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. (CSE) I and II Semesters
With effect from 2021-22
(For the batch admitted in 2021-22)
(R-21)

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
Phones: +91-40-23146020, 23146021
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

To be a center for academic excellence in the field of Computer Science and Engineering education to enable graduates to be ethical and competent professionals

Department Mission

To enable students to develop logic and problem solving approach that will help build their careers in the innovative field of computing and provide creative solutions for the benefit of society.

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B.E (CSE) Program Educational Objectives (PEO's)	
Graduates should be able to utilize the knowledge gained from their academic program to:	
PEO I	Solve problems in a modern technological society as valuable and productive engineers.
PEO II	Function and communicate effectively, both individually and within multidisciplinary teams.
PEO III	Be sensitive to the consequences of their work, both ethically and professionally, for productive professional careers.
PEO IV	Continue the process of life-long learning.

B.E. (CSE) PROGRAM OUTCOMES (PO's) Engineering Graduates will be able to:	
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.

B.E (CSE) PROGRAM SPECIFIC OUTCOMES (PSO's)	
PSO I	Graduates will have knowledge of programming and designing to develop solutions for engineering problems.
PSO II	Graduates will be able to demonstrate an understanding of system architecture, information management and networking.
PSO III	Graduates will possess knowledge of applied areas of computer science and engineering and execute them appropriately.

With effect from the Academic Year 2021-22

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
SCHEME OF INSTRUCTION AND EXAMINATION(R-21)
FOR B.E 2021-22 ADMITTED BATCH I SEMESTER (A.Y 2021-22)

B.E (CSE) I Semester								
Course Code	Name of the Course	Scheme of Instruction			Scheme of Examination			
		Hours per Week			Duration in Hrs	Maximum Marks		Credits
		L	T	P/D		SEE	CIE	
THEORY								
UI21BS120MA	Calculus & Linear Algebra	3	-	-	3	60	40	3
UI21BS110PH	Semiconductor Physics and Optoelectronic devices	3	-	-	3	60	40	3
UI21ES120CS	Programming for Problem Solving	3	-	-	3	60	40	3
UI21ES110EC	Introduction to Electronics Engineering	3	-	-	3	60	40	3
UI21ES010CE	Basic Engineering Mechanics	3	-	-	3	60	40	3
UI21ES030CE	Basic Engineering Drawing	1	-	2	3	60	40	2
UI21HS010EH	Human Values and Professional Ethics-I	1	-	-	2	40	30	1
UI21MC010ME	Introduction to Entrepreneurship	1	-	-	2	40	30	0
PRACTICALS								
UI21BS011PH	Semiconductor Optoelectronics Lab	-	-	2	3	50	30	1
UI21ES121CS	Programming for Problem Solving Lab	-	-	2	3	50	30	1
UI21ES111EC	Introduction to Electronics Engineering Lab	-	-	2	3	50	30	1
TOTAL		**18**	**-**	**8**		**590**	**390**	**21**
GRAND TOTAL		**26**				**980**		
Left over hours are allocated for Sports / Library / PDC / Mentor Interaction / CC / RC / TC								

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

DEPARTMENT OF MATHEMATICS

CALCULUS & LINEAR ALGEBRA

SYLLABUS FOR B.E. I-SEMESTER
(Common to CSE, AIML, IT, ECE and EEE)

L:T:P (Hrs./week):3:0:0	SEE Marks : 60	Course Code : **U21BS120MA**
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. Understand The concepts of curvature, radius of curvature, evolutes and to expand functions using Taylor's series. **2. Acquire** knowledge of partial derivatives, and expand functions using Taylor's series functions of two real variables and maxima- minima. **3. Study** the concepts of Vector Spaces, Subspaces, and use in Linear transformations and study Rank-Nullity theorem **4. Learn** Inner Product Spaces, Orthonormal sets, Gram-Schmidt's Orothogonalization process. **5. Identify** convergence of infinite series using various tests.	**1. Compute** radius of curvature, evolute of a given curve and also to expand given function using Taylor's series. **2. 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. **3. Apply** concepts of Vector Spaces on Linear transformations and Rank-Nullity theorem **4. Determine** distance using Inner product space and construct Orthonormal basis using Gram-Schmidt's Orothogonalization process. **5. Apply** an appropriate test to check the nature of the infinite series.

UNIT- I
DIFFERENTIAL CALCULUS

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

UNIT –II

FUNCTIONS OF SEVERAL REAL VARIABLES

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 - Lagrange's Method of multipliers.

UNIT-III

VECTOR SPACES

Definition of Vector Space - Vector Subspaces –Linear Dependence and Independence of vectors- Basis of a Vector Space –Dimension of a Vector Space – Linear Transformation- Inverse Linear Transformation- Range and kernel of a linear map – Dimension of Range and Kernel - Rank and nullity – Rank nullity theorem (without proof)

UNIT-IV

MATRICES

Rank of a Matrix- Characteristic equation- -Eigen values and Eigenvectors-Orthogonal Transformation -Diagonalization using Similarity Transformation-Inner Product Space- Gram-Schmidt's Ortho-normalization process.

UNIT-V

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.

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.
3. Introduction to linear algebra with applications, Jim DeFranza, Daniel Gagliardi, Tata McGraw-Hill
4. Operational Mathematics by R.V. Churchill, Mc Graw-Hill Book Company, INC.

Reference Books:

1. Advanced Engineering Mathematics 8th Edition by Erwin Kreyszig , John Wiley & Sons.

2. Differential Calculus by Shanti Narayan S. Chand & Co
3. Elementary Linear algebra, Anton and Rorres, Wiley India Edition
4. An introduction to Linear Algebra, V.P Mainra, J.L Arora, Affiliated to East-West Press Pvt Ltd

Online Resources :

1. http://mathworld.wolfram.com/topics
2. http://www.nptel.ac.in/course.php
3. https://www.coursera.org/in
4. https://codingthematrix.com

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

1	No. of Internal Tests	:	2	Max. Marks for each Internal Tests	:	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 Tests : 90 Minutes

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

DEPARTMENT OF PHYSICS

SEMICONDUCTOR PHYSICS AND OPTOELECTRONIC DEVICES

SYLLABUS FOR B.E.I-SEMESTER
(Common to CSE, AIML and IT)

L:T:P(Hrs/week):3:0:0	SEE Marks:60	Course Code: **UI21BS110PH**
Credits :03	CIE Marks:40	Duration of SEE: 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
1. Demonstrate the use of crystal structure in devices applications	1. Classify crystals based on their structure and apply effects of defects on manipulation of properties of solids.
2. Appreciate the merits of quantum mechanics over classical mechanics	2. Apply Schrodinger wave equation to quantum mechanical systems and obtain eigen values
3. Explain classification of solids based on band theory of solids.	3. Illustrate types of semiconductors along with energy band diagrams.
4. Describe working of optoelectronic devices	4. Categorize optoelectronic devices and explain their device structure
5. Distinguish types of optical fibers and list loses optical fibers	5. Summarize merits and demerits of optical fibers and interpret losses in optical fibers.

