CURRICULUM & SYLLABI 2019-2020
B. TECH. IN APPLIED SCIENCES & HUMANITIES

DEPARTMENT OF APPLIED SCIENCES & HUMANITIES
FACULTY OF ENGINEERING AND TECHNOLOGY
JAMIA MILLIA ISLAMIA
NEW DELHI-110025

B. TECH. APPLIED SCIENCES & HUMANITIES COURSE STRUCTURE UNDER THE CHOICE BASE CREDIT SYSTEM (CBCS)

Effective from July -2019-2020

Abbreviation

CC	Core Course	**L**	Lecture
AECC	Ability Enhancement Compulsory Course	**T**	Tutorial
CBCS	Choice Based Credit System	**P**	Practical
SEC	Skill Enhancement Course	**CCA**	Continuous Class Assessment
DE	Department Electives	**MSE**	Mid SemesterEvaluation
		ESE	End Semester Evaluation

COURSE STRUCTURE OF B.TECH. I SEMESTER

SECTION A

S. No.	PAPER TYPE CBCS/CORE/AEC C/SEC ETC.	PAPER CODE	TITLE OF PAPER	CREDIT	SESSIONAL	END-TERM
1.	CORE	AS-104	Engineering Mathematics - I	04	40	60
2.	CORE	AS-102	Engineering Physics – I	03	30	45
3.	CORE	AS-103	Engineering Chemistry – I	03	30	45
4.	AECC	AS-201	Human Resource Management (HRM)	03	30	45
5.	CORE	CE-101	Basics of Civil Engineering	03	30	45
6.	CBCS	AS-105	Innovative Technology & Bio-Sciences	04	40	60
7.	CORE	EC-101	Basic of Electronics & Comm. Engineering	03	**30**	45
8.	**LABORATORIES**	AS-152	Engineering Physics LAB – I	01	15	10
9.		AS-153	Engineering Chemistry LAB – I	01	15	10
10.		ME-151	Workshop Practice	02	30	20

SECTION B

S. No.	PAPER TYPE CBCS/CORE/AEC C/SEC ETC.	PAPER CODE	TITLE OF PAPER	CREDIT	SESSIONAL	END-TERM
1.	CORE	AS-104	Engineering Mathematics - I	04	40	60
2.	CORE	AS-102	Engineering Physics – I	03	30	45
3.	CORE	AS-103	Engineering Chemistry – I	03	30	45
4.	AECC	AS-201	Human Resource Management (HRM)	03	30	45
5.	CORE	CE-101	Basics of Civil Engineering	03	30	45
6.	CBCS	AS-105	Innovative Technology & Bio-Sciences	04	40	60
7.	CORE	EC-101	Basic of Electronics & Comm. Engineering	03	**30**	45
8.	**LABORATORIES**	AS -152	Engineering Physics LAB – I	01	15	10
9.		AS -153	Engineering Chemistry LAB – I	01	15	10
10.		ME-151	Workshop Practice	02	30	20

COURSE STRUCTURE OF B.TECH. I SEMESTER

SECTION C

S. No.	PAPER TYPE CBCS/CORE/AEC C/SEC ETC.	PAPER CODE	TITLE OF PAPER	CREDIT	SESSIONA	END-TER
1.	CORE	AS-104	Engineering Mathematics - I	04	40	60
2.	CORE	AS-102	Engineering Physics – I	03	30	45
3.	CORE	AS-103	Engineering Chemistry – I	03	30	45
4.	SEC	AS-101	Communication Skills	03	30	45
5.	CORE	EE-101	Basics of Electrical Engineering	01	30	45
6.	CORE	ME-101	Basics of Mechanical Engineering	03	30	45
7.	CORE	CS-201	Fundamentals of Computing	03	**30**	45
8.	**LABORATORIES**	AS - 152	Engineering Physics LAB – I	01	15	10
9.		AS - 153	Engineering Chemistry LAB – I	01	15	10
10.		ME-151	Workshop Practice	02	30	20
11.		ME-102	EM(Engineering Mechanics) Lab	01	15	10
12.		AS-151	Language Lab	01	15	10

SECTION D

S. No.	PAPER TYPE CBCS/CORE/AEC C/SEC ETC.	PAPER CODE	TITLE OF PAPER	CREDIT	SESSION	END-TER
1.	CORE	AS-104	Engineering Mathematics - I	04	40	60
2.	CORE	AS-102	Engineering Physics – I	03	30	45
3.	CORE	AS-103	Engineering Chemistry – I	03	30	45
4.	SEC	AS-101	Communication Skills	03	30	45
5.	CORE	EE-101	Basics of Electrical Engineering	01	30	45
6.	CORE	ME-101	Basics of Mechanical Engineering	03	30	45
7.	CORE	CS-201	Fundamentals of Computing	03	**30**	45
8.	**LABORATORIES**	AS - 152	Engineering Physics LAB – I	01	15	10
9.		AS - 153	Engineering Chemistry LAB – I	01	15	10
10.		ME-250	Engineering Graphics Lab	02	30	20
11.		ME-102	EM(Engineering Mechanics) Lab	01	15	10
12.		AS-151	Language Lab	01	15	10

