:0:0	SEE Marks:40	Course Code: **U22MC010ME**
Credits : 0	CIE Marks:30	Duration of SEE: 2 Hours

COURSE OBJECTIVE *The objective of the course is to*	**COURSE OUTCOMES** *On completion of the course, students will be able to*
inspire students develop an entrepreneurial mind-set, educate about the resources and schemes available to start enterprises in India.	1 get awareness about entrepreneurship and potentially become an entrepreneur. 2 discern the characteristics required to be a successful entrepreneur 3 know the importance of effective communication. 4 demonstrate effective sales skills

Unit-I: Sources of new ideas, techniques for generating ideas.
Team formation, how entrepreneurship has changed the country and world, entrepreneurial myths, E-cells and their significance, success story of entrepreneurs, eg: Practo, global entrepreneurs, entrepreneurial journeys, challenges, and successes, characteristics of a Successful Entrepreneur, entrepreneurial styles, introduction to business model.

Unit-II: Importance of effective communication for entrepreneurs, communication barriers, miscommunication, incorrect assumptions about people, importance of listening, design thinking-a problem solving process, sales skills, understanding the customer-centric approach, personal selling techniques, show and tell, elevator pitch, managing risks and learning from failures, women entrepreneurs.

Learning Resources:

1. Bruce R. Barringer and R. Duane Ireland, "Entrepreneurship: successfully launching new ventures", 3rd edition, Pearson Prentice Hall, 2009.
2. P. Denning and R. Dunham, "The Innovator's Way", MIT Press: Cambridge, Massachusetts, 2010.
3. Arya Kumar, "Entrepreneurship", Pearson Education, Delhi, 2012.
4. Michael H. Morris, D.F.Kuratko, J G Covin, "Corporate Entrepreneurship and Innovation", Cengage learning, New Delhi,2010
5. Peter F. Drucker, "Innovation and Entrepreneurship", Routledge Classics, 2015.
6. Eric Ries, "The Lean Start-up", Currency, 1st edition, 2011.

Web Resources:

7. http://www.learnwise.org

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 2022-23

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

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Electrical Circuits Lab

SYLLABUS FOR B.E. II SEMESTER

L:T: P (Hrs/Week):0:0:2	SEE Marks: 50	Course Code: **U22PC111EE**
Credits: 1	CIE Marks: 30	Duration of SEE : 3 Hours

COURSE OBJECTIVES The course will enable the students	**COURSE OUTCOMES** On completion of the course, students will be able to
The objective of Basic 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. Choose appropriate instrument for measuring electrical quantities. 2. Apply fundamental laws and find the unknown quantity (voltage/Current) in circuits with suitable analysis. 3. Analyze network theorems and identify the applications of them. 4. Analyze the Sinusoidal steady state response of RLC circuits. 5. Understand the power measurement of three phase circuits for both balanced and unbalanced loads..

List of experiments:

1. Basic safety precautions. Introduction and use of measuring instruments – voltmeter, ammeter, multi-meter, oscilloscope. Practical resistors, capacitors and inductors.
2. Series and parallel circuits with DC excitation.
3. Average and RMS values of periodic waveforms.

4. Sinusoidal steady state response for R-L and R-C circuits – Measurement of phase angle.
5. Determination of power and Power factor in single phase ac circuits.
6. Superposition theorem.
7. Thevenin's and Norton's theorems.
8. Maximum power transfer in a circuit.
9. Tellegen's theorem.
10. Measurement of cumulative three-phase power in balanced three-phase circuits.
11. Measurement of three-phase power in unbalanced three-phase circuits.
12. Simulation of Sinusoidal steady state response of R-L R-C and R-L-C circuits.

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 assessment of each experiment			18
Duration of Internal Test: **3 Hours**			

With effect from the Academic Year 2022-23

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: **U22BS011CH**
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 4. Examine the accuracy	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 amount of a substance in 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.