UNIT-I: FUNDAMENTALS OF CRYSTALLOGRAPHY (10 hours)

Introduction-Space lattice, Basis, primitive and non-primitive unit cells, Bravais lattices and crystal systems, Miller Indices, expression for inter planar spacing (d_{hkl}), X-ray diffraction: Bragg's law, powder x- ray diffraction, crystalline, polycrystalline and amorphous materials, Diamond Structure, Point Defects, expression for concentration of Schottky and Frankel defects.

UNIT-II: INTRODUCTION TO QUANTUM MECHANICS AND SOLID STATE PHYSICS (12 hours)

Quantum Mechanics: Wave-particle duality, de Broglie Hypothesis, uncertainty principle, wave function and its significance, bra and ket vector notation, Schrodinger time dependent and independent wave equations, basics of quantum mechanical operators, Eigen values and Eigen functions of infinite square-well potential (particle in a box).

Solid State Physics: Band theory, Kronig-Penny model-introduction to origin of band gap, E-k diagram, effective mass, energy bands in solids and classification of materials as conductors, semiconductors, and insulators.

UNIT-III: SEMICONDUCTOR PHYSICS (10 hours)

Intrinsic semiconductors, extrinsic semiconductors-doping, acceptor and donor impurities, Fermi energy level, density of states, expression for intrinsic and extrinsic carrier concentration (equilibrium carrier statistics), conductivity of intrinsic and extrinsic semiconductor, law of mass action, variation of Fermi level with doping and temperature, Direct and indirect band gap semiconductors, non- radiative and radiative recombination in semiconductors, Hall effect and its applications, energy band diagram of an unbiased PN junction.

UNIT-IV: OPTOELECTRONIC DEVICES (14 hours)

Light Emitting Diode (LED): Electro-luminescence, differences between homo and hetero junction LEDs, construction and working of homo junction LED, characteristics of LED, quantum efficiency of LED, advantages and applications of LED.

Lasers: induced absorption, spontaneous and stimulated emissions**,** characteristics of lasers, meta-stable states, population inversion, pumping, components of laser, types of lasers, construction and working of Ruby laser, He-Ne laser, semiconductor laser, advantages, and applications of lasers.

Photodetectors: Principle of a photodetector, construction and working of a photo-detectors:- photo-diode and PIN diode, applications of photo-detectors.

Solar Cell: Photovoltaic effect, construction and working of solar cell, V-I characteristics of solar cell, conversion efficiency, fill factor, generations of solar cells, applications of solar cells.

UNIT-V: FIBER OPTICS (08 hours)

Introduction, total internal reflection, propagation of light in optical fibre, numerical aperture, acceptance angle, types of optical fibres, evanescent field, light sources for optical fibers, various 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.

Learning Resources:

1. Charles Kittel, Introduction to Solid State Physics, 7th Edition, John Wiley & Sons, 2008.
2. Arthur Beiser, Shobhit Mahajan and S Rai Choudhury, Concepts of Modern Physics, Tata McGraw 6th Edition Tata McGraw,2009.
3. Donald A Neamen, Semiconductor Physics and Devices, , 3rd Edition, Tata McGraw 2008.
4. S.O. Kasap, Optoelectronic and Photonics: Principles and Practices, Pearson, 2012
5. Gerd Keiser, Optical Fiber Communications, 4th edition, Tata McGraw, 2010
6. M.N. Avadhanulu and P.G. Kshirsagar and TVS Arun, Murthy A Textbook Engineering Physics, 11th Edition, S. Chand, 2018.
7. R. Murugeshan and K Sivaprasath, Modern Physics, S. Chand, 18th Edition, 2019.
8. M.R Shenoy, NPTEL MOOCS course, Semiconductor opto-electronics. 2020

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

1	No. of Internal Test	:	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 COMPUTER SCIENCE & ENGINEERING

PROGRAMMING FOR PROBLEM SOLVING

SYLLABUS FOR B.E. I-SEMESTER
(Common to CSE, AIML, IT, ECE and EEE)

L:T:P (Hrs./week):3:0:0	SEE Marks : 60	Course Code :**UI21ES120CS**
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 Test + Assignments + Quizzes

1	No. of Internal Test	:	2	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 : 1 Hour 30 Minutes

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

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

INTRODUCTION TO ELECTRONICS ENGINEERING

SYLLABUS FOR B.E. I - SEMESTER

L:T:P (Hrs/week): 3:0:0	SEE Marks : 60	Course Code: **UI21ES110EC**
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. To understand the characteristics and operation of different electronic devices. 2. To study the working of rectifiers, transistor amplifiers, operational amplifiers and oscillators. 3. To study the working principle of different types of transducers.	1. Employ different electronic devices to build electronic circuits such as rectifiers, filters, voltage regulators. 2. Describe the functioning of electronic circuits such as amplifiers and oscillators. 3. Demonstrate working of electronic devices such as SCR, UJT. 4. Convert real time electrical signals into corresponding signals using different types of transducers. 5. Measure waveform details from CRO.

UNIT – I: Semiconductor Diodes:
P-N Junction diode, Biasing, Diode resistance, Transition capacitance and Diffusion capacitance, Applications, Rectifiers: Half wave and Full wave Rectifiers (Bridge, center tapped), ripple factor and efficiency, comparison of rectifiers, Filters: Types of filters, Rectifiers with and without filters, Zener Diode: Characteristics, Zener diode as a voltage regulator, IC voltage regulators, Block diagram of Regulated Power Supply

UNIT – II: Transistors:
Bipolar Junction Transistor (BJT), Construction, Types, Working principle,

Configurations, Transistor parameters, Transistor as an amplifier, Single stage amplifier, Problems, h-parameter equivalent circuits. Field Effect Transistor(FET), Construction and working of FET, Metal Oxide Semiconductor FET (MOSFET), Types (depletion and enhancement), MOSFET characteristics, Comparison of BJTs with MOSFET

UNIT – III: Feedback Concepts :
Basic concept of feedback, Types of feedback, Feedback topologies, General characteristics of Negative feedback amplifiers; Oscillators: Classification, LC Type and RC Type Oscillators and Crystal Oscillators (Qualitative treatment only)

UNIT – IV: Operational Amplifiers:
Introduction, Characteristics of ideal Operational amplifier, Operational amplifier stages, Parameters, Open loop and closed loop configurations, Applications (Adder, Subtractor, Voltage follower, Integrator, Differentiator)

UNIT – V: Data Acquisition systems:
Introduction, Classification of transducers, Capacitive transducer, Inductive transducer, LVDT, Electrical strain gauges, Temperature transducers (Thermocouple), Piezoelectric transducer, Photoelectric transducer; Industrial Devices: SCR, UJT - Construction, Working principle and Characteristics only; Display Systems: Constructional details of C.R.O and Applications.