COURSE STRUCTURE OF B.TECH. I SEMESTER

SECTION E

S. No.	PAPER TYPE CBCS/CORE/AECC/SEC ETC.	PAPER CODE	TITLE OF PAPER	CREDIT	SESSIONAL	END-TERM
1.	CORE	AS-104	Engineering Mathematics - I	04	40	60
2.	CORE	AS-102	Engineering Physics – I	03	30	45
3.	CORE	AS-103	Engineering Chemistry – I	03	30	45
4.	SEC	AS-101	Communication Skills	03	30	45
5.	CORE	EE-101	Basics of Electrical Engineering	01	30	45
6.	CORE	ME-101	Basics of Mechanical Engineering	03	30	45
7.	CORE	CS-201	Fundamentals of Computing	03	30	45
8.	**LABORATORIES**	AS - 152	Engineering Physics LAB – I	01	15	10
9.		AS - 153	Engineering Chemistry LAB – I	01	15	10
10.		ME-250	Engineering Graphics Lab	02	30	20
11.		ME-102	EM(Engineering Mechanics) Lab	01	15	10
12.		AS-151	Language Lab	01	15	10

SECTION F

S. No.	PAPER TYPE CBCS/CORE/AECC/SEC ETC.	PAPER CODE	TITLE OF PAPER	CREDIT	SESSIONAL	END-TERM
1.	CORE	AS-104	Engineering Mathematics - I	04	40	60
2.	CORE	AS-102	Engineering Physics – I	03	30	45
3.	CORE	AS-103	Engineering Chemistry – I	03	30	45
4.	AECC	AS-201	Human Resource Management (HRM)	03	30	45
5.	CORE	CE-101	Basics of Civil Engineering	03	30	45
6.	CBCS	AS-105	Innovative Technology & Bio-Sciences	04	40	60
7.	CORE	EC-101	Basic of Electronics & Comm. Engineering	03	**30**	45
8.	**LABORATORIES**	AS-152	Engineering Physics LAB – I	01	15	10
9.		AS-153	Engineering Chemistry LAB – I	01	15	10
10.		ME-250	Engineering Graphics Lab	02	30	20

Course Structure of B. Tech. Second Semester

January to May 2019

SECTION A

S. No.	Theory Paper	PAPER CODE	TITLE OF PAPER	CREDIT	SESSION	END-TERM
1.	CORE	AS-204	Engineering Mathematics - II	04	40	60
2.	CORE	AS-202	Engineering Physics – II	03	30	45
3.	CORE	AS-203	Engineering Chemistry – II	03	30	45
4.	SEC	AS-101	Communication Skills	03	30	45
5.	CORE	EE-101	Basics of Electrical Engineering	03	30	45
6.	CORE	ME-101	Basics of Mechanical Engineering	03	30	45
7.	CORE	CS-201	Fundamentals of Computing	03	**30**	45
8.	**LABORATORIES**	AS - 252	Engineering Physics LAB – II	01	15	10
9.		AS - 253	Engineering Chemistry LAB – II	01	15	10
10.		ME-250	Engineering Graphics Lab	02	30	20
11.		ME-102	EM(Engineering Mechanics) Lab	01	15	10
12.		AS-151	Language Lab	01	15	10

SECTION B

S. No.	Theory Paper	PAPER CODE	TITLE OF PAPER	CREDIT	SESSIONAL	END-TERM
1.	CORE	AS-204	Engineering Mathematics - II	04	40	60
2.	CORE	AS-202	Engineering Physics – II	03	30	45
3.	CORE	AS-203	Engineering Chemistry – II	03	30	45
4.	SEC	AS-101	Communication Skills	03	30	45
5.	CORE	EE-101	Basics of Electrical Engineering	01	30	45
6.	CORE	ME-101	Basics of Mechanical Engineering	03	30	45
7.	CORE	CS-201	Fundamentals of Computing	03	30	45
8.	**LABORATORIES**	AS - 252	Engineering Physics LAB – II	01	15	10
9.		AS - 253	Engineering Chemistry LAB – II	01	15	10
10.		ME-250	Engineering Graphics Lab	02	30	20
11.		ME-102	EM(Engineering Mechanics) Lab	01	15	10
12.		AS-151	Language Lab	01	15	10

Prof. Musheer Ahmad
Head

Course Structure of B. Tech. Second Semester

January to May 2019

SECTION C

S. No.	Theory Paper	PAPER CODE	TITLE OF PAPER	CREDIT	SESSIONAL	END-TERM
1.	CORE	AS-204	Engineering Mathematics - II	04	40	60
2.	CORE	AS-202	Engineering Physics – II	03	30	45
3.	CORE	AS-203	Engineering Chemistry – II	03	30	45
4.	AECC	AS-201	Human Resource Management (HRM)	03	30	45
5.	CORE	CE-101	Basics of Civil Engineering	03	30	45
6.	CBCS	AS-105	Innovative Technology & Bio-Sciences	04	40	60
7.	CORE	EC-101	Basic of Electronics & Comm. Engineering	03	**30**	45
8.	**LABORATORIES**	AS-252	Engineering Physics LAB – II	01	15	10
9.		AS-253	Engineering Chemistry LAB – II	01	15	10
10.		ME-250	Engineering Graphics Lab	02	30	20

SECTION D

S. No.	Theory Paper	PAPER CODE	TITLE OF PAPER	CREDIT	SESSIONAL	END-TERM
1.	CORE	AS-204	Engineering Mathematics - II	04	40	60
2.	CORE	AS-202	Engineering Physics – II	03	30	45
3.	CORE	AS-203	Engineering Chemistry – II	03	30	45
4.	AECC	AS-201	Human Resource Management (HRM)	03	30	45
5.	CORE	CE-101	Basics of Civil Engineering	03	30	45
6.	CBCS	AS-105	Innovative Technology & Bio-Sciences	04	40	60
7.	CORE	EC-101	Basic of Electronics & Comm. Engineering	03	**30**	45
8.	**LABORATORIES**	AS-252	Engineering Physics LAB – II	01	15	10
9.		AS-253	Engineering Chemistry LAB – II	01	15	10
10.		ME-151	Workshop Practice	02	30	20