1. Preparation of standard FAS or oxalic acid solution and standardization of $KMnO_4$ or NaOH solution.
2. Estimation of ferrous iron 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 hypo.
5. Estimation of available chlorine in bleaching powder.
6. Estimation of total hardness of given water sample.
7. Estimation of alkalinity of a given sample.
8. Conductometric acid-base titrations -Determination of strength of given acids (HCl *Vs* NaOH and CH_3COOH *Vs* NaOH).
9. Conductometric acid-base titrations- Determination of strength of acids in a given mixture of acids

(HCl and CH_3COOH *Vs* NaOH)

10. Determination of strength of a given acid by Potentiometry.
11. Determination of concentration of a given $FeSO_4$ using redox titration by Potentiometry.
12. Determination of strength of a given acid by pH metry.
13. Determination of strength of permanganate or copper in brass solution by Colorimetry.
14. Synthesis of Phenol formaldehyde resin / PANI.
15. Chemistry of blue printing.

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 2022-23

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

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

Department of Computer Science & Engineering

Programming For Problem Solving Lab
(Common to CSE, AI&ML, IT, ECE and EEE)

SYLLABUS FOR B.E. I SEMESTER

L:T: P (Hrs/Week):0:0:2	SEE Marks: 50	Course Code: **U22ES121CS**
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'Reilly Press.
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**			

With effect from the Academic Year 2022-23

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

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

DEPARTMENT OF MECHANICAL ENGINEERING

Engineering Workshop-I
(Common to Mechanical, Civil & EEE branches)

SYLLABUS FOR B.E. I SEMESTER

L:T: P (Hrs/Week):0:0:2	SEE Marks: 50	Course Code: **U22ES111ME**
Credits: 1	CIE Marks: 30	Duration of SEE : 3 Hours

COURSE OBJECTIVES The objective of the course is to	**COURSE OUTCOMES** On completion of the course, students will be able to
1. Know basic workshop processes, adopt safety practices while working with various tools 2. Identify, select and use various marking, measuring, holding, striking and cutting tools &equipments.	1. Create models in Carpentry, plumbing, Electrical & Electronics and Sheet metal trades by using the relevanttools. 2. Measure and inspect the finished components using suitable measuring instruments. 3. Apply basic electrical and electronics engineeringknow ledge to make simple electrical circuits and check their functionality along with practice in soldering of electronic components.

List of the Experiments:

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

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

SHEET METAL:

1. Rectangular box
2. Rectangular scoop with handle
3. Making a funnel with soldering

Additional Experiments

1. Plastic Moulding: Injection moulding of plastic spoon (demo)
2. Plumbing: Geyser connection(demo)
3. Electrical & Electronics: LT Distribution with loads (Demo)
4. Carpentry: Wood turning operation (demo)
5. Sheet Metal: Making a T-Joint (Demo).

Learning Resources:

1. Hajra Choudhury S.K., Hajra Choudhury A.K., Nirjar Roy S.K. "Elements of Workshop Technology" Vol-I 2008 & Vol-II 2010 Media Promoters & Publishers Pvt. Limited, Mumbai.
2. Kalpakjian S. and Steven R. Schmid, "Manufacturing Engineering and Technology" 4th Edition, Pearson Education India, 2002.
3. Gowri P., Hariharan and Suresh 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

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**			

With effect from the Academic Year 2022-23

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

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

SCHEME OF INSTRUCTION AND EXAMINATION (R-22) :: B.E. - EEE : SECOND SEMESTER(2022 - 23)

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								
U22HS010EH	English Language and Communication	2	-	-	3	60	40	2
U22BS210MA	Differential Equations and Complex Analysis	3	-	-	3	60	40	3
U22BS210PH	Quantum Mechanics and Material Science	3	-	-	3	60	40	3
U22ES210IT	Object Oriented Programming using C++	3	-	-	3	60	40	3
U22ES030CE	Basic Engineering Drawing	1	-	2	3	60	40	2
U22PC210EE	Power Systems -I	2	-	-	3	60	40	2
U22HS020EH	Human values and Professional Ethics -I	1	-	-	2	40	30	1
U22MC010CE	Environmental Science	2	-	-	3	60	40	-
PRACTICALS								
U22BS011PH	Applied Physics Lab	-	-	2	3	50	30	1
U22ES211IT	Object Oriented Programming using C++ lab	-	-	2	3	50	30	1
U22HS011EH	English Language and Communication Skills Laboratory	-	-	2	3	50	30	1
U22ES221ME	Engineering Workshop - II	-	-	2	3	50	30	1
	Library/Sports/Proctorial Interaction	-	-	1	-	-	-	-
	PDC/CC/TC/RC	-	-	-				
	`TOTAL	**17**	**-**	**11**	-	**660**	**430**	**20**
	GRAND TOTAL	**28**				**1090**		**20**

