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

Sponsored
by
VASAVI ACADEMY OF EDUCATION
Hyderabad

SCHEME OF INSTRUCTION AND SYLLABI UNDER CBCS FOR B.E. (EEE) I and II Semesters With effect from 2019-20 (For the batch admitted in 2019-20) (R-19)

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
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VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS) :: IBRAHIMBAGH, HYDERABAD – 500 031.
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
SCHEME OF INSTRUCTION AND EXAMINATION (R-19) :: B.E. - EEE : FIRST SEMESTER (2019 - 20)

B.E (EEE) I Semester								
Course Code	Name of the Course	Scheme of Instruction			Scheme of Examination			Credits
		Hours per Week			Duration in Hrs	Maximum Marks		
		L	T	P/D		SEE	CIE	
THEORY								
U19HS110EH	English Language and Communication-I	2	-	-	3	60	40	2
U19BS110MA	Engineering Mathematics-I	3	-	-	3	60	40	3
U19BS010CH	Engineering Chemistry	3	1	-	3	60	40	4
U19ES120CS	Programming for Problem Solving	3	-	-	3	60	40	3
U19ES010CE	Basic Engineering Mechanics	3	-	-	3	60	40	3
PRACTICALS								
U19HS111EH	English Language and Communication Skills Lab-I	-	-	2	3	50	30	1
U19BS011CH	Chemistry Lab	-	-	2	3	50	30	1
U19ES121CS	Programming for Problem Solving Lab	-	-	2	3	50	30	1
U19ES111ME	Engineering Workshop-I	-	-	2	3	50	30	1
	TOTAL	**14**	**1**	**8**	-	**500**	**320**	**19**
	GRAND TOTAL	**23**				**820**		**19**

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

With effect from the Academic Year 2019-20

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

DEPARTMENT OF HUMANITIES & SOCIAL SCIENCES
English Language and Communication-I

SYLLABUS FOR B.E. 1/4 - I SEMESTER
(Common to all branches)

L: T: P (Hrs/Week):2:0:0	SEE Marks: 60	Course Code: **U19HS110EH**
Credits:2	CIE Marks: 40	Duration of SEE: 3 Hours

COURSE OBJECTIVES The course will enable the students to:	**COURSE OUTCOMES** On completion of the course, students will be able to
1. 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-1 1.0 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 to effective 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 3.0 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.
- Providing examples or evidence.
- Writing introduction and conclusion.

3.2.1 Written Communication: **Features of Writing**: -

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 4.0 Vocabulary Building and Grammar

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

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

UNIT-5 5.0 Reading 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 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 : 90 Minutes

With effect from the Academic Year 2019-20

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:P (Hrs./week):3:0:0	SEE Marks :60	Course Code: **U19BS110MA**
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 (10 classes):
Introduction to Mean Value Theorems with Geometrical Interpretation(Without Proofs) - Taylor's Series – Expansion of functions

on power series- Curvature- Radius of Curvature (Cartesian, Polar and Parametric co-ordinates) – Center of Curvature –Evolutes - Envelopes.

UNIT-II: Multivariable Calculus (12 classes):
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 (8 classes):
Scalar and Vector point functions -Vector Differentiation-Level Surfaces-Gradient of a scalar point function- Normal to a level surface- Angle between the surfaces- Equation of Tangent plane- Directional Derivative – Divergence and Curl of a Vector field-Conservative vector field- Vector Identities(without Proofs).

UNIT-IV: Vector Integral Calculus (14 classes):
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 (8 classes):
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. 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.

2. Reference Books:

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

3. Online Resources :

1. http://mathworld.wolfram.com/topics
2. http://www.nptel.ac.in/course.php

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

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

Duration of Internal Tests : 90 Minutes

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

Department of Chemistry
Engineering Chemistry

SYLLABUS FOR B.E.I /II SEMESTER
(For CSE, ECE, EEE & IT Branches)

L : T : P Hrs./week):3:1:0	SEE Marks :60	Course Code :**U19BS010CH**
Credits :4	CIE Marks :40	Duration of SEE :3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the 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. Discuss the difference types of polymers 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, functioning and applications of the selected primary, secondary batteries and fuel cells. 3. Catagorise the polymers and discuss the synthesis of a few polymers and their applications. 4. Get expose to basic concepts of engineering materials such as Composites and membranes. 5. Know the classification, properties, applications and types of liquid crystals & nano materials along with their synthesis.