Course Structure of B. Tech. Second Semester

January to May 2019

SECTION E

S. No.	Theory Paper	PAPER CODE	TITLE OF PAPER	CREDIT	SESSIONAL	END-TERM
1.	CORE	AS-204	Engineering Mathematics - II	04	40	60
2.	CORE	AS-202	Engineering Physics – II	03	30	45
3.	CORE	AS-203	Engineering Chemistry – II	03	30	45
4.	AECC	AS-201	Human Resource Management (HRM)	03	30	45
5.	CORE	CE-101	Basics of Civil Engineering	03	30	45
6.	CBCS	AS-105	Innovative Technology & Bio-Sciences	04	40	60
7.	CORE	EC-101	Basic of Electronics & Comm. Engineering	03	**30**	45
8.	**LABORATORIES**	AS -252	Engineering Physics LAB – II	01	15	10
9.		AS -253	Engineering Chemistry LAB – II	01	15	10
10.		ME-151	Workshop Practice	02	30	20

SECTION F

S. No.	Theory Paper	PAPER CODE	TITLE OF PAPER	CREDIT	SESSIONA	END-TER
1.	CORE	AS-204	Engineering Mathematics - II	04	40	60
2.	CORE	AS-202	Engineering Physics – II	03	30	45
3.	CORE	AS-203	Engineering Chemistry – II	03	30	45
4.	SEC	AS-101	Communication Skills	03	30	45
5.	CORE	EE-101	Basics of Electrical Engineering	01	30	45
6.	CORE	ME-101	Basics of Mechanical Engineering	03	30	45
7.	CORE	CS-201	Fundamentals of Computing	03	**30**	45
8.	**LABORATORIES**	AS - 252	Engineering Physics LAB – II	01	15	10
9.		AS - 253	Engineering Chemistry LAB – II	01	15	10
10.		ME-151	Workshop Practice	02	30	20
11.		ME-102	EM(Engineering Mechanics) Lab	01	15	10
12.		AS-151	Language Lab	01	15	10

AS – 104ENGINEERING MATHEMATICS – I

L T P
3 1 0

UNIT I :CURVE TRACING & APPLICATIONS OF DEFINITE INTEGRALS

Two Dimensional curve tracing in Cartesian, polar and parametric forms, Double points & points of inflexion, Oblique and parallel asymptotes, Finding length, volume and surface area of the curve in Cartesian, polar and parametric forms.

UNIT-II :TECHNIQUES OF ONE VERIABLE CALCULUS & PARTIAL DIFFERENTIATIONS

Leibnitz's theorem; n^{th} derivative of F(x) at x=0, Maclaurin's expansion of F(x), Formation of Intrinsic and pedal equations, Partial derivatives and their geometrical interpretation, Total derivative, Total differential coefficient, change of variables i.e. use of Jacobeans.

Curvature and radius of curvature in Cartesian, polar and parametric and implicit forms, Radius of curvature at the origin, centre and chord of curvature, and evolutes of the curves.

UNIT-III :CALCULUS OF SEVERAL VARIABLES & LINEAR ALGEBRA

Taylor's expansion of a function of one & two variables, Leibnitz's rule for differentiation under the sign of integration, Maxima and minima of a function of two and more variables including Lagrange's method.

Consistency of a system of simultaneous linear equations using rank, Eigen values and Eigen vectors of a square matrix, Properties of Eigen values, Applications of Cayley-Hamilton theorem and diagonalizationof a matrix, vector space, basis, linear dependence and independence of vectors, Linear transformations and related problems

UNIT-IV: ORDINARY DIFFRENTIAL EQUATIONS

Orthogonal and lsogonal trajectories of a family of curves, Complementary function, particular integral and general solution of ordinary linear differential equations of higher order with constant and variable coefficients (Cauchy and Legendre forms).

Method of variation of parameters Method of undetermined coefficients and solutions of simultaneous differential equations with constant coefficients.

UNIT-V : PARTIAL DIFFERENTIAL EQUATIONS

Introduction to partial differentiatial equations, Change of independent variables in P.D.E., Complete solution of homogeneous and non-homogeneous L.P.D.E. of higher order with constant and variable coefficients,

Solutions of one dimensional wave equation, one dimensional heat conduction equations and two dimensional Laplace (Cartesian and polar forms) equation using method of separation of variables.

Text/ Reference Books:

1. A.B. Mathur & V.P. Jaggi : A text book of "**Engg. Maths. & Advanced Engg. Mathematics"**
2. V.P.Mishra: "**Concept of Engineering Mathematics" (Revised Edition**)
3. B.S. Grewal: "**Engineering Mathematics & Higher Engineering Mathematics"**
4. B.V. Ramana**: "Higher Engineering Mathematics".**
5. R.K. Jain and S.R.K. Iyengar : "**Advanced Engineering Mathematics",** 4th Edition
6. **"Applied Mathematics**": Dr. J.S.Bindra & K.S. Gill, S.K. Kataria & Sons, Ansari Road, Darya Ganj, Delhi-110002

ENGINEERING PHYSICS – I **AS – 102**

L	T	P
2	1	2/2

UNIT – 1 **:PHYSICS OF MOTION**

Inertial and non-inertial frames, conservation principles of momentum and energy; many particle systems, rocket motion, simple harmonic motion, damped harmonic motion.