Note: Left over hours are allocated for Library/Sports/Proctorial Interaction/PDC/CC/TC/RC

With effect from the Academic Year 2022-23

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: **U22HS010EH**
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. Use English to communicate in various social settings. 4. Develop the ability to engage in reading for reflection and enquiry. 5. Construct grammatically and semantically correct sentences.	**At the end of the course the learners will be able to: -** 1. Communicate effectively, appropriately and ethically in both professional & personal spheres. 2. Listen for gist and make inferences from various speeches and converse intelligibly in various contexts. 3. Construct grammatically correct sentences using adequate vocabulary to compose written and spoken discourses. 4. Read, evaluate and appreciate various text types.

UNIT-1 1.0 Effective communication and Interpersonal skills

1.1 Role and Importance of Communication – functions, process, types, styles, channels and barriers of communication.
1.2 Johari window.
1.3 Knapp's Model of Interpersonal Communication
1.4 Persuasion techniques.

UNIT-2 2.0 Listening and Speaking skills

2.1 Importance of listening-- Types of listening—Strategies to improve listening.
2.2 Speaking skills: Speaking stratagies.

UNIT-3 3.0 Reading and Writing skills

3.1 Reading strategies**--**Analyzing graphics & Visual aids, SQ3R – Survey, Question, Read, Recite, Review.
3.2 Features of Writing---Principles of writing paragraphs-Coherence, Cohesion & Unity; Use of appropriate linkers/connectives.
3.3 Request letters

UNIT-4 4.0 Vocabulary Building and Grammar

4.1 **Vocabulary Building**: Synonyms, Antonyms, One-word substitutes; Collocations; Idioms.
4.2 **Functional Grammar**: Articles, Prepositions; Tense and Aspect; Subject-Verb agreement; Direct and Indirect Speech.

UNIT-5 5.0 Reading for appreciation of literary texts

5.1 **Prose text**- Our Own Civilization—CEM Joad.

Prescribed textbook for theory: Prescribed textbook for theory:

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

Suggested Reading

1. E.Suresh Kumar, P. Sreehari and J. Savithri - Essential English
2. Reading comprehension - Nuttal.J.C - Orient Blackswan
3. Sunitha Mishra,C. Murali Krishna, Communication Skills for Engineers, Pearson, 2004.
4. M. Ashraf Rizvi. Effective Technical Communication. Tata Mcgraw Hill, 2005.
5. Allen and Waters., How English Works.
6. Willis Jane., English through English.
7. Brown, Penelope and Stephen C. Levinson. 1978. Universals in language usage: politeness phenomena: Cambridge University Press.

With effect from the Academic Year 2022-23

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 2022-23

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

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

DEPARTMENT OF HUMANITIES & SOCIAL SCIENCES

Differential Equations and Complex Analysis
(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:**U22BS210MA**
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
1. Solve first order differential equations using elementary techniques and learn its applications. **2.Use** the various higher order homogeneous and non-homogeneous linear differential equations with constant coefficients to solve it and apply on electrical circuits **3. Understand** the Analytic functions, conditions and harmonic functions. **4. Evaluate** a line integral of a function of a complex variable using Cauchy's integral formula, and how to evaluate Taylor's and Laurent Series. **5. Study** the concepts of matrices, Eigen values and Eigen vectors, Diagonalization	**1. Identify** the suitable I.F and solve differential equations, model the real time electrical engineering problems viz., RC & LR Circuits into differential equations and solve. **2. Apply** various higher order Linear Differential equations, to solve LC and LCR circuits. **3. Apply** the condition(s) for a complex variable function to be analytic and/or harmonic and to construct an Analytic function. **4. Evaluate** complex integrals by Cauchy's theorem and Cauchy's Integral formula and define singularities of a function and to expand a given function as a Taylor's / Laurent's series. **5.** Find the rank of a given matrix, diagonalizable a given matrix

UNIT – I
ORDINARY DIFFERENTIAL EQUATIONS OF FIRST ORDER

Exact first order differential equations - Integrating factors- Clairaut's equation -Applications of First Order Differential Equations -Orthogonal trajectories

(Cartesian families) – LR and RC Circuits.

