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 – AI & ML) I and II Semesters

With effect from 2020-21
(For the batch admitted in 2020-21)
(R-20)

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

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 2020-21

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
SCHEME OF INSTRUCTION AND EXAMINATION (R-20)
FOR B.E 2020-21 ADMITTED BATCH I SEMESTER (A.Y 2020-21)

B.E (AIML) 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								
UII20HS110EH	English Language and Communication – I	2	-	-	3	60	40	2
UII20BS110MA	Engineering Mathematics – I	3	-	-	3	60	40	3
UII20BS010PH	Semiconductor Physics and Optoelectronic devices	3	1	-	3	60	40	4
UII20ES120CS	Programming for Problem Solving	3	-	-	3	60	40	3
UII20ES110EC	Introduction to Electronics Engineering	3	-	-	3	60	40	3
UII20ES030CE	Engineering Drawing	1	-	2	3	60	40	2
PRACTICALS								
UII20HS111EH	English Language and Communication Skills Lab – I	-	-	2	3	50	30	1
UII20BS011PH	Semiconductor and Optoelectronics Lab	-	-	2	3	50	30	1
UII20ES121CS	Programming for Problem Solving Lab	-	-	2	3	50	30	1
UII20ES111EC	Introduction to Electronics Engineering Lab	-	-	2	3	50	30	1
	TOTAL	**15**	**1**	**10**		**560**	**360**	**21**
	GRAND TOTAL	**26**				**920**		
Left over hours are allocated for Sports / Library / PDC / Mentor Interaction / CC / RC / TC								

With effect from the Academic Year 2020-21

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF HUMANITIES & SOCIAL SCIENCES

ENGLISH LANGUAGE AND COMMUNICATION-I

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

L:T: P(Hrs/Week): 2:0:0	SEE Marks: 60	Course Code: **UII20HS110EH**
Credits:2	CIE Marks: 40	Duration of SEE Hours:3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
1. Understand the role and importance of communication skills. 2. Realise the various features and functions of human language and communication, verbal and non-verbal. 3. Comprehend the use of words in different contexts. 4. Develop the habit of listening effectively to various speakers and lectures. 5. Develop reading strategies in order to understand various types of texts.	1. Greet and converse with friends, teachers, and strangers appropriately. 2. Listen and respond to lectures, talks and take notes. 3. Use language functionally and participate in classroom interactions and in simulated situations replicating the real world. 4. Read, comprehend, and answer questions on different types of texts and make notes. 5. Construct grammatically correct sentences for speaking and writing.

UNIT-11.0 Effective communication

1.1 Role and Importance of language and communication; Functions of communication; Process of communication; Types of communication - formal and informal; verbal and nonverbal; Styles of communication; Channels of communication; Barriers toeffective communication.

UNIT-2 2.0 Listening and Speaking skills

2.1 Importance of listening in effective communication; Active listening

2.2 Speaking skills: -Speaking strategies, Functions of oral communication- introducing a person and speaking about his/her achievements, situational dialogues; telephone etiquette; poster-presentations.

UNIT-3 Reading and Writing skills

3.1 Sub-skills of Reading; Understanding the functions of different texts, Reading comprehension

3.2 Written Communication: **Styles**

- Describing events, people, places, objects.
- Defining.
- Providingexamplesorevidence.
- Writing introductionandconclusion.

3.2.1Written Communication: **FeaturesofWriting**: -

Importance of proper punctuation, creating coherence, organizing principles of paragraphs in documents, Techniques for writing precisely using appropriate phrases and clauses and linkers.

UNIT-4.0 Vocabulary Building and Grammar

1.1 Vocabulary Building: The concept to Word Formation; Root words. Prefixes and suffixes;
Synonyms, antonyms, and standard abbreviations. Homonyms, Homophones.

1.2 Remedial English: Articles, Prepositions; Tense and Aspect; Subject- Verb agreement; Connectives; Direct and Indirect Speech, Common errors.