Learning Resource:

1. S.Shalivahan, N. Suresh Kumar, Electronic Devices and Circuits Tata McGraw Hill, 2003.
2. Jacob Milman & C., Halkias, Electronic devices Eighth Edition, Reprinted, Mc Graw Hill,1985.
3. Ramakanth A. Gayakwad, Op-AMPS and Linear Integrated Circuits, 3rd edition, Prentice Hall of India,1985.
4. Mooris Mano, Digital design, 3rd edition, Prentice Hall of India, 2002.
5. Cooper, Electronic Measurement and Instrumentations.
6. https://nptel.ac.in/courses/117103063/

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

1	No. of Internal Test:	02	Max. Marks for each Internal Test:	30
2	No. of Assignments:	03	Max. Marks for each Assignment:	5
3	No. of Quizzes:	03	Max. Marks for each Quiz Test:	5

Duration of Internal Test: 90 Minutes

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

DEPARTMENT OF CIVIL ENGINEERING

BASIC ENGINEERING MECHANICS

SYLLABUS FOR B.E. I SEMESTER
(Common to CSE & IT)

L:T:P (Hrs./week):3 :0:0	SEE Marks:60	Course Code:**UI21ES010CE**
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. 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.

NIT-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. Vector "Mechanics for Engineers", TMH, 2004.
5. Hibbeler R.C & Ashok Gupta, "Engineering Mechanics", Pearson Education, 2010.
6. Tayal A.K., "Engineering Mechanics – Statics & Dynamics", Umesh Publications, 2011.
7. Basudeb Bhattacharyya., "Engineering Mechanics", Oxford University Press, 2008.
8. Meriam. J. L., "Engineering Mechanics", Volume-I Statics, John Wiley & Sons, 2008.
9. NPTEL Course (www.nptel.ac.in)
10. Virtual labs (www.vlab.co.in)

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

1	No. of Internal Test	:	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 CIVIL ENGINEERING

BASIC ENGINEERING DRAWING

SYLLABUS FOR B.E. I-SEMESTER
(Common to CSE, AIML, IT, EEE & ECE)

L :T:P(Hrs./week):1 :0:2	SEE Marks:60	Course Code:**UI21ES030CE**
Credits: 2	CIE Marks:40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion 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. Acquire proficiency in instrumental drawing and will be able to visualize the object, draw conic sections and regular polygons. 2. Draw the orthographic projections of points, lines and planes. 3. Draw orthographic projections of regular and right solids 4. Draw the sections and development of regular solids 5. Visualise and draw the isometric view from the orthographic views of regular solids and combinations of 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). Projections of perpendicular planes, oblique planes and their traces.

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

UNIT-IV: Sections and Developments of Solids: Sections of solids in simple positions only for prism, pyramid, cylinder and cone and their development.

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",CharotarPublishers,2014.
2. Thomas EFrench, Charles J Vierck, Robert J. Foster, "Engineering Drawing and Graphic Technology", McGrawHill 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., NewDelhi,2010.
5. SiddiqueeA.N "Engineering Drawing with a Primer on Auto cad", Prentice hall of IndiaLtd., NewDelhi,2004.
6. Basanth Agrawal, Agrawal C.M "Engineering Graphics "First Edition, Tata McGraw Hill,2012
7. BVR Gupta, M Raja Roy, "Engineering Drawing with AutoCad", IKIntPvtLtd, 2009.
8. NPTEL Course (www.nptel.ac.in)
9. Virtual labs (www.vlab.co.in)

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

1	No. of Internal Test	:	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 Humanities & Social Sciences

Human Values and Professional Ethics-1
SYLLABUS FOR B.E- I SEMESTER
(COMMON FOR ALL BRANCHES)

L:T:P(Hrs/Week):1:0:0	SEE Marks: 40	Course Code: **UI21HS010EH**
Credits: 1	CIE Marks: 30	Duration of SEE: 02 Hours

COURSE OBJECTIVES	COURSE OUTCOMES
The course will enable the students to: -	On completion of this course the student 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

This unit will cover

a) 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, selfadvocacy, self-competence, self-direction, self-efficacy, self-regulation, self-reliance, and selfresponsibility.

b) 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

UNIT-2 PROFESSIONAL VALUES AND BEHAVIOUR

This unit covers:

a) At the level of individual: as socially and ecologically responsible engineers and technologists.

b) 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.

UNIT-3 SOCIAL VALUES

This unit covers:

a) Values of service, social justice, dignity and worth of the person

b) Importance of human relationships, integrity, and competence.

UNIT -4 SPIRITUAL VALUES

This unit covers:

a) Developing individual practice and has to do with having a sense of peace and purpose.

b) 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.

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 marks for CIE:

Internal Tests + Quiz Tests + Assignments

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

Duration of Internal Tests : 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: **UI21MC010ME**
Credits :0	CIE Marks:30	Duration of SEE:02Hours

COURSE OBJECTIVE	**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, sources of new ideas, techniques for generating ideas, 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, State and Central level organisations supporting entrepreneurship.