UNIT-I: ELECTROCHEMISTRY:
Introduction, conductance, types of conductance- specific, equivalent, molar conductance and their interrelationship- numericals. Ionic mobility and transport number- definition, determination by Hittorfs method (Non attackable electrodes) numericals. Principle and applications of

conductometric titrations- strong acid *vs* strong base, week acid *vs* strong base and mixture of acids *vs* strong base.
Cells- electrolytic and electrochemical cells. IUPAC convention of cell notation, cell reaction, concept of electrode potential, electro motive force (EMF). Electrochemical series – applications, Nernst equation-derivation, applications and numericals. Types of electrodes- construction and working of calomel electrode (CE), quinhydrone electrode and glass electrode (GE). Determination of pH using glass electrode and quinhydrone electrode. Applications of potentiometry- acid base and redox titration (Fe(II) Vs $KMnO_4$).

UNIT-II: BATTERY TECHNOLOGY:
Introduction- definition of cell and battery – Types of cells (reversible and irreversible cells). Battery characteristics: free energy change, electromotive force of battery, power density, energy density- numericals.
Primary, secondary and fuel cells.
Primary batteries: Construction and electrochemistry of Ag_2O-Zn battery and lithium-V_2O_5 battery.
Secondary batteries: Construction and working of lead-acid, Ni-Cd and lithium ion battery – advantages, limitations and applications.
Fuel cells: Concept, types of fuel cells and merits. Construction, working and applications of methanol-oxygen and phosphoric acid fuel cell.

UNIT-III: POLYMER CHEMISTRY:
Introduction, degree of polymerization, functionality of monomers and its effect on the structure of polymers. Classification of polymers-a) homo and co-polymers, b) homo chain and hetero chain polymers. c) plastics, elastomers, fibers and resins.
Types of 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) PVC
Elastomers: Natural rubber- structure – chemistry of vulcanization and advantages.

Artificial rubbers: Preparation, properties and uses of Buna-S and silicone rubbers.

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:

a. Composite materials:

Introduction, constituents of composites, advantages over conventional materials. Applications of composites. Types of composites based on matrix and dispersed phases. Manufacturing techniques – Hand lay up method-RTM, pull trusion methods.

Fiber reinforced composites: glass, carbon and aramid reinforced composites. Layered composites-applications.

b. Membrane technology:

Introduction, classification- symmetric, asymmetric, electrically charged and liquid membranes. Working principle of membrane, advantages of membrane separation over conventional separation. Casting methods: phase inversion and solvent evaporation methods, synthesis of polyphenyleneoxide, polyethersulphone and membrane casting. Industrial applications of membranes- gas separation, pervaporation, elecetrodialysis, reverse osmosis, micro, ultra and nano filtration.

UNIT-V: ADVANCED ENGINEERING MATERIALS:

a. Nano Materials:

Introduction - concept of nanomaterials - quantum confinement and surface volume ratio - catalytic property and mechanical properties.

Types of Nanomaterials**: c**arbon nano tubes**,** quantum dots, nanowires, nano crystals.

Synthesis of nano materials: top down and bottom up approaches**-** mechanical grinding by ball milling, sol gel method.