UNIT – 2 **:OPTICS**

Two views about nature of light, concept of coherence, interference of light, single slit and N-slits diffraction, hydrogen atom spectrum, diffraction grating and spectral resolution.

UNIT – 3 **:ELECTROMAGNETISM**

Cylindrical coordinates, Gradient, divergence and curl, line integral, surface integral and volume integral, Lorentz force, Gauss's law, Ampere's Law, Maxwell's equations, electromagnetic waves and Poynting vector.

UNIT – 4 **:QUANTUM IDEAS**

Difficulties of classical Physics, Planck hypothesis, wave particle duality, photoelectric effect, Compton effect, uncertainty principle and its implications, wave packets, group velocity and phase velocity, Davisson Germer experiment.

UNIT – 5 **:PHYSICS OF MATERIALS**

Classifications of materials, crystal structure, unit cell and lattice parameters, Miller indices, Bragg's law and X-ray diffraction, classical free electron theory, its success and failures, Wiedemann Franz law, Maxwell Boltzmann distribution

ENGINEERING CHEMISTRY – I AS – 103

L	T	P
2	1	2/2

UNIT – 1: INSTRUMENTAL METHODS OF ANALYSIS

Chromatography; Definition and Different Types of Chromatography, Adsorption chromatography and its types, Partition chromatography and its type, High Pressure Liquid Chromatography, Fundamentals of Spectroscopy; Principles and Applications of UV-Visible, Infra-Red and Atomic Absorption Spectrometry.

UNIT – 2: CHEMICAL METHODS OF ANALYSIS AND PHASE RULE

Gravimetric Analysis; Digestion and its Importance, Favorable Conditions for Precipitation, Volumetric Methods of Analysis; Expression of concentration of solutions, Acid-Base (pH metry and conductometry), Redox, Precipitation and Complexo metric Titrations. Phase Rule; Phase Rule Applications to One and Multiple Component systems, Fe-C Phase Equilibrium Diagram.

UNIT – 3: ELECTROCHEMISTRY AND SURFACTANTS

Electrolytic and Galvanic cell, Electrode Potential, Standard Electrode Potential, EMF series, Nernst Equation, Cell emf Measurement, Reversible and Irreversible cell, Thermodynamic Overview of Electrochemical Processes, Conductance, Cell Constant and its Determination. Surface Active Agents, Soaps, Types of detergents and their disadvantages, Micelle, Critical Miceller Concentration, Hydrophilic and Hydrophobic Interactions, HLB values of Surfactants.

UNIT – 4: POLYMERS

Basics of polymer chemistry, Molecular weight, Glass transition temperature and Melting point, Methods of polymerization, Structure property relationship, Thermoplastics and Thermosets, Fabrication of polymers by Compression, Injection, Extrusion and transferMoulding. Synthesis, Properties and uses of polyethylene, Polyvinyl Chloride, Poly Methyl Methacrylate, Urea formaldehyde resin and Melamine formaldehyde resin, Conducting polymers and their applications.

UNIT – 5: NANOMATERIALS AND COMPOSITES

General Introduction, Fullerenes, Carbon nanotubes, Nanowires, Electronic and Mechanical properties of nanomaterials, Synthesis of nanomaterials, Top down and Bottom up approaches, Applications of nanomaterials.

Adhesives, their classification and uses, Composites; their Compositions, types and Characteristics.

Human Resource Management AS-201

L	T	P
2	1	2/2

Objective: The objective of the course is to enable the students to understand the key concept, systems and process about management of people and to provide a framework of using HR practices for organizational excellence. Moreover, Unit (2-5) will be both theoretical as well as experimental based. Unit (2-5) shall comprise of some elements of testing / lab exposure/ experiments.

Unit-1 (L-8): **Foundation of Human Resource Management (HRM)**: Meaning, definition, nature and scope, characteristic, objectives, Opportunities and challenges in HRM, HRM functions.

Unit-2 (L-8): **Acquisition of Human Resources –***Human Resource Planning (HRP)*: need, objectives, determinates, HRP models, HRP process, type of HRP, benefits; *Job Analysis (JA)*: sources, methods, process, uses, importance; job description, job specification; *Recruitment and selection:* sources, process, barriers, objectives, objectives of selection, selection tests, interview, induction, placement and employee socialization.

Unit-3 (L-8): **Appraising and evaluating Human Resources –***Performance Appraisal (PA)and feedback:* approaches, methods/techniques of PA, process of PA, interview, elements, designing and conducting PA; *Job Evaluation (JE):* principles, process, methods of JE, importance and limitations.

Unit-4 (L-8): **Development of Human Resources –***Human Resource Development (HRD):* functions, benefits, importance, barriers to HRD; *Training and Development*: models, methods, training process, training evaluation and barriers.

Unit-5 (L-8): **Employees Health & Well being –Job stress and Job Burnout: Nature, Causes and consequences;***Stress:* Nature, Causes and consequences; *Management of Stress:* Personal and organizational based strategies; *Burnout:* Nature, symptoms, causes, relationship with stress, burnout and job satisfaction management of burnout.