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:	01	Max. Marks for each Internal Test:	20
2	No. of Assignments:	01	Max. Marks for each Assignment:	05
3	No. of Quizzes:	01	Max. Marks for each Quiz Test:	05

Duration of Internal Test: **1 Hour**

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

DEPARTMENT OF PHYSICS

SEMICONDUCTOR OPTOELECTRONICS LAB

SYLLABUS FOR B.E. I SEMESTER
(Common to CSE, AIML and IT)

L:T:P(Hrs./week):0:0:2	SEE Marks:50	Course Code: **UI21BS111PH**
Credits :01	CIE Marks:30	Duration of SEE: 3 Hours

Course Outcomes
The students acquire the ability to
1. Conduct experiment independently and record the measurements.
2. Outline the precautions required to be taken for each experiments
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

List of the Experiments:

1. Study I-V characteristics of P-N Junction diode
2. Study I-V characteristics of Zener Diode
3. Determination of wavelength of Semiconductor lasers.
4. Calculation of numerical aperture, acceptance angle and power loss due to bending of an optical fibre.
5. Study of I-V characteristics of LED
6. Study of I-V characteristics of solar cell and to calculate fill factor and efficiency
7. Study I-V Characteristics of Photodiode at different intensities
8. Determination of Planck's constant using Photocell
9. Determination of Hall's coefficient- Hall's effect
10. Study of resonance in LCR series and to find resonant frequency & Q- factor
11. Study of resonance in LCR parallel and to find resonant frequency & Q- factor

12. Helmholtz coil –calculation of magnetic field along the axis of solenoid
13. Determination of energy gap of a given semiconductor by four probe method
14. Estimation of Thermistor constants
15. Determination of e/m of electron by Thomson's method

***Each student should perform at least 12 (Twelve) experiments.**

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

Department of Computer Science & Engineering

PROGRAMMING FOR PROBLEM SOLVING LAB

SYLLABUS FOR B.E. I-SEMESTER
(Common to CSE, AIML, IT, ECE and EEE)

L:T:P (Hrs./week): 0:0:2	SEE Marks : 50	Course Code :**UI21ES121CS**
Credits : 1	CIE Marks : 30	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**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. Finding maximum and minimum of given set of numbers, finding roots of quadratic equation.
2. Sin x and Cos x values using series expansion.
3. Conversion of binary to decimal, octal, hexadecimal and vice versa.
4. Generating Pascal triangle, pyramid of numbers.
5. Recursion: factorial, Fibonacci, GCD.
6. Matrix addition and multiplication using arrays, linear search and binary search using recursive and non-recursive procedures.

7. Bubble sort and selection sort.
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 Test:	01	Max. Marks for Internal Test:	12
Marks for day-to-day laboratory class work			18
Duration of Internal Test: 120 Minutes			

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

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
INTRODUCTION TO ELECTRONICS ENGINEERING LAB

SYLLABUS FOR B.E. I – SEMESTER

L:T:P (Hrs/week): 0:0:2	SEE Marks : 50	Course Code: **UI21ES111EC**
Credits : 1	CIE Marks : 30	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
1. Verify the characteristics of various electronic devices. 2. Understand the functioning of voltage regulator and rectifiers. 3. Perform different arithmetic operations using operational amplifier. 4. Understand the working of logic gates to implement adder and subtractor.	1. Plot the characteristics of active devices and to compute their parameters. 2. Analyse the functioning of voltage regulators, rectifiers and oscillators. 3. Perform operations such as addition, subtraction, comparison of voltage levels using operational amplifier. 4. Implement digital adders and subtractors using logic gates.

List of Experiments

1. Characteristics of Semiconductor diodes (Si and Zener)
2. CRO Applications
3. Full wave rectifier with and without filter
4. Zener Voltage Regulator
5. Characteristics of BJT (CB and CE)
6. Characteristics of FET
7. RC Phase shift oscillator & verification of Logic Gates
8. Hartley oscillator and Calpitt's Oscillator
9. Applications of Operational Amplifier: Adder, Subtractor, Comparator.
10. Realization of Half adder and Full adder

Learning Resources:

1. Paul B. Zbar, Albert P. Malvino , Michael A. Miller, Basic Electronics, A Text-Lab Manual, 7th Edition, TMH, 1994.
2. Paul B. Zbar, Industrial Electronics, A Text – Lab Manual, 3rd Edition, TMH, 1983.
3. https://nptel.ac.in/courses/122106025/

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

No. of Internal Test:	01	Max. Marks for Internal Test:	12
Marks for day-to-day laboratory class work			18
Duration of Internal Test: 180 Minutes			

With effect from the Academic Year 2021-22

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
SCHEME OF INSTRUCTION AND EXAMINATION(R-21)
FOR B.E 2021-22 ADMITTED BATCH II SEMESTER (A.Y 2021-22)

B.E (CSE) II Semester								
Course Code	Name of the Course	Scheme of Instruction			Scheme of Examination			
		Hours per Week			Duration in Hrs	Maximum Marks		Credits
		L	T	P/D		SEE	CIE	
THEORY								
UI21HS220EH	English Language and Communication	2	-	-	3	60	40	2
UI21BS220MA	Differential Equations & Vector Calculus	3	-	-	3	60	40	3
UI21BS220CH	Material Chemistry	3	-	-	3	60	40	3
UI21ES010EE	Basic Electrical Engineering	2	-	-	3	60	40	2
UI21ES220CS	Logic and Switching Theory	3	-	-	3	60	40	3
UI21ES230CS	Python Programming	3	-	-	3	60	40	3
UI21MC010CE	Environmental Science	2	-	-	3	60	40	0
PRACTICALS								
UI21HS211EH	English Language and Communication Skills Lab	-	-	2	3	50	30	1
UI21BS011CH	Chemistry Lab	-	-	2	3	50	30	1
UI21ES011EE	Basic Electrical Engineering Lab	-	-	2	3	50	30	1
UI21ES231CS	Python Programming Lab	-	-	2	3	50	30	1
	TOTAL	**18**	**-**	**8**		**620**	**400**	**20**
	GRAND TOTAL	**26**				**1020**		
Left over hours are allocated for Sports / Library / PDC / Mentor Interaction / CC / RC / TC								

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

DEPARTMENT OF HUMANITIES & SOCIAL SCIENCES

ENGLISH LANGUAGE AND COMMUNICATION

SYLLABUS FOR B.E.II-SEMESTER
(Common to all branches)

L:T:P(Hrs./week): 2	SEE Marks :60	Course Code : **UI21HS220EH**
Credits :2	CIE Marks :40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES**
The course will enable the students to :	***At the end of the course students should be able to:***
1. Understand the role and importance of communications skills. 2. Develop the habit of listening effectively to various speakers and lectures. 3. Develop reading strategies in order to understand various types of texts 4. Understand the various features and formats of writing. 5. Comprehend grammar constructs and vocabulary used in different contexts.	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. Evaluate and infer various text types. 4. Compose letters and essays, coherently and cohesively using discourse marks. 5. Construct grammatically correct sentences using adequate vocabulary.