UNIT – II

HIGHER ORDER LINEAR DIFFERENTIAL EQUATIONS

Solutions of Homogeneous and Non Homogeneous linear equations with constant coefficients- Method of Variation of Parameters –Applications of linear differential equations to LCR circuits

UNIT – III

COMPLEX VARIABLES (DIFFERENTIATION)

Limits and Continuity of function - Differentiability and Analyticity - Necessary & Sufficient Condition for a Function to be Analytic - Milne-Thompson's method -Harmonic Functions.

UNIT – IV

COMPLEX INTEGRATION

Complex Integration- Cauchy's Theorem - Extension of Cauchy's Theorem for multiply connected regions- Cauchy's Integral Formula - Power series - Taylor's Series - Laurent's Series (without proofs) –Poles and Residues.

UNIT – V

MATRICES

Rank of a Matrix- Linearly independence and dependence of Vectors - Characteristic equation- -Eigen values and Eigenvectors - Cayley - Hamilton Theorem (without proof)- Diagonalization using Similarity Transformation.

Text Books:

1. Advanced Engineering Mathematics 3rd Edition, R.K.Jain & S.R.K.Iyengar, Narosa Publishing House.
2. Higher Engineering Mathematics 40th Edition 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 http://mathworld.wolfram.com/topics
2 http://www.nptel.ac.in/course.php

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 2022-23

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

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

DEPARTMENT OF PHYSICS

Quantum Mechanics and Material Science
(Common Syllabus for ECE and EEE Branches)

SYLLABUS FOR B.E. II SEMESTER

L:T: P (Hrs/Week):3:0:0	SEE Marks: 60	Course Code: **U22BS210PH**
Credits: 3	CIE Marks: 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	COURSE OUTCOMES
1. Demonstrate the use of crystal structure in device applications. 2. Appreciate the advantages of quantum mechanics over classical mechanics. 3. Arrive at the expressions for carrier concentration in semiconductors 4. Comprehend lasing action and relate the use of lasers in optical fiber communication 5. Choose appropriate dielectric, magnetic and superconducting materials for required applications	1. Classify crystals based on their structure and their appropriate uses 2. Apply Schrodinger wave equations to quantum mechanical systems. 3. Articulate the concepts of semiconductor theory for various electronic devices 4. Compare different types of lasers and summarize merits and demerits of optical fiber communication 5. Select various dielectric, magnetic and superconducting materials for specific applications in engineering.

UNIT-I: FUNDAMENTALS OF CRYSTAL STRUCTURE

Introduction to crystallography-Miller Indices, inter planar spacing (d_{hkl}), Bragg's law, x- ray diffraction methods: rotating crystal method and Debye-Scherrer method, distinction between crystalline, polycrystalline, and amorphous materials, Diamond crystal Structure, Point Defects and their effects, expression for concentration of Schottky and Frankel defects and applications relevant to electronics and communication engineering.

UNIT-II: QUANTUM MECHANICS

De Broglie Hypothesis, wave packet, group velocity and phase velocity, Davisson and Germer's experiment, G.P. Thomson experiment, wave function and its significance, Schrodinger time dependent and independent wave equations, quantum mechanical operators, Eigen values and Eigen functions of infinite square-well potential (particle in a box). Potential barrier-quantum tunnelling problem. Introduction to bra and ket vector notation, representation of Qubit, applications of quantum computing.

UNIT-III: SEMICONDUCTOR PHYSICS

Classical free electron Drude theory and its limitations, Somerfield theory, Fermi-Dirac Statistical distribution, Density of states, Kronig-Penney model, formation of energy bands, E-k diagram, types of semiconductors, fermi energy level, variation of Fermi energy level with temperature and doping concentration, expression for equilibrium carrier concentration in intrinsic and extrinsic semiconductors, conductivity of intrinsic and extrinsic semiconductors, law of mass action, Hall effect and its applications. Applications of semiconductor devices to computer architecture.