UNIT-55.0Reading skills and Comprehension

5.1 Prose text- In love with Rocket Science- India's Missile Woman.

5.2 Poem- A *psalm of life* by Henry Wadsworth *Longfellow*.

Learning Resources:

1. E.Suresh kumar, P. Sreehari and J. Savithri - Essential English
2. Reading comprehension - Nuttal.J.C - Orient Blackswan
3. Sunitha Mishra. 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.

The break-up of marks for CIE:
Internal Tests (2); Quiz Tests (3) + Assignments (3)

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

With effect from the Academic Year 2020-21

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF MATHEMATICS

ENGINEERING MATHEMATICS-I

SYLLABUS FOR B.E I-SEMESTER

(Common to all branches)

L:T(Hrs./week):3:0:0	SEE Marks :60	Course Code: **UII20BS110MA**
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 Mean value theorems, concepts of curvature, radius of curvature evolutes and envelopes 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 differentiation, Gradient, Divergence and Curl. 4. Learn how to evaluate double and triple integrals, Change of order of integration and change of variables and vector integration and its applications.. 5. Understand infinite series, nature and various tests to check the nature of infinite series .	1. Compute radius of curvature, evolute and envelope of a given curve and also to expand given function using Taylor's series. 2. Expand a 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. Calculate the gradient and directional derivatives and Curl 4. Apply given double and triple integrals to evaluate area and volume and to use Green's theorem to evaluate line integrals, Stokes' theorem to give a physical interpretation of the curl of a vector field and the divergence theorem. 5. Identify the given series and apply an appropriate test to check its nature

UNIT-I : Differential Calculus

Introduction to Mean Value Theorems with Geometrical Interpretation(Without Proofs) - Taylor's Series – Expansion of functions on power series- Curvature- Radius of Curvature (Cartesian and Parametric co-ordinates) – Center of Curvature –Evolutes – Envelopes of one parameter family of curves.

UNIT-II : 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 with and without constraints - Lagrange's Method of multipliers.

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 : Vector Integral Calculus

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).

UNIT-V : Infinite Series

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

Learning Resources:

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

4. Differential Calculus by Shanti Narayan S. Chand & Co
5. Vector Calculus – Schaum's outline series.
6. http://mathworld.wolfram.com/topics
7. http://www.nptel.ac.in/course.php

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

With effect from the Academic Year 2020-21

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):3:1:0	SEE Marks:60	Course Code: **UII20BS010PH**
Credits :04	CIE Marks:40	Duration of SEE: 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
1. learn crystal structure and defects in solids 2. aware limits of classical free electron theory and use band theory to classify solids. 3. know construction and signal losses in various optical fibers 4. gain knowledge on working of optoelectronic devices 5. acquire fundamental knowledge on photo-detectors.	1. segregate crystals based on their structure and apply effects of defects on manipulation of properties of solids. 2. distinguish materials based on band theory of solids and appreciate use of materials for various applications. 3. summarize various merits, demerits and applications of optical fibers. 4. accustom with various device structures of optoelectronic light sources like LED and lasers 5. assimilate working and use of photo detectors in various applications

UNIT-I : FUNDAMENTALS OF CRYSTAL STRUCTURE:

Introduction-Space lattice, Basis, Unit cell, Bravais lattices and crystal systems, Miller Indices, X-ray diffraction, Bragg's law, powder x- ray diffraction-, crystalline, polycrystalline and amorphous materials, Point Defects: Schottky, Frankel Defects, effects of defects on properties of solids. Classical free electron theory (Drude theory) and its limitations, Somerfield theory, de Broglie Hypothesis, wave function, Schrodinger wave equation for a particle in I-D box, Kronig-Penny model (introduction to origin of band gap),

Energy bands in solids, E-k diagram, density of states for bulk, thin and nano materials, effective mass, classification of materials as metals, semiconductors, and insulators.

UNIT-II : SEMICONDUCTOR PHYSICS:

Intrinsic semiconductors, extrinsic semiconductors-doping, acceptor and donor impurities, Fermi-Dirac Statistics, expression for intrinsic and extrinsic carrier concentration (equilibrium carrier statistics), conductivity of intrinsic and extrinsic semiconductor, law of mass action, dependence of Fermi level on carrier-concentration and temperature, mobility, Halleffect.