Carbon Nanotubes**:**single walled carbon nanotubes (SWCNTs). Multi walled carbon nanotubes (MWCNTs), synthesis of CNTs- arc discharge and laser ablation methods, applications.

b. Liquid Crystals:

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

Text Books:

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

Learning Resources:

1. University chemistry, by B. H. Mahan
2. Engineering Chemistry (NPTEL Web-book), by B. L. Tembe, Kamaluddin and M. S. Krishnan
3. Physical Chemistry, by P. W. Atkins
4. S. S. Dara, S Chand and sons, Engineering Chemistry, New Delhi.
5. Puri, Sharma and Pathania Principles of physical chemistry, Vishal Publishing Co.
6. NPTEL Polymer Chemistry Course, D. Dhara, IIT Kharagpur.
7. Polymer chemistry by Gowariker
8. Introduction to Nano science, by S m Lindsay, Oxford University press

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

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

Duration of Internal Tests : 90 Minutes

With effect from the Academic Year 2019-20

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, IT, ECE and EEE)

L:T:P (Hrs./week): 3:0:0	SEE Marks : 60	Course Code: **U19ES120CS**
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.
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 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 : 90 Minutes

With effect from the Academic Year 2019-20

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

DEPARTMENT OF CIVIL ENGINEERING
Basic Engineering Mechanics

(Common to Civil, Mechanical & EEE) SYLLABUS FOR B.E. I SEMESTER
(Common to CSE, ECE & IT) SYLLABUS FOR B.E. II SEMESTER

L : T : P (Hrs./week): 3:0:0	SEE Marks: 60	Course Code:**U19ES010CE**
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.

UNIT-III: Determinate Trusses:

Analysis of plane trusses like warren girder, Pratt truss, fink truss etc using method of joints and method of sections.

UNIT-IV:Friction:

Laws of friction. Application to simple systems, Connected systems and belt friction, Wedge friction.

UNIT-V: Centroid and Moment of Inertia:

Centroids of lines, areas and volumes, Moment of inertia of areas, Composite areas, Polar moment of inertia, Radius of gyration.

Learning Resources:

1. Singer F.L "Engineering Mechanics", Harper & Collins, Singapore, 3rd Edition 2011.
2. Timoshenko S.P and Young D.H *"Engineering Mechanics",* McGraw Hill International Edition, 2017
3. Andrew Pytel., Jaan Kiusalaas., *"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 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 : 90 Minutes

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. 1/4 - I SEMESTER
(Common to all branches)

L :T:P (Hrs/Week):0:0:2	SEE Marks : 50	Course Code: **U19HS111EH**
Credits: 1	CIE Marks : 30	Duration of SEE : 3 Hours

COURSE OBJECTIVES The course will enable the students to:	**COURSE OUTCOMES** On completion of the course, students will be able to:
1. 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.Uunderstand 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 BlackSwan

Learning Resources:

1. T.Balasubramanian: A textbook of English phonetics for Indian students, Macmillan, 2008.
2. Priyadarshi 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 Blackswan. Reading Squabble - Hadfield.

The break-up of marks for CIE:

Internal Tests (1); Quiz Tests (-) + Assignments (-)

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

Duration of Internal Test: 120 Minutes

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: **U19BS011CH**
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. Estimationof chromium in the given solution by standardized FAS.
4. Estimation of copper in brass or given solution by hypo.
5. Estimationof available chlorine in bleaching powder.
6. Estimation of total hardness of given water sample.

7. Estimation of alkalinity of a given sample.
8. Conductometric acid-base titrations -Determination of strength of given acids (HCl Vs NaOH and CH_3COOH Vs NaOH).
9. Conductometric acid-base titrations- Determination of strength of acids in a given mixture of acids
(HCl and CH_3COOH Vs NaOH)
10. Determination of strength of a given acid by Potentiometry.
11. Determination of concentration of a given $FeSO_4$ using redox titration by Potentiometry.
12. Determination of strength of a given acid by pH metry.
13. Determination of strength of permanganate or copper in brass solution by Colorimetry.
14. 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 Tests:	01	Max. Marks for Internal Test:	12
Marks for day-to-day laboratory class work			18
Duration of Internal Test: **3 Hours**			

With effect from the Academic Year 2019-20

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, IT, ECE and EEE)

L:T:P (Hrs./week): 0:0:2	SEE Marks: 50	Course Code : **U19ES121CS**
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-practical programming-in-c-january-iap-2010/syllabus/
6. http://nptel.ac.in/syllabus/syllabus.php?subjectId=106104128