Text Books:

- Gary Dessler (2015), Human Resource Management, Person Prentice Hall of India, New Delhi
- VSP Rao, Human Resource Management, Text & Cases (2nd edition), Excel Books, New Delhi

Reference Books:

- Tapomony Deb, (2009), Managing Human Resource and Industrial Relations (First edition), Excel Books, New Delhi
- John M. Ivancevich (2005), Human Resource Management 93rd edition) Tata McGraw Hill Publishing Co. Ltd., New Delhi

Lab Exercises:

- Administration of relevant tests as per requirement of the content of unit.
- Such as job satisfaction & Personality tests, Job stress tests etc.
  Group activities; such as case studies as per topic of the unit

INNOVATIVE TECHNOLOGY & BIO-SCIENCE AS – 105

L	T	P
2	1	2/2

Unit-I Introduction toNanotechnology

Introduction to Nanotechnology, Theoretical Basis of nanotechnology, Quantum confinement andsizeeffect, Classification of Nanomaterials: Nanowires, Quantum Welland Quantum Dots, PropertiesofNanomaterials, Carbonaceous Nanomaterials and their examples. Molecular Nanotechnology, GreenNanotechnology.

Unit-II Applications ofNanotechnology

MicroelectromechanicalSystems(MEMS)&NanoeletromechanicalSystems(NEMS),Nanorobotics,Nanofluidics,Micro-gearsandNano-gears,Nanocompositesandtheirapplications,NanomaterialsforCivilEngineers, Nano-paints, Light and flexible CivilEngg. Structures based oncarbonNanomaterials, Nano-memories. Nano-sensors. Nano-transistors, Introduction to organic electronics.

Unit-III Introduction to BiologicalSciences

Introductiontothecellasaunitoflife,Principlesinvolved inthemaintenanceoflifeprocesses,Ultra-structure and function of cellular components-Prokaryotic and Eukaryotic cells, cell wall,plasma membrane, endoplasmic reticulum, Biomolecules- Carbohydrates. Lipids, AminoAcids,proteins, Nucleic Acids, Tissue Systems. Metabolism, Chromosomes and CellDivision.BasicGenetics-biologicalindicators,bio-sensors,Mutation-causes.typesandeffect.

Unit-IV Advanced BiologicalSciences

Introduction to microbiology, Industrial microbiology, introduction to immunology, Introductiontomolecular genetics, Structure of RNA aid DNA, Concept of Gene, Gene regulation, Basicconceptsof biotechnology: Totipotency and cell manipulation, Classifications of biotechnologies.

Unit-V Nanobiotechnology

Introduction to Nanobiotecnology, Nanobiotechnology in medicine: regenerative medicine, Targeteddrug delivery. Nanotechnology in pharmacy, Nanobiotechnology in Ayurveda, Alternative medicines.Nanobiotechnology in Agricultural, industrial Nanobiotechnology, Nanoimaging, CancertreatmentusingNanotechnology.

Communication Skills (Theory & Lab) AS 101

L	T	P
2	1	2/2

Objectives of the Course: To hone English communicative Skills viz. Reading, Writing, Speaking and Listening; use English for scientific/technical purpose in consonance with humanistic concerns.

Theory:

Unit-I: THE ART OF COMMUNICATION

English Communication, Technical, Verbal & Non-Verbal Communication, Barriers in Communication, the Art of Communication; Reading, Writing, Listening and Speaking & Strategies to overcome challenges in effective communication.

Unit- II: FUNDAMENTALS OF ENGLISH SYNTAX

Basics of Parts of Speech, Determiners, Use of tenses, Transformation of sentences-Active- Passive; Direct-Indirect; Simple-Compound-Complex sentences , Use of Prepositions, Discourse Markers, Subject Verb Concord, Use of Conjunctions, Use of Verbs.

Unit III: WRITING

Formal & informal letters, Note Making, Report writing, Book Reviews, Abstracts and Research Proposals, creative writing, Email correspondences, Résumé writing.

Unit IV: **WORD VOCABULARY & PHONETICS**

Word formation, foreign roots (Etymology) , Suffix, Prefix, Antonyms, Synonyms, Homonyms, one word substitution, Idioms and Phrases, Acronyms, IPA Symbols, Vowels and Consonants, Place and Manner of Articulations, Phonetic transcription and Accentuation (theoretical insight).

Unit V Literature

Poetry

Where the Mind is Without Fear- Rabindranath Tagore
The Express- Stephan Spender
Amalkanti-Nirendranath Chkrabarti
The Lost World- Esther Morgan

Prose

Of Studies- Francis Bacon,
Vanishing Animals- Gerald Durrell
Lamb to the Slaughter- Roald Dahl
The Child- Munshi Premchand
Soapnut Leaves- Chaaso

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COMMUNICATION SKILLS LAB

Grammar (Software Aided Practice)
Group Activities (Active Listening & Viewing), Story telling, Quiz, Open forum
Review of resource videos & audio
Individual strength and weakness assessment
Personality Development and Soft Skills
English Phonetics, word stress and intonation (practice)
Group Discussions,
Debates,
Simulated Conversations (formal & informal)
Seminars,
Personal Interviews,
Presentations,
Extempore,
JAM

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Prescribed Text Books:

1. *The Joy of Reading*: Orient Blackswan Pvt. Ltd, New Delhi
2. *Fluency in English*: Macmillan Publishers, New Delhi
3. Intermediate Grammar Usage and Composition : M.L.Tikoo and Subramanian , Orient Blackswan Pvt. Ltd, New Delhi
4. A Text Book of English Phonetics for Indian Students: T. Balasubramanian, Macmillan Publishers, New Delhi.
5. Practical English Usage: Michael Swan, Oxford University Press.