Diffusion and Drift current densities- Continuity equation - Semiconductor P-N junction formation, diode in equilibrium without bias, introduction metal-semiconductor Ohmic and Schottky junctions. Direct and indirect band gap semiconductors, carrier generation and recombination, radiative and non-radiative recombination mechanisms in semiconductors.

UNIT-III : FIBER OPTICS:

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, Semiconductor materials for opto-electronic devices, various signal losses in optical fibers, Block diagram of optical communication system, advantages and application of optical fibers.

UNIT-IV : LED AND LASER:

LIGHT EMITTING DIODE (LED): types of luminescence, construction and working of LED, characteristics of LED, quantum efficiency of LED, Homo junction and Hetero-junction structures, advantages and applications of LED.

LASERS: meta-stable states, population inversion, pumping, components of laser; condition for lasing, characteristics of lasers, types of lasers, construction and working of Ruby laser and He-Ne laser.

Semiconductor lasers- rate equations for carrier and photon-density, and their steady state solutions, modes in resonating cavity, gain and loss, quantum efficiency, construction and working of homo-junction and hetero-junction semiconductor lasers, advantages and applications of lasers.

UNIT-V : PHOTODETECTORS:

PHOTO-DETECTORS: photoconductivity, expression for current gain in a photoconductor, construction, working and characteristics of photo-detectors like photo-diode, PIN, and Avalanche diode, performance of photo-detectors.

SOLAR CELL: Photovoltaic effect, air mass conditions, solar radiation

spectrum, construction and working of homo and hetero junction solar cell, V-I characteristics of solar cell, quantitative treatment of spectral response, conversion efficiency, fill factor, thin film and tandem solar cells, applications of solar cells.

Learning Resources:

1. Charles Kittel, Introduction to Solid State Physics, 7th Edition, John Wiley & Sons,2008.
2. S. M. Sze, Semiconductor Devices: Physics and Technology, Wiley,2008.
3. Ben. G Streetman, Solid State Electronic Devices, PHI,2006
4. Pallab Bhattacharya, Semiconductor Optoelectronic Devices, PHI,2002
5. John M Senior, Optical Fiber Communications: Principles and Practice, 3rd Edition, Pearson,2010
6. Jasprit Singh, Semiconductor Devices Basic Principles, 2000, John Wiley &Sons
7. M.N. Avadhanulu and P.G. Kshirsagar and TVS Arun, Murthy A Text Book Engineering Physics, 11th Edition, S. Chand,2018.
8. M.R Shenoy, NPTEL MOOCS course, Semiconductor opto-electronics.2018
9. M. Ali Omar, Elementary Solid-State Physics,1e, Pearson,2002

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

With effect from the Academic Year 2020-21

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 :**UII20ES120CS**
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.	1 Design flowcharts and algorithms for solving a given problem using the fundamentals of programming.
2 Develop flow charts.	2 Apply decision making, looping constructs and functions to develop programs for a given problem.
3 Understand structured programming concepts.	3 Store data using arrays and perform searching and sorting operations on the data.
4 Write programs in C Language.	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.
9. https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-087-practical programming-in-c-january-iap-2010/syllabus/
10. http://nptel.ac.in/syllabus/syllabus.php?subjectId=106104128

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

With effect from the Academic Year 2020-21

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: **UII20ES110EC**
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

With effect from the Academic Year 2020-21

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF CIVIL ENGINEERING

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:**UII20ES030CE**
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", NewAge International(P)Ltd., NewDelhi,2010.
5. SiddiqueeA.N "Engineering Drawing with a Primer on Autocad", 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

With effect from the Academic Year 2020-21

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF HUMANITIES & SOCIAL SCIENCES

ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY-I

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

L :T:P(Hrs/Week) :0:0:2	SEE Marks : 50	Course Code: **UII20HS111EH**
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. Identify and describe phonemes in English. 2. Learn the speech sounds and distinguish between vowel and consonant sounds in the English language. 3. Reduce mother tongue influence when speaking English. 4. Understand and follow the rules in debates, group discussions, interviews and role plays. 5. Develop reading skills and analyse various text types. 6. Use dictionary for pronunciation and transcription of words.	1. Use language with appropriate pronunciation. 2. Modify language, based on the context and situations. (formal and informal). 3. Participate effectively in group discussions and debates. 4. Enact role plays. 5. Use language coherently. 6. Comprehend various text types.