UNIT-11.0 Effective communication and Interpersonal skills

1.1 Role and Importance of Language and Communication; Functions of communication; Process of Communication; Types of Communication; Styles of Communication; Channels of Communication; Barriers in Communication and how to overcome them.

1.2 Politeness theory.

1.2 Johari Window
1.3 Team building skills and team work
1.4 Persuasion techniques

UNIT-2 2.0 Listening and Speaking skills

2.1 Importance of listening for effective communication; Elements of Active listening.
2.2 Speaking skills: -Speaking strategies; Telephone etiquette.

UNIT-3 3.0 Reading and Writing skills

3.1 Sub-skills of Reading; Understanding the functions of different texts, Reading Comprehension-Global and Local.
3.2Featuresof Writing: -
Organizing principles of writing paragraphs-Coherence, Cohesion & Unity; Use of appropriate linkers. Paraphrasing and Summarizing skills.

3.3Written Communication:

- Email etiquette
- Request letters
- Creative writing- Pictionary, Taglines, Script Writing

UNIT-44.0 Vocabulary Building and Grammar

4.1Vocabulary Building: The concept of Word Formation-Prefixes and Suffixes; Synonyms, Antonyms, and Standard abbreviations. Word origin-Etymology; One-word substitutes; Collocation; Idioms.
4.2 Functional Grammar: Articles, Prepositions; Tense and Aspect; Subject-Verb agreement; Connectives; Direct and Indirect Speech; Active-Passive
All these aspects will be taught as common errors.

UNIT-5 5.0 Reading for appreciation of literary texts

5.1Prosetext- On Shaking Hands- A G Gardiner.
5.2Poem-What life should be-Patricia A Fleming.

Prescribed textbook for theory:

Technical communication - Principles and Practice (2nd Edition 2014) -

Meenakshi Raman and Sangeeta Sharma- Oxford University Press.

Suggested Reading

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.
Brown, Penelope and Stephen C. Levinson. 1978. Universals in language usage: politeness phenomena: Cambridge University Press

The break-up of marks for CIE:

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 Tests : 120 Minutes

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

DEPARTMENT OF MATHEMATICS

DIFFERENTIAL EQUATIONS & VECTOR CALCULUS

SYLLABUS FOR B.E.II-SEMESTER
(Common to CSE, CSE-AIML & IT)

L:T:P(Hrs./week): 3:0:0	SEE Marks :60	Course Code :**UI21BS220MA**
Credits :3	CIE Marks :40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES**
The course will enable the students to :	***At the end of the course students should 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. Study the concepts of vector differentiation, Gradient, Divergence and Curl. 4. Learn how to evaluate double and triple integrals, using change of order of integration and apply vector integration to transformation theorems 5. Understand Beta, Gamma functions and Error functions	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. Use gradient to evaluate directional derivatives and conservative vector field. 4. Apply concepts of multiple integrals to evaluate area and volume and vector integration to transformation 5. Evaluate Improper integrals and Beta ,Gamma functions

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

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 – IV

MULTIPLE INTEGRALS: Double and Triple integrals (Cartesian) - Change of order of integration (Cartesian Coordinates).

VECTOR INTEGRATION: Line, Surface and Volume integrals- Green's Theorem – Gauss Divergence theorem - Stokes's Theorem. (all theorems without proof)- Solenoidal and Irrotational vectors.

UNIT – V

BETA-GAMMA FUNCTIONS

Improper integrals-Beta, Gamma functions- Error functions-complimentary error functions

Text Books:

1. Higher Engineering Mathematics 40th Edition Dr. B.S Grewal, Khanna Publishers.
2. Advanced Engineering Mathematics 3rd Edition, R.K.Jain & S.R.K.Iyengar, Narosa Publishing House.
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.

Online Resources:

1. http://tutorial.math.lamar.edu/Classes/DE/DE.aspx
2. http://mathworld.wolfram.com/topics
3. http://www.nptel.ac.in/course.php
4. https://www.coursera.org/in

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

1	No. of Internal Test	:	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	:	5

Duration of Internal Test : 90 Minutes

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

DEPARTMENT OF CHEMISTRY

MATERIAL CHEMISTRY

SYLLABUS FOR B.E.II SEMESTER
(For CSE, AIML and IT branches)

L :T:P (Hrs./week):3:0:0	SEE Marks :60	Course Code **: UI21BS220CH**
Credits :3	CIE Marks :40	Duration of SEE :3 Hours

COURSE OBJECTIVES	COURSE OUTCOMES
The objectives of the course are	Upon the completion of this course students will be able to
1. To study variation of conductance, electrode potential and emf with change in concentration, temperature and to acquint with applications of galvanic cells. 2. To classify and compare various types of batteries. 3. To discuss the different types of macromolecules with their applications. 4. To appraise few engineering materials.	1.Construct a galvanic cell and calculate its EMF and pH wherever applicable. 2.Describe the construction, chemistry and applications of the selected primary, secondary batteries and fuel cells. 3. Categorise the macro molecules and discuss the synthesis of a few macro molecules and their applications. 4. Get expose to basic concepts of engineering materials such as Composites and liquid crystals. 5. Know the classification, synthesis, characterization, properties and applications of nanomaterials.

UNIT-I: ELECTRODICS AND ITS APPLICATIONS (9)

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

Concept of electrode potential, Helmholtz electrical double layer theory, electro motive force (EMF). Electrochemical series – applications. Nernst equation- derivation, applications and numericals. Concentration cells- 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 and redox titration (Fe(II) Vs $KMnO_4$).

UNIT-II: CHEMISTRY OF BATTERIES (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- numericals.
Primary batteries, secondary batteries, and fuel cells.
Primary batteries: Types-acidic, alkaline and reserve batteries. Construction and electrochemistry of Zn-C, Ag_2O-Zn battery and lithium-V_2O_5 battery.
Secondary batteries: Construction and working of lead-acid, Ni-metal hydride, and lithium ion battery – advantages, limitations and applications.

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

UNIT-III: MACRO MOLECULES (9)

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 Polymerization - 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) Phenol-formaldehyde (Bakelite) c) Poly carbonate
Elastomers: Natural rubber- structure – chemistry of vulcanization and its advantages.
Artificial rubbers: Preparation, properties & uses of Buna-S and neoprene.
Biodegradable polymers: Concept, preparation and uses of ploy lactic acid.

Conducting polymers: Definition- classification, mechanism of conduction in polyacetylene and applications.