Suggested Reading:

1. The Oxford Guide to effective Writing and Speaking Skills: John Seely, Oxford University Press
2. English Pronouncing Dictionary: Daniel Jones, Cambridge University Press.
3. Technical communication Principles and Practice: Meenakshi Raman and Sangeeta Sharma, Oxford.

AS 101-Basic of Mechanical Engineering

L	T	P
2	1	0-3

Course Objectives: To expose the students to the thrust areas in mechanical engineering and their relevance by covering the fundamental concepts

Unit-I

Kinematics of Rigid Bodies:Translation, Rotation About a Fixed Axis, General Plane Motion, Absolute &Relative Velocity and Acceleration in Plane Motion, Instantaneous Center of Rotation in Plane Motion, Analysis of Plane Motion in Terms of a Parameter, Rate of Change of a Vector with Respect to a Rotating Frame, Plane Motion of a Particle Relative to a Rotating Frame, Coriolis Acceleration, Motion About a Fixed Point.General Motion, Three-Dimensional Motion of a Particle Relative to a Rotating Frame, Coriolis Acceleration, Frame of Reference in General Motion

Unit-II

Plane Motion of Rigid Bodies: Forces and Accelerations: Equations of Motion &Angular Momentum of Rigid Body in Plane Motion, D'Alembert's Principle, Axioms of the Mechanics of Rigid Bodies, Systems of Rigid Bodies, Constrained Plane Motion, Energy and Momentum MethodsPrinciple of Work and Energy for Rigid Body, Work of Forces Acting on a Rigid Body, Kinetic Energy of a Rigid Body in Plane Motion, Systems of Rigid Bodies, Conservation of Energy, Power, Principle of Impulse and Momentum for the Plane Motion of a Rigid Body, Conservation of Angular Momentum.

Unit-III

Properties

Macroscopic Versus Microscopic View point, Thermodynamic System and Control Volume, Processes and Cycles , Thermodynamic Equilibrium ,Quasi-Static Process ,Concept of Continuum

Thermostatic ,

Units and Dimensions Work Transfer, P-dV Work or Displacement Work, Other Types of Work Transfer and Heat Transfer – A Path Function, Specific Heat and Latent Heat ,Work Transfer.

ZerothLaw of Thermodynamics, Measurement of Temperature, Ideal Gas Thermometers, Celsius Temperature Scale, Electrical Resistance Thermometer, Thermocouple.

Unit-IV

First Law of thermodynamics for a Closed System Undergoing a process and a Cycle ,Energy-A Property of the System ,Different Forms of Energy ,Specific Heat at Constant Volume ,Enthalpy ,Specific heat at Constant Pressure .Energy of an isolated system.

First Law Applied to Flow Processes,Control Volume, steady Flow Process, Mass Balance and Energy Balance in a Simple and Steady Flow Processes; ,Comparison of S.F.E.E. with Euler and Bernoulli Equations,Numerical.

Unit-V

Second Law of Thermodynamics, Thermal reservoirs, heat pump and refrigerator,

Statements of second law of thermodynamics, Kelvin Planck and Clausius statements and their equivalence, Carnot,s theorem, Clausiusinequality; Numerical.

Text Book: Vector Mechanics For Engineers: Statics And Dynamics, Tenth Edition: by Ferdinand P. Beer, E. Russell Johnston, Jr., David F. Mazurek, and Phillip J. Cornwell, Tata McGraw Hill

References/ Text Books

1. Engineering Thermodynamics by: P. K. Nag, TMH.
2. Fundamental of classical thermodynamics by: Wan- Wylen&sontag, John wiley&sons.
3. Engineering thermodynamics by: Spalding & code.
4. Engineering Mechanics: Statics and Dynamics: by J. L. Meriam and L. G. Kraige, John Wiley & Sons, Inc.
5. Engineering Mechanics: Dynamics: 12th Edition by R. C. Hibbeler, Prentice Hall
6. Engineering Mechanics: by K.L. Kumar, Tata McGraw Hill.

BASICS OF CIVIL ENGINEERING
CE-101

L: 2T: 1 P: 0 Cr: 3

COURSE OUTCOMES

On completion of the course, the students will be able to:

1. determine the engineering properties of the materials and solids.
2. analyze the internal forces for statistically determinate and compound members.
3. apply the concept of compound stresses for axial, flexure, shear and torsion.
4. apply the concept of principal strain and strain tensor for the analysis of different structural members.
5. apply the concepts of shear force, bending moment, axial force for statically determinate beams.

SYLLABUS

Unit-I: Stresses & Strains:

Introduction, normal stress & strain, shear stress & strain, relationship between stress and strain, Uniaxial tension test: Stress-Strain diagrams for different materials, Mechanical properties of materials: isotropy, homogeneity, continuity, elasticity, brittleness, yielding, plasticity, work hardening, ductility, hardness, toughness, creep, relaxation, fatigue; Uniaxial deformations: Saint Venant's principle, principle of superposition, free body diagrams, bars of uniform cross sections.

Unit-II: Uniaxial Deformations:

Bars of variable cross sections, compound/ composite bars, temperature stresses.

Unit-III: Analysis of Stresses:

Tensor notations, equilibrium equations, transformation of stresses, invariants of stress tensor, plane stress condition, principal stresses, maximum shear stress and their planes, Mohr's circle.