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 Sound System of English: Phonetic sounds, Introduction to International Phonetic Alphabet; The Syllable: Types of syllables, Transcription.

2.0 INTERACTIVE COMMUNICATION SKILLS LAB-TOPICS

2.1 Group discussion:

Objectives of GD, Types of GDs; Initiating, Continuing, and concluding a GD. (Basic Level)

2.2 Debate:

understanding the difference between a debate and a group discussion, essentials of debate, concluding a debate. (Basic Level)

2.3 Role Plays: -

Use of structured and semi-structured dialogues in a variety of situations and settings.

2.4 Interview Skills - Basic HR questions.

Viva questions will be asked in internal and external exams.

3.0 READING SKILLS LAB - TOPICS

3.1 Teaching different types of texts for comprehension

Viva questions will be asked in internal and external exams.

Prescribed textbook for laboratory:

Speak Well: Jayshree Mohanraj, Kandula Nirupa Rani and Indira Babbellapati - Orient Black Swan

Learning Resources:

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

No. of Internal Test: 01 Max. Marks for Internal Test: 30

Duration of Internal Test : 120 Minutes

With effect from the Academic Year 2020-21

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

Department of Physics

SEMICONDUCTOR AND 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: **UII20BS011PH**
Credits :01	CIE Marks:30	Duration of SEE: 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
1. Make precise measurements using basic physical principles and acquire skills to handle the instruments 2. Relates the theoretical Knowledge to the behavior of Practical Physical world. 3. Analyze errors in the experimental data. 4. Plot graphs between various physical parameters.	1. Conduct experiments, take Measurements independently. 2. Write appropriate laboratory reports. 3. Compute and compare the experimental results and draw relevant conclusions and interpret the results. 4. Use the graphical representation of data and estimate results from graphs.

List of the Experiments:

1. Determination of characteristics of He-Ne lasers.
2. Calculation of numerical aperture, acceptance angle and power loss due to bending of an optical fibre.
3. Determination of energy gap of a given semiconductor by four probe method
4. Study of I-V characteristics of P-N Junction diode, Zener diode
5. Characteristics of Photodiode and LED
6. Study of I-V characteristics of solar cell and to calculate fill factor and efficiency
7. Characteristics of Photocell
8. Hall's effect- determination of Hall's coefficient

9. e/m of electron-Thomson's method
10. Seebeck Effect-determination of Seebeck coefficient
11. Helmholtz coil –calculation of magnetic field along the axis
12. Study of resonance in LCR series & parallel circuits and to find resonant frequency & Q- factor
13. Michelson's interferometer-determination of wavelength of laser light.

From the above experiments, each student should perform at least 12 (Twelve) experiments.

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 2020-21

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 :**UI20ES121CS**
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.
5. https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-087-practicalprogramming-in-c-january-iap-2010/syllabus/
6. http://nptel.ac.in/syllabus/syllabus.php?subjectId=106104128

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			

With effect from the Academic Year 2020-21

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: **UI20ES111EC**
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			

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

SCHEME OF INSTRUCTION AND EXAMINATION (R-20)

FOR B.E 2020-21 ADMITTED BATCH II SEMESTER (A.Y 2020-21)