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

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

Department of Mechanical Engineering
Engineering Workshop-I

SYLLABUS FOR B.E.I-SEMESTER
(Mechanical, Civil & EEE Branch)

L:T:P(Hrs/week):0:0:2	SEE Marks:50	Course Code: **U19ES111ME**
Credits :01	CIE Marks:30	Duration of SEE: 3Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
1. know basic workshop processes, adopt safety practices while working with various tools 2. identify, select and use various marking, measuring, holding, striking and cutting tools & equipments.	1. create models in Carpentry, plumbing, Electrical & Electronics and Sheet metal trades by using the relevant tools. 2. measure and Inspect the finished components using suitable measuring instruments. 3. apply basic electrical and electronics engineering knowledge to make simple electrical circuits and check their functionality along with practice in soldering of electronic components.

List of the Experiments:

PLUMBING

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

ELECTRICAL & ELECTRONICS

1. Two lamps in(a)series(b) parallel with 3 pin plug and switches
2. Staircase wiring and Tube light wiring

3. (a) Identification of electronic components
   (b) Soldering practice
4. LT Distribution with loads (Demo)

CARPENTRY

1. Half-lap joint
2. Dove-tail joint
3. Bridle joint
4. Wood turning operation (demo)

SHEET METAL

1. Rectangular Box
2. Rectangular scoop with handle
3. Making a Funnel with soldering
4. Making a T-Joint (Demo).

PLASTIC MOULDING

1. Injection moulding of plastic spoon (demo)

Learning Resources:

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

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

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS) :: IBRAHIMBAGH, HYDERABAD – 500 031.
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
SCHEME OF INSTRUCTION AND EXAMINATION (R-19) :: B.E. - EEE : SECOND SEMESTER (2019 - 20)

B.E (EEE) II Semester								
Course Code	Name of the Course	Scheme of Instruction			Scheme of Examination			Credits
		Hours per Week			Duration in Hrs	Maximum Marks		
		L	T	P/D		SEE	CIE	
THEORY								
U19HS210EH	English Language and Communication-II	2	-	-	3	60	40	2
U19BS210MA	Engineering Mathematics-II	3	-	-	3	60	40	3
U19BS210PH	Quantum Mechanics and Material Science	3	1	-	3	60	40	4
U19ES210EE	Circuit Theory	2	-	-	3	60	40	2
U19ES030CE	Engineering Drawing	1	-	2	3	60	40	2
U19ES210CE	Engineering Mechanics	3	-	-	3	60	40	3
PRACTICALS								
U19HS211EH	English Language and Communication Skills Lab-II	-	-	2	3	50	30	1
U19BS211PH	Engineering Physics Lab	-	-	2	3	50	30	1
U19ES211EE	Electrical Circuits Lab	-	-	2	3	50	30	1
U19ES221ME	Engineering Workshop – II	-	-	2	3	50	30	1
	TOTAL	**14**	**1**	**10**	-	**560**	**360**	**20**
	GRAND TOTAL	**25**				**920**		**20**

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

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: **U19HS210EH**
Credits: 2	CIE Marks: 40	Duration of SEE:3 Hours

COURSE OBJECTIVES The course will enable the students to:	**COURSE OUTCOMES** On completion of the course, students will be able to:
1. Identify 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-1 1.0 Interpersonal Communication
1.1 Johari Window
1.2 Team building skills and teamwork
1.3 Persuasion techniques

UNIT-2 2.0 Speaking skills
2.1 Speaking strategies: - Making Power Point Presentations (research-oriented topics)

UNIT-3 3.0 Writing Practices
3.1 Précis Writing
3.2 Essay Writing-General and Creative
3.3 Email-etiquette
3.4 Request letters
3.5 Application letters and resume

UNIT-4 4.0 Advanced 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; Idiomatic usage.