UNIT-IV: LASERS AND OPTICAL FIBRES

Lasers: induced absorption, spontaneous and stimulated emissions, Einstein's coefficients; characteristics of lasers, population inversion, meta-stable states, pumping mechanisms, components of laser, Properties of laser beam, types of lasers, construction and working of Ruby laser and semiconductor laser, advantages and optoelectronic applications of lasers.

Optical Fibers: principle of optical fiber, propagation of light in optical fiber, numerical aperture, acceptance angle, types of optical fibers, V- number, signal losses in optical fibers: Attenuation-absorption, scattering, bending, alignment losses, Signal distortion: intermodal and intra model dispersions, block diagram of optical communication system, advantages and application of optical fibers including broad band communications.

UNIT-V: MATERIALS SCIENCE

Dielectric Materials: Polar and non-polar dielectrics, types of dielectric polarizations, Expressions for electronic polarizability and ionic polarizability, Frequency and temperature dependence of dielectric polarizations, electronic applications of dielectric materials.

Magnetic Materials: Origin of magnetism, Ferromagnetic materials, antiferromagnetic materials and ferri-magnetic (ferrites) materials, Weiss molecular field theory of ferromagnetism, magnetic domains, hysteresis curve, soft and hard magnetic materials and their applications including electro-magnetic shielding.

Superconductivity: Introduction to superconductivity, General properties of superconductors, Meissner effect, Type I and Type II superconductors-fundamentals of BCS Theory - Josephson's Junctions-Josephson's effects– SQUIDS- Applications of superconductors in communications.

Learning Resources:

1. Charles Kittel, Introduction to Solid State Physics, 7th Edition, John Wiley & Sons, 2008

2. S O Pillai, Solid State Physics, 8th edition, New Age International Publishers, 2018

3. M.N. Avadhanulu and P.G. Kshirsagar and TVS Arun Murthy, A Textbook Engineering Physics, 11th Edition, S. Chand, 2018.

4. Senior, Optical Fiber Communications: Principles and Practice, 3rd edition, Pearson, 2010

5. NPTEL MOOCS, Introduction to Solid State Physics, Satyajit Banerjee

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 2022-23

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

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

DEPARTMENT OF INFORMATION TECHNOLOGY

Object Oriented Programming using C++

SYLLABUS FOR B.E. II SEMESTER

L:T: P (Hrs/Week):3:0:0	SEE Marks: 60	Course Code:**U22ES210IT**
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.

Variables and Assignments, Input and Output, Data Types, Expressions, Simple Flow Control and Control Structures.

Defining Classes: Structures, Classes, Abstract Data Types.

UNIT-II

Functions: Call by Value, Call by Reference, Parameters using Procedural Abstraction, Testing and Debugging Functions.

I/O Streams as an introduction to Classes and Objects

Arrays: Introduction to Arrays, Arrays in Functions, Programming with Arrays

and Multidimensional Arrays.

UNIT-III

Strings, Pointers and Dynamic Arrays, Recursion, Constructors, Destructors, Copy Constructors.

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.

UNIT-V

Function Templates and Class Templates.

Exception Handling: Exception Handling Basics, Programming Techniques for Exception 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 Structured Approach using C++", 2nd Edition, Cengage Learning, 2010.
3. E. Balaguruswamy, "Object-Oriented Programming with C++", 6th Edition, 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 2022-23

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

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

DEPARTMENT OF CIVIL ENGINEERING

Basic Engineering Drawing (common to ECE & EEE)

SYLLABUS FOR B.E. II SEMESTER

L:T: P (Hrs/Week):1:0:2	SEE Marks: 60	Course Code: **U22ES030CE**
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. 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. 4. Draw sections and development of regular solids. 5. Visualize and construct isometric projections from orthographic projections of regular solids.	1. Understand the fundamentals of drawing. 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 both reference planes. 5. Draw the isometric projections of lines, planes and solids.

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 in first quadrant only. Traces (By conventional methods only).

UNIT-III: Projections of Planes: Projections of perpendicular planes, oblique planes and their traces.