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								
UII20HS210EH	English Language and Communication – II	2	-	-	3	60	40	2
UII20BS210MA	Engineering Mathematics – II	3	-	-	3	60	40	3
UII20BS220CH	Material Chemistry	3	-	-	3	60	40	3
UII20ES010EE	Basic Electrical Engineering	2	-	-	3	60	40	2
UII20ES010CE	Basic Engineering Mechanics	3	-	-	3	60	40	3
UII20ES230CS	Discrete Structures	3	-	-	3	60	40	3
UII20ES240CS	Python Programming	2	-	-	3	60	40	2
PRACTICALS								
UII20HS211EH	English Language and Communication Skills Lab – II	-	-	2	3	50	30	1
UII20BS011CH	Chemistry Lab	-	-	2	3	50	30	1
UII20ES011EE	Basic Electrical Engineering Lab	-	-	2	3	50	30	1
UII20ES241CS	Python Programming Lab	-	-	2	3	50	30	1
	TOTAL	**18**	**-**	**8**		**620**	**400**	**22**
	GRAND TOTAL	**26**				**1020**		
Left over hours are allocated for Sports / Library / PDC / Mentor Interaction / CC / RC / TC								

With effect from the Academic Year 2020-21

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF HUMANITIES & SOCIAL SCIENCES

ENGLISH LANGUAGE AND COMMUNICATION-II

SYLLABUS FOR B.E.- II SEMESTER

(Common to all branches)

L:T:P (Hrs/Week): 2:0:0	SEE Marks: 60	Course Code: **UII20HS210EH**
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. Identify words for use both in formal and informal contexts, to persuade and instruct and to inform. 2. Adapt and cooperate with people in varied contexts to function effectively, individually and in teams. 3. Communicate in interpersonal and intrapersonal contexts. 4. Read and write letters and essays etc. independently. 5. Write sustained piece of texts exhibiting qualities of coherence and cohesion.	1. Participate confidently in discussions both in the classroom and outside. 2. Work in teams, share ideas, agree and disagree politely. 3. Compose coherent letters, essays and resumes for varied situations. 4. Interpret and write a piece of text with coherence and cohesion. 5. Write paragraphs on any given topic following the rules of grammar and use appropriate vocabulary.

UNIT-11.0Interpersonal Communication

1.1 Johari Window

1.2 Team building skills and teamwork

1.3 Persuasion techniques

UNIT-22.0Speakingskills

2.1 Speaking strategies: - Making Power Point Presentations (research-oriented topics)

UNIT-33.0WritingPractices
3.1 PrécisWriting
3.2 EssayWriting-General and Creative
3.3 Email-etiquette
3.4 Request letters
3.5 Application letters and resume

UNIT-44.0Advanced Remedial English and Vocabulary: - (In context)
4.1 Grammar-Active and Passive Voice; Subject-Verb agreement
4.2 Vocabulary: - Words often confused, One-word substitutes; Collocations, Phrasal verbs; Idiomaticusage.

UNIT-55.0Reading skills and Comprehension
5.1 Getting acquainted with major type of questions
5.2 Prose text**-** Shiva Ayyadurai- The Inventor of the e-mail.
5.3 Poem by William Wordsworth - The World Is Too Much with Us

Learning Resources:

1. Essential English - E.Suresh Kumar, P. Sreehari, J. Savithri - Orient BlackSwan 2011.
2. Sunitha Mishra., C. Murali Krishna., Communication Skills for Engineers, Pearson, 2004.
3. PracticalEnglishUsage.MichaelSwan.OUP. 1995.
4. RemedialEnglishGrammar.F.T.Wood.Macmillan.2007
5. OnWritingWell.WilliamZinsser.HarperResourceBook.2001
6. StudyWriting.LizHamp-Lyonsand BenHealy.CambridgeUniversityPress.2006.
7. CommunicationSkills.SanjayKumarandPushpLata.OxfordUniversity Press.2011.
8. (vi)Exercisesin Spoken English. Parts. I-III. CIEFL, Hyderabad. Oxford UniversityPress

The break-up of marks for CIE:
Internal Tests (2); Quiz Tests (3) + Assignments (3)

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 Tests : 90 Minutes

With effect from the Academic Year 2020-21

VASAVI COLLEGE OF ENGINEERING(Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF MATHEMATICS

ENGINEERING MATHEMATICS-II

SYLLABUS FOR B.E.II-SEMESTER

(Common to all branches)