UNIT-5 5.0 Reading 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. Practical English Usage. Michael Swan. OUP. 1995.
4. Remedial English Grammar. F.T. Wood. Macmillan.2007
5. On Writing Well. William Zinsser. Harper Resource Book. 2001
6. Study Writing. Liz Hamp-Lyons and Ben Healy. Cambridge University Press. 2006.
7. Communication Skills. Sanjay Kumar and PushpLata. Oxford University Press. 2011. (vi) Exercises in Spoken English. Parts. I-III. CIEFL, Hyderabad. Oxford University Press

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

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

Duration of Internal Tests : 90 Minutes

With effect from the Academic Year 2019-20

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 : **U19BS210MA**
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 (12 classes):

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

UNIT-II: Ordinary Differential Equations of first order (12 classes):

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

UNIT-III: Linear Differential equations (10 classes)

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) (10 classes):

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 (10 classess):

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. **Text Books:**

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

2. **Reference Books:**

1. Advanced Engineering Mathematics, by Wylie & Barrett, Tata Mc Graw Hill, New Delhi.
2. Advanced Engineering Mathematics, 8th Edition by Erwin Kreyszig , John Wiley & Sons, Inc.
3. Ordinary and Partial Differential equations, by M.D.Raisinghania, S.Chand & Company Ltd.,1997.
4. Complex Variables and applications, J.W.Brown and R.V.Churchill, 7th Edition, Tata Mc Graw Hill,2004.

3. **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**

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 : 90 Minutes

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

Department of Physics
Quantum Mechanics And Material Science

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

L:T:P(Hrs/week):3:1:0	SEE Marks:60	Course Code: **U19BS210PH**
Credits :4	CIE Marks:40	Duration of SEE: 3Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
1. learn crystal structure and defects in solids 2. distinguish classical and quantum mechanical principles and gain knowledge on quantum mechanics 3. appreciate classification of different solids based on band theory. 4. acquire knowledge on optical fiber communication system and signal losses in optical fibers. 5. narrate properties of dielectric, magnetic materials and superconductors.	1. segregate crystals based on their structure and apply effects of defects on manipulating properties of solids. 2. apply and solve wave equations for various quantum mechanical systems. 3. distinguish materials based on band theory of solids and their applications. 4. summarize various merits, demerits and applications of optical fibers and light sources. 5. select various dielectric, magnetic materials and superconductors for specific applications in different fields.

UNIT-I: FUNDAMENTALS OF CRYSTAL STRUCTURE (12 hours):

Introduction-Space lattice, Basis, Unit cell, Bravais lattices and crystal systems, X-ray diffraction, Bragg's law, powder x- ray diffraction-derivation of lattice parameters for cubic crystals, crystalline, polycrystalline and amorphous materials, Miller Indices, inter-planar spacing

Defects in crystals: point defects-Schottky, Frankel defects, compositional and substitution impurities, line defects: screw and edge dislocations, burger vector, burgers circuit, energy of a dislocation,

effects of defects on properties of solids. NaCl, Diamond and ZnS crystal structure.

UNIT-II: INTRODUCTION TO QUANTUM MECHANICS (10 hours):

Inadequacy of classical mechanics, photo electric effect, Wave-particle duality, de Broglie waves, Davisson and Germer's experiment, G.P. Thomson experiment, wave packet, uncertainty principle, wave function and its physical significance, postulates of quantum mechanics.

Time-dependent and time-independent Schrodinger equations, quantum mechanical operators, Schrodinger equation for one dimensional problems: free-particle, stationary-state, particle in infinite square-well potential, potential barrier and tunneling-calculation of transmission coefficient, alpha decay.

UNIT-III: BAND THEORY OF SOLIDS (8 hours):

Classical free electron Drude theory and its limitations, Somerfield theory, Fermi-Dirac Statistical distribution, Density of states, Kronig-Penney model- introduction to origin of band gaps in solids, E-k diagram, Qualitative treatment of density of states for bulk material, formation of energy bands. Classification of solids based on energy bands as metals, semiconductors, and insulators. Intrinsic and extrinsic semiconductors, variation of Fermi energy level with temperature and doping, expression for carrier concentration of intrinsic and extrinsic semiconductors.