UNIT-IV: Projections of Regular Solids: Projections of prism, cylinder, pyramid and cone in simple positions and axis inclined to one and two reference planes. Concept of development of solids.

UNIT-V: Isometric Projections: Principles of isometric projections – Isometric scale, Isometric axes, Isometric planes, Isometric view. Isometric views of lines, planes, regular solids, and combination of two solids.

Learning Resource:

1. Bhatt N.D. "Elementary Engineering Drawing", Charotar Publishers, 2014.
2. Thomas E French, Charles J Vierck, Robert J. Foster, "Engineering Drawing and Graphic Technology", McGraw Hill Education, 1993.
3. Gill P.S. "Engineering Drawing: Geometrical Drawing", SK Kataria & sons, 2012.
4. Venugopal.K "Engineering Drawing and Graphics Plus Autocad", New Age International (P) Ltd., New Delhi, 2011.
5. Siddiquee A.N "Engineering Drawing with a Primer on Autocad", Prentice hall of India Ltd., New Delhi, 2004.
6. Basanth Agrawal, Agrawal C.M "Engineering Drawing" Second Edition, Tata McGraw Hill, 2013
7. BVR Gupta, M Raja Roy, "Engineering Drawing with AutoCad", IK Int Pvt Ltd, 2009.
8. NPTEL Course (www.nptel.ac.in)
9. 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 2022-23

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

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

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Power System –I

SYLLABUS FOR B.E. II SEMESTER

L:T: P (Hrs/Week):2:0:0	SEE Marks: 60	Course Code: **U22PC210EE**
Credits: 2	CIE Marks: 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES Objectives of this course are to:	**COURSE OUTCOMES** On completion of this course the student will be able to :
1. Have a fair knowledge about the fundamentals of various conventional power plants like Thermal, Hydel, Nuclear and Gas. 2. Acquire the knowledge of different types of Non conventional energy generation methods like Solar, Wind, Ocean Thermal Energy Conversion (OTEC), Tidal and Geo thermal. 3. Understand the Economics of Power Generation, Types of costs, Depreciation, methods of P.f. improvement, Tariffs 4. Have the knowledge of construction of Over head lines, materials, Supports, insulators and Underground cables.	1. Identify and select the proper type of Power Plant for the Power Generation. 2. Estimate the Energy generated by Different Non conventional Generating stations. 3. Assess the depreciation methods, Tariffs 4. Test and categorize the insulators and calculate the Sag & Tension in Over head lines.

UNIT – I

Thermal, Hydel, Nuclear Power Generation Principles, Choice of site, layout and various parts of generating stations. Estimation of power in Hydel, flow duration curve, hydrograph, mass curve etc. Types of Hydel stations. Nuclear Stations, PWR, BWR, FBR. GAS Turbines, GAS power stations, MAJOR DISASTERS around the world in power plants-lessons learnt.

UNIT – II

Non-Conventional energy generation methods: Solar, Wind, Ocean Thermal Energy Conversion (OTEC), Tidal, Solar cells, Efficiency, Solar collectors, Concentrators. Wind generators, Wind turbine types, rotors construction, Hybrid power generation.

UNIT – III

Economics of Power Generation : Load Curve, load demand and diversity factors, base load and peak load operation, types of costs and depreciation fund calculations, tariffs.

UNIT- IV

Construction of Overhead lines - Overhead line materials – Supports – types, Vibration Dampers, Arcing Horns, Sag / Tension calculations, Equal / Unequal supports, Effects of Wind, ICE/Erection Conditions Stringing Ch arts Insulators-Types –Material for construction – potential distribution over string of insulators, Equalizing of potential-Methods, Insulators testing. Underground cables –Insulating Materials, Mechanical Protection, EHV / HV / LV cables, grading of cables, capacitance of 3 core cables.