L:T:P(Hrs./week): 3:0:0	SEE Marks :60	Course Code :**UII20BS210MA**
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. **Study** the concepts of matrices, Eigen values and Eigen vectors, Diagonalization and canonical form of a quadratic form. 2. **Solve** various first order differential equations using various elementary techniques and learn its applications. 3. **Solve** various Higher order homogeneous and non-homogeneous differential equations with constant and variable coefficients and applications. 4. **Understand** the Analytic functions, conditions and harmonic functions. 5. **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.	1. **Find** rank of a given matrix, diagonalize a given matrix and reduce a quadratic form to canonical form and find its nature. 2. **Identify** the differential equations and solve them, model the real time electrical engineering problems viz., RC Circuits into differential equations and solve. 3. **Solve** various higher order Linear Differential Equations, model the real time electrical engineering problems viz., LC and LCR circuits into differential equations and solve them by using the various applicable techniques learnt. 4. **Apply** the condition(s) for a complex variable function to be analytic and/or harmonic and to construct an Analytic function. 5. **Apply** Cauchy's theorem and Cauchy's Integral formula to evaluate complex integrals and

	define singularities of a function, know the different types of singularities and to expand a given function as a Taylor's / Laurent's series.

UNIT-I : Matrices

Rank of a Matrix- Linearly independence and dependence of Vectors - Characteristic equation - Eigen values and Eigenvectors- Physical significance 0f Eigen values - Cayley - Hamilton Theorem(without proof)- Diagonalization using Similarity Transformation.

UNIT-II : Ordinary Differential Equations of first order

Exact first order differential equations - Integrating factors- Linear first order equations -Clairaut's Equation- Applications of First Order Differential Equations -Orthogonal trajectories
(Cartesian families) – LR and RC Circuits.

UNIT-III: Linear Differential equations:

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

UNIT-IV: 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-V: 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

Learning Resources:

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

4. Advanced Engineering Mathematics, by Wylie & Barrett, Tata Mc Graw Hill, New Delhi.
5. Advanced Engineering Mathematics, 8th Edition by Erwin Kreyszig , John Wiley & Sons, Inc.
6. Ordinary and Partial Differential equations, by M.D.Raisinghania, S.Chand& Company Ltd.,1997.
7. Complex Variables and applications, J.W.Brown and R.V.Churchill, 7th Edition, Tata Mc Graw Hill,2004.
8. http://tutorial.math.lamar.edu/Classes/DE/DE.aspx
9. http://mathworld.wolfram.com/topics
10. http://www.nptel.ac.in/course.php

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

With effect from the Academic Year 2020-21

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF CHEMISTRY

MATERIAL CHEMISTRY

SYLLABUS FOR B.E.I /II SEMESTER

(For CSE, AIML and IT branches)

L :T:P (Hrs./week):3:1:0	SEE Marks :60	Course Code **: UII20BS220CH**
Credits :4	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

With effect from the Academic Year 2020-21

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500031

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: **UII20ES010EE**
Credits :02	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 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:	05
3	No. of Quizzes:	03	Max. Marks for each Quiz Test:	05

Duration of Internal Test: 90 Minutes

With effect from the Academic Year 2020-21

VASAVI COLLEGE OF ENGINEERING(Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF CIVIL ENGINEERING

BASIC ENGINEERING MECHANICS

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

L:T:P (Hrs./week):3 :0:0	SEE Marks:60	Course Code:**UII20ES010CE**
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

With effect from the Academic Year 2020-21

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

Department of Computer Science & Engineering

DISCRETE STRUCTURES

SYLLABUS FOR B.E. II-SEMESTER

L:T:P (Hrs./week): 3:0:0	SEE Marks : 60	Course Code :**UII20ES230CS**
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 set theory, arithmetic logic and proof techniques 2. Build mathematical models to solve the real world problems by using appropriate methods	1. Construct compound statements using logical connectives and verify the validity of conclusion using inference rules 2. Compare types of relations and functions and also apply principle of inclusion and exclusion to solve counting problems 3. Solve types of recurrence relations to find the complexity of an algorithm 4. Develop crypto system using Ring and modular arithmetic

UNIT – I : Fundamentals of Logic

Basic Connectives and Truth Tables, Logical Equivalence, Logical Implication, Use of Quantifiers, Definitions and the Proof of Theorems.