UNIT-IV: LASERS AND OPTICAL FIBRES (10 hours):

Lasers: induced absorption, spontaneous and stimulated emissions, Einstein's theory of matter radiation interaction- A and B coefficients; population inversion, meta-stable states, pumping mechanisms, components of laser, Properties of laser beam, construction and working of Ruby laser, Nd: YAG laser (solid state lasers), He-Ne (gas Laser) and semiconductor laser, advantages

and applications of lasers.

Optical Fibres: Total internal reflection, numerical aperture, acceptance angle, propagation of light in optical fiber, types of optical fibres based on refractive index and modes of propagation, light sources for optical fibres, various signal losses in optical fibres, Block diagram of optical communication system, advantages and application of optical fibres.

UNIT-V: MATERIALS SCIENCE (12 hours):

Dielectric Materials: Polar and non-polar dielectrics, types of dielectric polarizations, Expressions for electronic polarizability and ionic polarizability, Frequency and temperature dependence of dielectric polarizations, internal filed in solids, Lorentz field, Clausius- Mossotti equation- applications of dielectric materials. Applications of dielectric materials.

Magnetic Materials: Origin of magnetism, classification of various magnetic materials, Ferro, antiferro and ferri-magnetic materials and their properties, Weiss molecular field theory of ferromagnetism- magnetic domains- hysteresis curve-Soft and hard magnetic Materials, fundamentals of Ferrites and their applications.

Superconductivity: Superconductor, General properties of super conductors – Meissner effect- Type I and Type II superconductors, fundamentals of BCS Theory - Josephson's Junction- d.c anda.c Josephson's effects–SQUIDS- Applications of superconductor

Learning Resources:

1. Charles Kittel, Introduction to Solid State Physics, 7th Edition, John Wiley & Sons, 2008.
2. S O Pillai, Solid State Physics, 8th edition, New Age International Publishers, 2018
3. D. J. Griffiths, "quantum mechanics", Pearson Education, 2012.
4. R. Murugeshan and K Sivaprasath, Modern Physics, 18th Edition, S. Chand & Co, 2016
5. M.N. Avadhanulu and P.G. Kshirsagar and TVS Arun Murthy, A Text Book Engineering Physics, 11th Edition, S. Chand, 2018.

6. Senior, Optical Fiber Communications: Principles and Practice, 3e: Pearson, 2010
7. G. Keiser, Optical communications, Mc Graw Hill, (2010)

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**

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

Department of Electrical & Electronics Engineering
Circuit Theory

SYLLABUS FOR B.E. II - SEMESTER

L:T:P(Hrs/week):2:0:0	SEE Marks:60	Course Code: **U19ES210EE**
Credits :2	CIE Marks:40	Duration of SEE: 3Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
The objective of Electrical Circuits is to provide Under Graduate Engineer a thorough understanding of the fundamentals of electric circuits such that the student would develop an in depth knowledge of circuit elements (active and passive), their characteristics and their functioning to analyze and apply to many engineering problems.	1. Apply basic Electrical concepts to analyze electrical circuits. 2. Apply network theorems to analyze Electrical circuits 3. Apply concepts of three phase circuits to analyze them 4. Design simple electrical circuits using simulation and hardware.

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

UNIT-II: DC Circuits:
Nodal and mesh analyses containing independent and dependent sources.
AC Circuit Fundamentals: Definition and computation of average value, RMS value of periodic signals, form factor and peak factor, Definition of phasor, Phasor domain conversions

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

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

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

Learning Resources:

1. Charles K.Alexander& Matthew N.O.Sadiku, Fundamentals OJ Electric Circuits,Tata McGraw-Hili, 2003.
2. W.H.Hayt, J.E.Kimmerly, Engineering Circuit Analysis, McGraw Hill, 5th Edition, 2000
3. Van Valkenburg, Network Analysis , Prentice Hall of India, 3rd Edition, 1992
4. David A.Bell, Electric Circuits ,Oxford university Press, Seventh Edition,2015