UNIT-IV: ENGINEERING MATERIALS (7)

a. Composite materials:

Introduction, constituents of composites, advantages over conventional materials. Applications of composites. Types of composites based on matrix and dispersed phases. Fiber reinforced composites: glass, carbon and aramid reinforced composites. Layered composites- applications. Manufacturing techniques – Hand layup, Resin transfer, pulltrusion and filament winding methods.

b. Liquid Crystals

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

UNIT-V: NANOMATERIALS (8)

Introduction - Concept of nanomaterials - quantum confinement and surface volume ratio.

Properties of nanomaterials: Catalytic, electrical, mechanical and optical properties.

Types of Nanomaterials**:** Zero dimensional (0-D), One dimensional (1-D),Two dimensional (2-D),Three Dimensional(3-D).

Characterization of nanomaterials- Principle and block diagram of Scanning Electron Microscope (SEM), Atomic Force Microscope (AFM).

Synthesis of nanomaterials: Top down and bottom up approaches**-** mechanical grinding by ball milling and sol -gel method.

Graphene: Introduction, synthesis of graphene by chemical vapor deposition (CVD).

Carbon Nanotubes**:** Classification **-** single walled carbon nanotubes (SWCNTs- armchair, zig-zag, chiral) and Multi walled carbon nanotubes (MWCNTs- Russian doll and parchment model).

Synthesis of CNTs- Arc discharge and laser ablation methods- applications of CNTs.

Text Books:

1. PC Jain, M Jain Engineering Chemistry, DhanapathiRai and sons (16th edition), New Delhi.
2. SashiChawla, Text book of Engineering Chemistry, DhanapathiRai&sons, New Delhi.
3. O.G. PALANNA, Engineering Chemistry, TMH Edition.
4. Wiley Engineering chemistry, Wiley India pvt Ltd, II edition.
5. 5 .Chemistry in engineering and technology by J.C. Kuriacose and Rajaram.
6. The chemistry of nano materials-Synthesis, Properties and Applications by C N Rao, Wiley India pvt Ltd.

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 Test + Assignments + Quizzes

1	No. of Internal Test	:	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 Electrical & Electronics Engineering

Basic Electrical Engineering

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

L:T:P(Hrs/week):2:0:0	SEE Marks:60	Course Code: **UI21ES010EE**
Credits : 2	CIE Marks:40	Duration of SEE: 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
1. To provide an understanding of basics in Electrical circuits 2. To explain the working principles of Electrical Machines.	1. Analyze Electrical Dc circuits using different analyzing methods and theorems. 2. Analyze Electrical single phase and three phase AC circuits 3. Comprehend the working principles of DC machines 4. Comprehend the working of single phase transformer and various Electrical switchgear, electrical energy consumption and power factor improvement 5. Comprehend the working principles of AC machines

Unit-I: D.C. Circuits:
Electrical circuit elements (R, L and C), independent voltage and current sources, Kirchhoff current and voltage laws, Source transformation, Mesh Analysis, Nodal analysis, Superposition theorem, Thevinin's and Norton's Theorem, Maximum power transfer theorem, Tellegen's theorem.

Unit II: A.C. Circuits:
Representation of sinusoidal waveform - peak and rms values, form factor, phasor representation, real power, reactive power, apparent power, power factor, Analysis of single-phase ac series combinations of R-L-C circuits, Three-phase

balanced circuits, voltage and current relations in star and delta connections.

Unit III: DC Machines:
Construction, Working principle of DC Generator and DC motor , EMF equation, Types of DC Generators & motors, Torque in a DC motor, Torque – speed characteristic of DC Shunt motor, Speed control of DC shunt motor.

Unit IV: Single Phase Transformers and Electrical Installation:
Principle of operation, Ideal and practical transformer on No-load and Load, Equivalent circuit, losses in transformers, efficiency.
Components of LT Switchgear: Switch fuse unit (SFU), MCB, Earthing, elementary calculations for Energy consumption, power factor improvement.

Unit V: Induction Motors and Stepper Motors:
Generation of rotating magnetic fields, Construction and working of a three-phase induction motor, torque-slip characteristics.
General construction, working and applications of Stepper motor and BLDC motor.

Learning Resources:

1. D. P. Kothari and I. J. Nagrath, “Basic Electrical Engineering”, Tata McGraw Hill, 2010.
2. D. C. Kulshreshtha, “Basic Electrical Engineering”, McGraw Hill, 2009.
3. L. S. Bobrow, “Fundamentals of Electrical Engineering”, Oxford University Press, 2011.
4. E. Hughes, “Electrical and Electronics Technology”, Pearson, 2010.
5. V.K Mehta, Rohit Mehta, “Principles of Electrical Engineering and Electronics”, S Chand & Company Ltd, 2006.
6. J.B. Guptha, A course in electrical installation estimating and costing, reprint 2013, published by S.K. Kataria & Sons.
7. V. D. Toro, “Electrical Engineering Fundamentals”, Prentice Hall India, 1989.

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

1	No. of Internal Tests:	02	Max.Marks for each Internal Tests:	30
2	No. of Assignments:	03	Max. Marks for each Assignment:	05
3	No. of Quizzes:	03	Max. Marks for each Quiz Test:	05

Duration of Internal Test: **90 Minutes**

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

Department of Computer Science & Engineering

LOGIC AND SWITCHING THEORY

SYLLABUS FOR B.E. II-SEMESTER

L:T:P (Hrs./week):3:0:0	SEE Marks:60	Course Code:**UI21ES220CS**
Credits :3	CIE Marks:40	Duration of SEE : 3Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On *completion of the course, students will be ab*le to
1 Understand the use of logic minimization methods and to solve the Boolean logic expressions. 2 Design combinational and sequential circuits.	1 Apply Boolean logic postulates and Karnaugh-Map to simplify Boolean expressions. 2 Apply tabulation method to minimize Boolean expressions. 3 Design combinational circuits such as adders, encoders and multiplexers. 4 Design sequential circuits like counters and registers. 5 Design a circuit using programmable logic devices.

UNIT-I:Boolean Algebra:
Axiomatic definition of Boolean Algebra, Postulates and Theorems, Boolean Functions, Canonical Forms and Standard Forms, Simplification of Boolean Functions Using Theorems and Karnaugh Map Method.

UNIT-II:
Minimization of Switching Functions: Quine-McCluskey Tabular Method, Determination of Prime Implicants and Essential Prime Implicants.
Implementation of Boolean Functions: Single-Output and Multiple-Output Combinational Circuit Design, AND-OR, OR-AND and NAND &NOR Realizations, Exclusive-OR and Equivalence functions.