Learning Resources

1. C.L. Wadhwa, Electrical Power Systems, Wiley Eastern Ltd. 5thEdition, 2005

2. C.L.Wadhwa, Generation, Distribution and Utilization of Electrical Energy, Wiley Eastern Ltd., 5thEdition, 2005.

3. S.N.Singh- Electrical Power Generation, Transmission and Distribution-Prentice Hall pvt.ltd.New-2003.

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 2022-23

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

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

DEPARTMENT OF HUMANITIES & SOCIAL SCIENCES

HUMAN VALUES AND PROFESSIONAL ETHICS - I

SYLLABUS FOR B.E. II SEMESTER

L:T: P (Hrs/Week):1:0:0	SEE Marks: 40	Course Code: **U22HS020EH**
Credits: 1	CIE Marks: 30	Duration of SEE : 2 Hours

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

UNIT-2 PROFESSIONAL VALUES AND BEHAVIOUR

At the level of individual: 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 Ethics – Team
2.3 Flipped class room

UNIT-3 SOCIAL VALUES

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

31. Social Values
3.2 Importance of relationship
3.3 Flipped class room

UNIT -4 SPIRITUAL VALUES

Developing individual practice and 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 Spiritual Values
4.2 Mindful Vs Mindfull
4.3 Flipped class room

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

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 2022-23

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

DEPARTMENT OF CIVIL ENGINEERING

ENVIRONMENTAL SCIENCE

(Common to Civil, EEE & ECE)

B.E. I SEMESTER

L:T: P (Hrs/Week):2:0:0	SEE Marks: 60	Course Code: **U22MC010CE**
Credits: -	CIE Marks: 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES In this subject the students will	**COURSE OUTCOMES** Upon the completion of this course students will be able to
1. Describe various types of natural resources available on the earth surface. 2. Explain the concepts of an ecosystem and the biotic and abiotic components of various aquatic ecosystems. 3. Identify the values, threats of biodiversity, endangered and endemic species of India along with the conservation of biodiversity. 4. Explain the causes, effects and control measures of various types of environmental pollutions. Describe the methods for water conservation, the causes, effects of global warming, climate change, acid rain, ozone layer depletion, population explosion.	1. Describe the various types of natural resources. 2. Differentiate between various biotic and abiotic components of ecosystem. 3. Examine the values, threats of biodiversity, the methods of conservation, endangered and endemic species of India. 4. Illustrate causes, effects, control measures of various types of environmental pollutions. 5. Explain the methods of water conservation, causes, effects of climate change, global warming, acid rain and ozone layer depletion, population explosion.

UNIT-I: Environmental Studies: Definition, importance of environmental studies. Natural resources: Water resources; floods, drought, conflicts over water, dams-benefits and problems. Food resources; Effects of modern agriculture, fertilizer-pesticide problems, water logging salinity. Energy

resources: Renewable and non-renewable energy resources. Land Resources, soil erosion and desertification.

UNIT-II: Ecosystems: Structure and function of an ecosystem, producers, consumers and decomposers, food chains, food webs, ecological pyramids, aquatic ecosystems (ponds, oceans, estuaries).

UNIT-III: Biodiversity: Genetic, species and ecosystem diversity. Values of biodiversity, threats to biodiversity, endangered and endemic species of India, conservation of biodiversity.

UNIT-IV: Environmental Pollution: Causes, effects and control measures of air pollution, water pollution, soil pollution, noise pollution, thermal pollution and solid waste & e-waste management.

UNIT-V: Social Aspects and the Environment: Water conservation, Climate change, global warming, acid rain, ozone layer depletion. Environmental Impact Assesment, population explosion.

Learning Resources:

1. Deswal S. and Deswal A., A Basic Course on Environmental studies, DhanpatRai& Co Pvt. Ltd. 2016
2. Benny Joseph, Environmental Studies, Tata McGraw-Hill, 2017
3. Suresh K. Dhameja, Environmental Studies, S.K. Kataria& Sons, 2010.
4. De A.K., Environmental Chemistry, New Age International, 2003.
5. Odum E.P., Fundamentals of Ecology, W.B. Sunders Co., USA, 2004.
6. Rajagopalan R., Environmental Studies, Second Edition, Oxford University Press, 2015

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

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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 2022-23

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

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

DEPARTMENT OF PHYSICS

ENGINEERING 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: **U22BS011PH**
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. Determination of wavelength of He-Ne lasers.
2. Comparative study I-V characteristics of P-N Junction diode and Zener Diode
3. Calculation of numerical aperture, acceptance angle and power loss due to bending of an optical fibre.
4. Determination of energy gap of a given semiconductor by four probe method
5. Study of I-V characteristics of solar cell and to calculate fill factor and efficiency
6. Determination of Hall's coefficient using Hall's effect