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

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

Duration of Internal Tests : **1 Hour 30 Minutes**

With effect from the Academic Year 2019-20

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

DEPARTMENT OF CIVIL ENGINEERING
Engineering Drawing
(Common to CSE, IT, EEE & ECE)

SYLLABUS FOR B.E. II-SEMESTER

L:T: P (Hrs./week):1:0:2	SEE Marks:60	Course Code: **U19ES030CE**
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 Resources:

1. Bhatt N.D. "Elementary Engineering Drawing", Charotar Publishers, 2014.
2. Thomas E French, Charles J Vierck, Robert J. Foster, "Engineering Drawing and Graphic Technology", McGraw Hill Education, 1993.
3. Gill P.S. "Engineering Drawing: Geometrical Drawing", SK Kataria & sons, 2012.
4. Venugopal.K "Engineering Drawing and Graphics Plus Autocad", New Age International (P) Ltd., New Delhi, 2010.
5. Siddiquee A.N "Engineering Drawing with a Primer on Autocad", Prentice hall of India Ltd., New Delhi, 2004.
6. Basanth Agrawal, Agrawal C.M "Engineering Graphics" First Edition, Tata McGraw Hill, 2012

7. BVR Gupta, M Raja Roy, “Engineering Drawing with AutoCad”, IK Int Pvt Ltd, 2009.
8. NPTEL Course (www.nptel.ac.in)
9. Virtual labs (www.vlab.co.in)

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

1	No. of Internal Tests:	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 Civil Engineering
Engineering Mechanics
(Common to Civil, Mechanical & EEE)

SYLLABUS FOR B.E. II-SEMESTER

L:T: P(Hrs./week):3:0:0	SEE Marks: 60	Course Code:**U19ES210CE**
Credits: 3	CIE Marks: 40	Duration of SEE: 3Hrs

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
1. Determine the mass moment of inertia and product of inertia of standard and composite sections. 2. Understand the concepts of dynamics and its principles. 3. Explain kinetics and kinematics of particles, projectiles, curvilinear motion, centroidal motion and plane motion of rigid bodies. 4. Impart the concepts of work-energy method and its applications to translation, rotation and plane motion. 5. Impart the concept of impulse momentum relation	1. Compute mass moment of inertia and product of inertia of standard and composite section. 2. Distinguish between statics and dynamics and differentiate between kinematics and kinetics. 3. Understand the kinetics and kinematics of a body undergoing rectilinear, curvilinear, rotatary motion and rigid body motion. 4. Solve problems using work energy equations for translation, fixed axis rotation and plane motion. 5. Solve problems using impulse momentum equation

UNIT-I: Product of Inertia & Mass moment of Inertia:
Product of inertia, Mass moment of inertia for solid and composite bodies, Radius of gyration.

UNIT–II: Kinematics:
Rectilinear motion, Curvilinear motion, Projectile motion, Velocity and acceleration, Types of rigid body motion, and its analysis in a plane.

UNIT-III: Kinetics:
Analysis as a particle, Analysis as a rigid body in translation, Fixed axis rotation. Rolling bodies, Plane motion.

UNIT –IV: Work Energy:

Principles of work-energy and its application to translation, Fixed axis rotation and plane motion.

UNIT-V: Impulse and momentum:

Introduction, linear impulse-momentum, principle of conservation of linear momentum, loss of kinetic energy.

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, 1983.
3. Andrew Pytel, Jaan Kiusalaas, "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-II Dynamics, John Wiley & Sons, 2008.
9. NPTEL Course (www.nptel.ac.in)
10. Virtual labs (www.vlab.co.in)

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

1	No. of Internal Tests:	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

With effect from the Academic Year 2019-20

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

DEPARTMENT OF HUMANITIES & SOCIAL SCIENCES
English Language and Communication Skills Laboratory-II

SYLLABUS FOR B.E. 1/4 - II SEMESTER
(Common to all branches)

L:T: P (Hrs/Week):0:0: 2	SEE Marks: 50	Course Code:**U19HS211EH**
Credits: 1	CIE Marks: 30	Duration of SEE: 3 Hours

COURSE OBJECTIVES The course will enable the students to:	**COURSE OUTCOMES** On completion of the course, students will be able to:
1. 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

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, Coping with stage-fright, Handling Question and Answer Session; Use of Audio-Visual Aids, PowerPoint Presentations.