UNIT-III:

Design of Combinational Logic Circuits: Analysis Procedure, Design Procedure, Modular Combinational Logic Elements- Decoders, Encoders, Priority Encoders, Multiplexers and De-multiplexers.

Design of Integer Arithmetic Circuits using Combinational Logic: Integer Adders – Binary Adders, Subtractors, Ripple Carry Adder and Carry Look Ahead Adder, and Carry Save Adders.

UNIT-IV:

Introduction to Sequential Circuit Elements: Latches, Various types of Flip-Flops, Excitation Tables.

Models of Sequential Circuits: Moore Machine and Mealy Machine, Analysis of Sequential Circuits-State Table and State Transition Diagrams. Design of Sequential Circuits-Counters. Moore and Mealy State Graphs for Sequence Detection, Methods for Reduction of State Tables and State Assignments.

UNIT-V:

Design of Combinational Circuits using Programmable Logic Devices (PLDs): Read Only Memory (ROM), Programmable Logic Array (PLA), Programmable Array Logic (PAL) devices.

Learning Resources:

1. Morris Mano M and Michael D Ciletti, Digital Design, 4th Edition (2008), Prentice Hall of India.
2. ZviKohavi, Switching and Finite Automata Theory, 2nd Edition(1978), Tata McGraw Hill.
3. Charles H. Roth, Jr., Larry L. Kenny, Fundamentals of Logic Design, 7th Edition(2013), Cengage Learning.
4. Anand Kumar A, Switching Theory and Logic Design, 2nd Edition(2014), PHI Publishers.
5. CH Roth , Fundamentals of Logic Design, 4th Edition(2006), Jaico Publishers.
6. https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-111-introductory-digital-systems-laboratory-spring-2006/
7. http://www.facweb.iitkgp.ernet.in/~isg/SWITCHING/

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 Tests : 1 Hour 30 Minutes

With effect from the Academic Year 2021-22

VASAVI COLLEGE OF ENGINEERING(Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

PYTHON PROGRAMMING

SYLLABUS FOR B.E. II-SEMESTER

L:T:P (Hrs./week): 3:0:0	SEE Marks : 60	Course Code : **UI21ES230CS**
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 Write programs using Python language	1 Develop Python programs with conditionals and loops 2 Write programs using functions, strings, lists and Numpy 3 Construct Python data structures programs using tuples, dictionaries 4 Write programs using files, OOPS concept, regular expressions 5 Design Programs Using inheritance

UNIT-I:

Basics of Python Programming: Features of Python**,** Literal Constants, Variables and Identifiers, Data Types, operators and expressions, Type Conversions.

Decision control Statements: Selection/Conditional branching statements, basic loop structures/iterative Statements, nested loops, break, continue, and pass Statements.

Functions: function definition, function call, Variable Scope and Lifetime, more on defining functions, Recursive functions.

UNIT-II:

Data Structures: **Strings**: Introduction, built-in string methods and functions, slice operation, String Module, **Regular Expressions**, Meta-character in Regular Expression.

Lists: Introduction, nested list, cloning lists, basic list operations, list methods, List Comprehensions, Looping in Lists. **Functional programming**-filter(),map(),reduce() function.

Numpy: Numpy Fundamentals, creating arrays, array indexing, Basic Array Operations, one dimensional and n dimensional array, Creating Matrices using Numpy arrays, Matrix multiplication.

UNIT –III:

Tuples: Introduction, basic tuple operations, tuple assignment, tuples for returning multiple values, nested tuples, tuple methods and functions, Variable length Argument Tuples, Advantages of Tuple Over List.

Set: Introduction, Set operations.

Dictionaries : Basic operations, sorting items, looping over dictionary, nested dictionaries, built-in dictionary functions, String Formatting with Dictionaries.

UNIT-IV:

Files Handling: Introduction, File Path, Types of files, Opening and closing Files, reading and writing files, File Positions, Renaming and Deleting Files, Directory Methods, Pickling and JSON.

Exception Handling: Introduction to Errors and Exceptions, Handling Exceptions, Multiple Except Blocks, The Else Clause, Raising Exceptions, Handling the Exceptions in invoked functions, Built-in and user-defined exceptions, The Finally Block, Re raising Exception, Assertions

Unit-V:

OOPS Concepts: Introduction, classes and object, class method and self argument, the __init__()method, class variables and object variables, public and private data members, Private Methods, Calling a Class method from another class Method, Built-in Class Attributes, Garbage Collection, Inheritance, Operator Overloading.

Modules: Modules, Package, Standard Library Modules, Math, Random, date and time, Matplotlib, Pandas, Turtle.

Learning Resources:

1. Reema Thareja ,"Python programming using problem solving approach ", Oxford university press.
2. Allen Downey," Think Python: How to Think Like a Computer Scientist",O'Reilly publications,2nd Edition.
3. Albert Lukaszewski, "Mysql for python ", PACKT publishers
4. Mark Lutz , "Learning Python",O'Reilly Publications.
5. Stewart Venit and Elizabeth Drake, Prelude to Programming: Concepts and Design, 6th Edition(2015), Pearson India
6. Mark J Guzdial, Introduction to Computing and programming in Python, 3rdEdition(2013), Pearson India

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

1	No. of Internal Tests:	02	Max.Marks for each Internal Tests:	30
2	No. of Assignments:	03	Max. Marks for each Assignment:	5
3	No. of Quizzes:	03	Max. Marks for each Quiz Test:	5

Duration of Internal Test: 1 Hour 30 Minutes

With effect from the Academic Year 2021-22

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF CIVIL ENGINEERING

ENVIRONMENTAL SCIENCE

SYLLABUS FOR B.E. II-SEMESTER

L: T:P(Hrs./week): 2:0:0	SEE Marks:60	Course Code:**UI21MC010CE**
Credits : - - -	CIE Marks:40	Duration of SEE: 3 Hours

COURSE OBJECTIVES	**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. 5. 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 ecosystems, 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 Assessment, 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

1	No. of Internal Tests	:	2	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 Tests : 1 Hour 30 Minutes

With effect from the Academic Year 2021-22

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

DEPARTMENT OF HUMANITIES & SOCIAL SCIENCES
ENGLISH LANGUAGE AND COMMUNICATION SKILLS LAB

SYLLABUS FOR B.E. - II SEMESTER (Common to all branches)

L: T: P(Hrs/Week): 0:0:2	SEE Marks : 50	Course Code: **UI21HS211EH**
Credits: 1	CIE Marks: 30	Duration of SEE:3 Hours

COURSE OBJECTIVES	**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:

Introductory to auditory, acoustic and articulatory phonetics. Organs of speech: the respiratory, articulatory and phonatory systems.