Unit-IV: Analysis of Strains:

Transformation of strains, invariants of stain tensor, plane strain condition, principal strains maximum shear strain and their planes; Strain Rosettes; Stress –Strain relationship, generalized Hooke's law, relation between elastic constants.

Unit-V: Structures and Their Forms:

Loads, idealization of structures, supports and connections, elastic and linear behaviour of structures, determinate and indeterminate structures, SF & BM: relation between B.M., S.F. and loads, S.F. & B.M. diagrams in statically determinate simply supported (without overhang) and cantilever beams subjected to concentrated loads and UDL

Text Books

1. Engineering Mechanics of Solids By E.P. Popov, Pearson Education.
2. Solid Mechanics by S.M.A. Kazimi, Tata McGRAW HILL.
3. Mechanic of Materials by R.C. Hibbeler, Pearsons Education.

Reference Books

1. Mechanics of Materials by Beer &Jonhson, Dewolf, McGRAW HILL.
2. Strength of Materials by S. Timoshenko, CBS Publisher
3. Strength of Materials by R. K. Rajput, S Chand

BASICS OF ELECTRICAL ENGINEERING
EE-101

L: 2 T: 1 P: 0 Cr: 3

COURSE OUTCOMES:

1. To analyse circuit systems using direct application of Kirchoff current and voltage laws along with Ohms law
2. To understand basic concept of "j" operator, RLC series circuit, reactive power, true power and apparent power
3. To prepare the students to have basic knowledge of transformers, the equivalent circuit model of single phase transformers, transformer parameters using open circuit and short circuit tests, compute transformer efficiency and voltage regulation
4. Construction and understanding of working principles of DC generators and motors
5. The ability to select a suitable measuring instrument for a given application like PMMC and MI

SYLLABUS

Unit-I:

Fundamentals of electric circuits, Kirchhoff's laws, mesh analysis, node analysis, delta-star and star-delta conversion, classification of network elements, Thevenin's theorem, Nortan's theorem maximum power transfer theorem, superposition theorem.

Unit-II:

Single phase AC circuits, average and effective values of sinusoids, solution of R,L,C series circuits, the j operator, complex representation of impedances, phasor diagram, concept of power factor, power factor improvement, power in complex notation, solution of parallel and series-parallel circuits, resonance. Introduction to balance three phase AC circuits.

Unit-III:

Ampere's circuital law, B-H curve, solution of magnetic circuits, hysteresis and eddy current losses. Relays as an application of magnetic force. Transformers- construction, e.m.f. equation, ratings, phasor diagram for no load and full load, equivalent circuit, regulation and efficiency calculations, open circuit and short circuit tests, Introduction to Auto-Transformer.

Unit-IV:

Introduction to Electromechanical Energy Conversion, DC motors- construction, e.m.f. and torque equations, characteristics of DC generators and motors, speed control of DC motors. DC motor starter-working principle, ratings. Introduction to three phase induction motor, Introduction to alternator and synchronous motor and their applications

Unit-V:

PMMC instruments, shunts and multipliers, multi-meters, moving iron ammeters and voltmeters, dynamometer wattmeter, AC watt-hour meters, extension of instrument ranges.

Text Book:

1. D.C. Kulshrestha, "Basic Electrical Engineering", Tata McGraw Hill.
2. T.K. Nagsarkar&M.S.Sukhija, "Basic Electrical Engineering", Edition 2008, Oxford University Press.

Reference books:

1. V. Del Torro, Electrical Engineering Fundamentals, Second Edition, Prentice Hall of India Pvt. Ltd.
2. E. Hughes, Electrical Technology, English Language Book Society Publication with Longman.
3. H. Cotton, Advanced Electrical Technology, Issae Pitman, London.
4. S.S. Parker, Problems in Electrical Engineering, Asia Publications.
5. I. J. Nagarath, "Basic Electrical Engineering", 2nd Edition, Tata McGraw Hill.

WORKSHOP PRACTICE
ME-151

L: 0 T: 0 P: 4 Cr: 2

COURSE OUTCOMES:

1. To instil fundamentals of materials, properties, various tools and their specifications employed in various shops/trades
2. To understand science and engineering of every task and tool employed in each shop/trade
3. To understand the drawing and specification of various tasks/jobs; plan, operate and acquire tools to make jobs as per specifications
4. Encourage student to use web/computing resources and relate the completed task with real life processes
5. Educate them for safety and security while performing assigned tasks in group of small size, prepare the record of tasks and submit

SYLLABUS

Unit-I: Foundry

Mould cores, core prints, gates runner, risers, chaplets, common defects in casting, defects due to mould, metal pouring, solidification.

Unit-II: Metal Joining

Oxy acetylene gas welding equipment, types of flame, electric arc and contact welding, electrodes and equipments for AC and DC welding, electrode coating functions and constitutes, common welding defects.

Unit-III: Metal Cutting Operation And Tools

Common metal cutting machine like lathe, milling, shaper, slotter and drill, lathe operations like turning, chamfering, facing, taper turning and knurling, material for lathe tools and other tools, bench grinder and use.

Related Labs:

1. Gas welding: simple joint like joint.
2. Electric Arc Welding: Simple joints like butt joint.
3. Tin Smithy: Mechanical joining, jobs like box, tray, funnel and soldering of joints.
4. Turning: Plane turning, taper turning, threading, knurling, facing and chamfering on the same job.
5. Shaping: Surface finishing at right angles.
6. Milling: Making a slot two or three surface finishing at angles of 1200C.
7. Drilling: Making drilled holes in plates or flats and grinding the corner of a plate to round.