7. Determination of e/m of an electron by Thomson's method
8. Study of resonance in LCR series circuits and to find resonant frequency & Q-factor
9. Study of resonance in LCR parallel circuits and to find resonant frequency & Q-factor
10. Estimation of Thermistor constants
11. Determination of Seebeck coefficient
12. Helmholtz coil –calculation of magnetic field along the axis of a solenoid
13. B-H curve-estimation of Hysteresis loss of a ferromagnetic sample

**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 2022-23

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

DEPARTMENT OF INFORMATION TECHNOLOGY

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: **U22ES211IT**
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 using constructors, destructors and copy constructors.
3. Programs on dynamic memory allocation for arrays.
4. Programs on static data members.
5. Programs on string manipulations.
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**			

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

DEPARTMENT OF HUMANITIES & SOCIAL SCIENCES

English Language and Communication Skills Laboratory

SYLLABUS FOR B.E. II SEMESTER

L:T: P (Hrs/Week):0:0:2	SEE Marks: 50	Course Code: **U22HS011EH**
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. Learn the speech sounds, parts of speech and distinguish between vowel and consonant sounds in the English language to reduce mother tongue influence when speaking English 2. Understand and follow the rules in debates, group discussions, interviews. 3. Develop reading skills and analyse various text types.	1. Speak well using generally acceptable English' in terms of pronunciation and use of diction. 2. Participate effectively in group discussions, public speaking, debates (formal and informal). 3. Analyse, evaluate and infer meaning from different types of texts.

1.0 PHONETICS LAB- TOPICS

1.1 Introduction to English Phonetics:
Classification of consonants and vowel sounds and related symbols.
1.2 Aspects of language learning and ear training activities- Word stress and intonation Longman Dictionary of Contemporary English- 6th Edition, 2020.

2.0 INTERACTIVE COMMUNICATION SKILLS LAB-TOPICS

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

2.2 Debate:
Understanding the difference between a debate and a group discussion, essentials of debates.

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

3.0 READING SKILLS LAB -TOPICS

3.1 Sub-skills of reading- 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.

Prescribed textbook for laboratory:

Speak Well: Jayshree Moharuaj, KandulaNirupa Rani and Indira Babbellapati – Orient Black Swan

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. PriyadarshiniPatnaik: Grou p 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**			

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

Department of Mechanical Engineering

ENGINEERING WORKSHOP – II

SYLLABUS FOR B.E. II SEMESTER
(Common to Mechanical, Civil & EEE Branches)

L:T: P (Hrs/Week):0:0:2	SEE Marks: 50	Course Code: **U22ES211ME**
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. Know basic workshop processes, adopt safety practices while working with various tools 2. Identify, select and use various marking, measuring, holding, striking and cutting tools & equipment's.	1. Create models in Smithy, Welding, fitting and Machining trades by using the relevant tools. 2. Measure and inspect the finished components using suitable measuring instruments.

List of the Experiments:

BLACK SMITHY

1. Flattening (round to square cross section)
2. Bending operation (U-shape)
3. S-shape hook

WELDING

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

FITTING

1. Template fitting (square fit)
2. V-groove fit

3. Drilling and Tapping

MACHINING

1. Plain turning and step turning
2. Taper turning
3. Thread cutting

ADDITIONAL EXPERIMENTS

1. Black Smithy: Fullering operation (demo)
2. Welding: Spot welding (demo)
3. Fitting: Assembly of pulley on a shaft with key (demo)
4. Machining: Additive manufacturing (demo)

Learning Resources:

1. Hajra Choudhury S.K., Hajra Choudhury A.K., Nirjar Roy S.K. "Elements of Workshop Technology" Vol-I 2008 & Vol-II 2010 Media Promoters & Publishers Pvt. Limited, Mumbai.
2. Kalpakjian S. and Steven R. Schmid, "Manufacturing Engineering and Technology" 4th Edition, Pearson Education India, 2002.
3. Gowri P., Hariharan and Suresh 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
7. www.mewelding.com

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**			