Functions: Cartesian Product, One-to-one, Onto Functions, Special Functions, Pigeonhole Principle, Composition and Inverse Functions.

UNIT – II : Number Theory: Properties of the Integers

Prime Numbers, The division algorithms, The Greatest Common Divisor, The Integers modulo nFermat's and Euler Theorems , The Fundamental theorem of arithmetic. Fermat's and Euler Theorems The Chinese Reminder Theorem(without proof)

UNIT – III : Relations

Partial Orders, Equivalence Relations and Partitions.

Principle of Inclusion and Exclusion: Principles of Inclusion and Exclusion, Generalizations of Principle, Derangements, Rook Polynomials, Arrangements with Forbidden Positions.

UNIT – IV : Generating Functions

Introductory Examples, Definition and Examples, Partitions of Integers, Exponential Generating Function, Summation Operator.

Recurrence Relations: First – Order Linear Recurrence Relation, Second – Order Linear Homogenous Recurrence Relation with Constant Coefficients, Non Homogenous Recurrence Relation.

UNIT – V : Algebraic Structures& Ring Theory

Algebraic System – General Properties, semi groups, Monoids, Homomorphism, Cosets and Lagrange's Theorem. The Ring structure: Definition and Examples, Ring Properties and Substructures, Ring Homomorphism and Isomorphism.

Learning Resources:

1. Ralph P. Grimaldi, Discrete and Combinatorial Mathematics, 4th Edition (2003), Pearson Education.
2. Kenneth H Rosen, Discrete mathematics and its applications, 5th Edition (2006), Tata McGraw-Hill Edition, New Delhi.
3. J.P. Tremblay, R. Manohar, Discrete Mathematical Structure with Applications to Computer Science, 4th Edition (1987),McGraw Hill , New Delhi.
4. Joe L. Mott, A. Kandel, T.P. Baker, Discrete Mathematics for Computer Scientists & Mathematicians, 2nd Edition (1986), Prentice Hall.
5. Thomas Koshy, Discrete Mathematics with Applications, 1stEdition (2004), Elsevier Inc.
6. http://nptel.ac.in/courses/106106094/
7. https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-042j-mathematics-for-computer-science-fall-2010

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

With effect from the Academic Year 2020-21

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): 2:0:0	SEE Marks : 60	Course Code : **UII20ES240CS**
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 Acquire problem solving skills 2 Write programs using Python language	1 Develop Python programs with conditionals and loops 2 Write programs using functions, strings and lists 3 Construct Python data structures programs using tuples, dictionaries 4 Write programs using files, OOPS concept, regular expressions 5 To perform transactions using database

UNIT-I:

Basics of Python Programming: Features of Python**,** variables and identifiers, operators and expressions.

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

Functions and Modules: function definition, function call, more on defining functions, recursive functions, modules.

UNIT-II:

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

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

UNIT –III:

Tuples : Introduction, basic tuple operations, tuple assignment, tuples for returning multiple values, nested tuples, tuple methods and functions.
Set: Introduction, Set operations.
Dictionaries : Basic operations, sorting items, looping over dictionary, nested dictionaries, built-in dictionary functions.

UNIT-IV:
Files and Exceptions: reading and writing files, pickling, handling exceptions. Built-in and user-defined exceptions.
OOPS Concepts: Introduction, classes and object, class method and self argument, the_init_()method, class variables and object variables, public and private data members, Inheritance, Operator Overloading.

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

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

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

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

L: T: P(Hrs/Week): 0:0:2	SEE Marks : 50	Course Code: **UII20HS211EH**
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. Use language effectively without mother - tongue influence. 2. Converse in various situations. 3. Make poster and power point presentations. 4. Listen to audio clippings, exchange dialogues and write short texts. 5. Speak effectively using discourse markers. 6. Read and understand various forms of texts and review them.	1. Pronounce words in isolation as well as in spoken discourse. 2. Research and sift information to make presentations. 3. Comprehend the tone and tenor of various types of speeches from media and classroom lectures. 4. Listen for gist and make inferences from various speeches. 5. Identify connectives and transitions in various speeches. 6. Use connectives and make transitions effectively while speaking.