1.2 Aspects of language learning and ear training activities-

Homophones, homonyms. Words often confused. Parts of speech- Identification and pronunciation of nouns, adjectives, verbs andadverbs. Longman Dictionary of Contemporary English- 6th Edition, 2020.

2.0 INTERACTIVE COMMUNICATION SKILLS LAB-TOPICS

2.1Group 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 analysing speeches of great personalities in history, TED talks, Documentaries and Movies.

2.4 Interview Skills - Basic HR questions.
Viva questions will be asked in internal and external exams.

3.0 READING SKILLS LAB - TOPICS

3.1Teaching different types of texts for comprehension
3.2 **Poster Reading**- Analysing data, specific vocabulary items &pictorial forms and convert the sameto a reading text and vice versa.
Viva questions will be asked in internal and external exams.
Longman Dictionary of Contemporary English - 6th Edition, 2020.

Prescribed textbook for laboratory:
Speak Well: Jayshree Mohanraj, 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. 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.
5. Rudolph F. Verderber, Kathleen S. Verderber, Deanna D. Sellnow: *The Challenge of Effective Speaking*2012

The break-up of marks for CIE:

No. of Internal Tests : 1 Max. Marks for Internal Test: 30

Duration of Internal Test : 120 Minutes

With effect from the Academic Year 2021-22

VASAVI COLLEGE OF ENGINEERING(Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF CHEMISTRY

CHEMISTRY LAB

SYLLABUS FOR B.E. II SEMESTER

L:T:P(Hrs./week):0:0:2	SEE Marks : 50	Course Code: **UI21BS011CH**
Credits :01	CIE Marks : 30	Duration of SEE: 3 Hours

LEARNING OBJECTIVES:	**LEARNING OUTCOMES:**
The course will enable the students to:	**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. Determine the amount of metals in the given solutions. 2. Analyse the hardness, alkalinity and chloride content of a given sample. 3. Estimate 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.

List of the Experiments:

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 in the given solution by standardized FAS.
4. Estimation of copper in brass or 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. Conduct ometric acid-base titrations -Determination of strength of given acids (HClVsNaOH and CH_3COOH VsNaOH).
9. Conduct ometric 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. Determination of concentration of a salt by ion exchange method.
15. Synthesis of Aspirin or Phenol formaldehyde resin.

Learning Resources:

Text Books:

1. Sunita rattan, Experiments in applied chemistry, S K Kataria & Sons (2010)
2. M S Kaurav, Engineering chemistry with laboratory experiments, PHI learning (P) ltd, New Delhi.

Reference Books:

1. G H Jeffery, J Bassett, J Mendham, R C Denney, Vogel's text book of quantitative chemical analysis, Fifth Edition.
2. A text book on experiments and calculation Engineering Chemistry, S.S. Dara.

With effect from the Academic Year 2021-22

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

Department of Electrical & Electronics Engineering

Basic Electrical Engineering Laboratory

SYLLABUS FOR B.E II – SEMESTER (CSE and ECE Branches)

L:T:P(Hrs./week):0:0:2	SEE Marks:50	Course Code: **UI21ES011EE**
Credits :1	CIE Marks:30	Duration of SEE: 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
To provide the practical knowledge on operation of DC, AC machines and circuits.	1. Handle basic electrical equipment and apprehend safety precautions 2. Test the performance of various AC and DC machines 3. Apply and Verify various Network theorems 4. Comprehend Measurement of Electrical Energy consumption 5. Comprehend the importance of Power Factor improvement.

List of Experiments

1. Basic safety precautions. Introduction and use of measuring instruments – voltmeter, ammeter, multi-meter, oscilloscope. Real-life resistors, capacitors and inductors.
2. Verification of Kirchoff's Voltage Law & Kirchoff's Current Law.
3. Verification of Superposition theorem and maximum power transfer theorems.
4. Verification of Thevenin's and Tellegen's theorems.
5. Sinusoidal steady state response of R-L and R-C circuits, Measurement of phase angle.
6. Measurement of cumulative three-phase power in balanced three-phase circuits.
7. Demonstration of cut-out sections of machines: dc machine (commutator-brush arrangement), induction machine (squirrel cage

rotor), synchronous machine (field winging - slip ring arrangement) and single-phase induction machine.

8. Torque Speed Characteristic of dc shunt motor.
9. Speed control of dc shunt motor.
10. Loading of a transformer: measurement of primary and secondary voltages and currents and power.
11. Torque-Slip Characteristic of a three phase induction motor.
12. Measurement of electrical energy consumption.
13. Improvement of Power factor in 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 2021-22

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

PYTHON PROGRAMMING LAB

SYLLABUS FOR B.E. II-SEMESTER

L:T:P (Hrs./week): 0:0:2	SEE Marks : 50	Course Code : **UI21ES231CS**
Credits : 1	CIE Marks : 30	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** *On completion of the course, students will be able to*
1 Acquire problem solving skills	1 Develop Python programs with conditional statements and loops.
2 Write programs using Python language	2 Write programs using functions, strings and lists.
	3 Construct Python data structures programs using tuples, dictionaries and set.
	4 Develop programs using files and Object oriented programming.

Programming Exercise:

1. Implementation of decision making, branching and looping
2. Implementation of functions and function calls
3. Implementation of recursive functions
4. Implementation of string traversal, searching and other string methods
5. Implementation of list and list operations
6. Implementation of tuples
7. Implementation of dictionary and its operations

8. Implementation of set operations
9. Implementation of files
10. Implementation of pickling in files
11. Implementation of classes
12. Implementation of OOPS concepts in Python

Learning Resources:

1. Reema Thareja ,"Python programming using problem solving approach ", Oxford university press.
2. Allen Downey," Think Python: How to Think Like a Computer Scientist", O'Reilly publications,2nd Edition.
3. Albert Lukaszewski, "Mysql for python ", PACKT publishers
4. Mark Lutz , "Learning Python",O'Reilly Publications.
5. Stewart Venit and Elizabeth Drake, Prelude to Programming: Concepts and Design, 6th Edition(2015), Pearson India
6. Mark J Guzdial, Introduction to Computing and programming in Python, 3rdEdition(2013), Pearson India

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			