2.3 Interview 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, Kandula Nirupa Rani and Indira Babbellapati - Orient BlackSwan.

Learning Resources:

1. T. 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.

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

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

Duration of Internal Tests : 180 Minutes

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

Department of Physics
Engineering Physics Lab

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

L:T:P(Hrs./week):0:0:2	SEE Marks:50	Course Code: **U19BS211PH**
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. 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. Determination of wavelength of spectral lines of Mercury light source using diffraction grating under normal incidence.
3. Calculation of numerical aperture, acceptance angle and power loss due to bending of an optical fibre.
4. Determination of energy gap of a given semiconductor by four probe method
5. Study of I-V characteristics of P-N Junction diode, Zener diode
6. Characteristics of Photodiode and LED

7. Study of I-V characteristics of solar cell and to calculate fill factor and efficiency
8. Hall's effect- determination of Hall's coefficient
9. e/m of electron-Thomson's method
10. Study of resonance in LCR series & parallel circuits and to find resonant frequency & Q- factor
11. Temperature Characteristics of Thermistor and to find Thermistor constants
12. B-H curve-estimation of Hysteresis loss of a ferromagnetic sample
13. Helmholtz coil –calculation of magnetic field along the axis

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

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

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

Department of Electrical & Electronics Engineering
Electrical Circuits Lab

SYLLABUS FOR B.E. II – SEMESTER

L:T:P(Hrs./week):0:0:2	SEE Marks:50	Course Code: **U19ES211EE**
Credits :1	CIE Marks:30	Duration of SEE: 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
The objective of Basic Electrical Circuits Laboratory is to provide Under Graduate Engineer a thorough understanding on the fundamentals of electric circuits with hands-on experience, so that the student will acquire in depth knowledge on circuit elements, their characteristics and their functioning to analyze and apply to many engineering problems.	1. Choose appropriate instrument for measuring electrical quantities. 2. Verify fundamental laws and find the unknown quantity (voltage/Current) in circuits with suitable analysis. 3. Verify network theorems and identify the applications of them. 4. Analyze the Sinusoidal steady state response of RLC circuits. 5. Understand the power measurement of three phase circuits for both balanced and unbalanced loads.

List of Experiments

1. Basic safety precautions. Introduction and use of measuring instruments – voltmeter, ammeter, multi-meter, oscilloscope. Practical resistors, capacitors and inductors.
2. Verification of Kirchhoff's Voltage Law & Kirchhoff's Current Law.
3. Analysis of Series and parallel connections of electrical circuits.
4. Verification of mesh and nodal analyses.

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

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

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

Department of Mechanical Engineering
Engineering Workshop-II

SYLLABUS FOR B.E.II-SEMESTER
(Mechanical, Civil & EEE Branch)

L:T:P(Hrs/week):0:0:2	SEE Marks:50	Course Code: **U19ES221ME**
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. know basic workshop processes, adopt safety practices while working with various tools 2. identify, select and use various marking, measuring, holding, striking and cutting tools & equipments.	1. create models in Smithy, Welding, fitting and Machining trades by using the relevant tools. 2. measure and inspect the finished components using suitable measuring instruments.

List of the Experiments:

BLACK SMITHY

1. Flattening (round to square cross section)
2. Bending Operation (U-shape)
3. S-shape hook
4. Fullering Operation (demo)

WELDING

1. Bead formation using arc welding
2. Butt joint & T joint using arc welding
3. Lap joint using gas welding`
4. Spot welding (demo)

FITTING

1. Template fitting (square fit)
2. V-groove fit
3. Drilling and Tapping
4. Assembly of pulley on a shaft with key(demo)

MACHINING

1. Plain turning and step turning
2. Taper turning
3. Thread Cutting
4. Additive Manufacturing (demo)

Learning Resources:

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

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