1.0 PHONETICS LAB- TOPICS

2.0

1.1 Aspects of Connected Speech:
Passages and dialogue reading.

1.2 Word Stress:
Rules of Word stress and Sentence stress

1.3 Rhythm and Intonation:
Introduction to rhythm and intonation; Major patterns of intonation in English with their semantic implications. Transcription.

Viva questions will be asked in internal and external exams.

2.0 INTERACTIVE COMMUNICATION SKILLS LAB-TOPICS (Advanced Level)

2.1 Public Speaking:

Advantages of public speaking, essentials of an effective speech, researching, planning and delivering a speech.

2.2 Presentation Skills:

Making Effective Presentations, Expressions which can be used in Presentations, Use of Non-verbal communication, Copingwith stage-fright, Handling Question and Answer Session; Use of Audio-Visual Aids, PowerPoint Presentations.

2.3Interview skills

Do's and Don'ts, Handling difficult questions, dress code and code of conduct. Viva questions will be asked in internal and external exams.

3.0 READING SKILLS LAB

Study Skills:

Use of Dictionary and the thesaurus for vocabulary building.
Teaching different types of texts for comprehension
Viva questions will be asked in internal and external exams.

Prescribed textbook for laboratory:

Speak Well: Jayshree Mohanraj, KandulaNirupa Rani and Indira Babbellapati - Orient BlackSwan.

Learning Resources:

1. T.Balasubramanian: A textbook of English Phonetics for Indian students, Macmillan, 2008.
2. PriyadarshiniPatnaik : Group discussion and Interviews, Cambridge University Press India
3. Private Limited 2011.
4. Daniel Jones: Cambridge English Pronouncing Dictionary - A definitive guide to contemporary EnglishPronunciation
5. Reading Cards (Eng400): Orient Black Swan.

The break-up of marks for CIE:
Internal Tests (1)Quiz Test (-) + Assignments (-)

No. of Internal Test:	01	Max. Marks for Internal Test:	30

Duration of Internal Tests : 120 Minutes

With effect from the Academic Year 2020-21

VASAVI COLLEGE OF ENGINEERING(Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF CHEMISTRY

CHEMISTRY LAB

SYLLABUS FOR B.E. I/II SEMESTER
(Common for All Branches)

L:T:P(Hrs./week):0:0:2	SEE Marks : 50	Course Code:**UII20BS011CH**
Credits :01	CIE Marks : 30	Duration of SEE: 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
1. To describe the conventional quantitative analytical techniques. 2. Learn the working principles of instruments. 3. To familarise preparation method of few compounds.	1. Determine the amount of metals in the given solutions. 2. Analyse the hardness, alkalinity and chloride content of a given water 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. 5. Synthesize a polymer.

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. Conductometric acid-base titrations -Determination of strength of given acids (HClVsNaOH and CH_3COOH VsNaOH).
9. Conductometric acid-base titrations- Determination of strength of acids in a given mixture of acids (HCl and CH_3COOH VsNaOH)
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:

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, Experimenta in applied chemistry, S K Kataria& Sons (2010)
4. A text book on experiments and calculation Engg. S.S. Dara.

From the above experiments, each student should perform at least 12 (Twelve) experiments.

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 2020-21

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

BASIC ELECTRICAL ENGINEERING LAB

SYLLABUS FOR B.E I – SEMESTER

(Common to I – SEM: IT Branch, II-SEM: CSE, AIML and ECE Branches)

L:T:P(Hrs./week):0:0:2	SEE Marks : 50	Course Code: **UII20ES011EE**
Credits : 01	CIE Marks : 30	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
1. To provide the practical knowledge on operation of DC, AC machines and circuits.	1. Handle the basic electrical equipments. 2. Find the various electrical parameters in DC and AC circuits. 3. Find the Efficiency of the DC and AC machines.

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 Thevinin'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 12 experiments.

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			

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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 : **UII20ES241CS**
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			