Text books/ Reference books:

1. Elements of Workshop Technology by, Choudhary Vol. 1 & 2. Media promoters and publisher, 1996.
2. Workshop Technology, Vol. 1-3 by W A J Chapman, ELB. S

ENGINEERING MATHEMATICS – II AS – 204

L	T	P
3	1	0

UNIT-I: SOLID GEOMETRY & MULTIPLE INTEGRALS

Formation of equations of cylinder and cone under the given geometrical conditions, Tracing of some quadric (or Conicoids) three dimensional surfaces.

Evaluation of multiple integrals by change of order of integration, Change of variables i.e. Use of Jacobian & Applications of multiple integrals in finding plane area, mass, centre of gravity, centre of pressure, moment of inertia, product of inertia, curved surface area and volume.

UNIT-II:ORDINARY& PARTIAL DIFFERENTIAL EQUATIONS

Ordinary point and regular singular point, Series solutions of ordinary differential equations of second order with variable coefficients (polynomials) by the method of Frobenius; Lagrange's method of undetermined multipliers for the solution of linear partial differential equations of first order solution of non-linear partial differential equations of first order by means of transformations and Charpits methods.

UNIT-III : COMPLEX ANALYSIS

Analytical function, C-R equations in Cartesian and polar forms, Geometrical representation of $\omega=F(z)$, Determination of conjugate harmonic function, Milne – Thomson meyhod and related problems; Evaluation of complex integrals using Cauchy's integral theorem, Cauchy's integral formula for the n^{th} order derivative of an analytic function.

Taylor series, Maclaurin series and Laurent series expansions of functions, Conformal mapping, sufficient condition for conformality of $W=f(z)$, some standard transformations; zeros, singularities and residues of an analytic function, Application of Cauchy's residue theorem in solving contour integrals and evaluation of real definite integrals using residue method.

UNIT-IV: LAPLACE TRANSFORM & ITS APPLICATIONS

Laplace and inverse Laplace transforms of some well-known elementary functions and Special functions, Change of scale property, First and second shifting theorems, Laplace transforms of Derivative, Integral, $t^n f(t)$, $f(t)/t$, Convolution theorem & Periodic function.

Applications of Laplace and inverse Laplace transform in finding the particular solutions of ordinary linear differential equations with constants and variables coefficients, system of differential equations, integral equation, Integro-differential equations, difference equations and, conversion of differential equations into integral equations & vice versa.

UNIT-V : FUZZY MATHEMATICS

Fuzzy set, elements of Fuzzy logic, Relations including operations, reflexivity, symmetry and transivity, Pattern classification based on fuzzy relations, fuzzy analysis including metric spaces, distance between fuzzy sets, area perimeter, height, width of fuzzy subsets, continuity & integrals.

Text/ Reference Books

1. A.B. Mathur & V.P. Jaggi: "**Engineering. Mathematics & Advanced Engineering Mathematics" (two volume)**
2. V.P.Mishra: "**Concept of Engineering Mathematics"** (Revised Edition)
3. B.S. Grewal: "**Engineering Mathematics & Higher Engineering Mathematics**",43rd Edition
4. B.V. Ramana: "**Higher Engineering Mathematics"**.
5. R.K. Jain and S.R.K. Iyengar : "**Advanced Engineering Mathematics"** 4th Edition

ENGINEERING PHYSICS – II AS – 202

L	T	P
2	1	2/2

UNIT – 1: RELATIVITY

Difficulties of classical theory, idea of ether, Michelson Morley Experiment, Galilean transformations, postulates of special theory of relativity, Lorentz transformations, Einstein velocity addition theorem, time dilation, length contraction, relativistic mass, momentum and energy, natural units, principle of equivalence.

UNIT – 2: LASERS

Principle of laser action, Einstein's transition probabilities, lifetime of transitions, rate equation for atomic transition, optical resonators, ruby laser, He-Ne laser, general characteristics of lasers, applications of lasers.

UNIT – 3: QUANTUM THEORY

Schrodinger equation, time dependent and independent forms, wave function, probabilistic interpretation, one-dimensional problems, particle in a box, elementary treatment of harmonic oscillator, potential barrier and possibility of tunnelling.

UNIT – 4: PHYSICS OF MATERIALS

Bose Einstein statistics, Fermi Dirac statistics, semiconductors, intrinsic and extrinsic, carrier concentration, origin of energy gap, Kronig Penney model, Basics of semiconductor devices and applications, Electrical & optical properties.

UNIT – 5: FRONTIERS OF PHYSICS

Basic interactions, symmetry, invariance and conservation laws, elementary particles and their classification, accelerator physicsand applications, last Nobel prize in Physics, its back ground, significance and possibilities of future developments.

ENGINEERING CHEMISTRY & ENVIRONMENTAL SCIENCE – II (AS – 203)

L	T	P
2	1	2/2

UNIT – 1: WATER TREATMENT:

Water Quality Parameters (BIS & WHO Standards), types of hardness, Units, Determination of hardness by EDTA method, Alkalinity of water & its significance, Numerical problems, Problems with boiler feed water and its treatment; Scale & Sludge formation, Boiler corrosion, Caustic Embrittlement, Priming & foaming, Softening methods; Lime-soda, Zeolite & Ion Exchange processes, Numerical problems, Chlorination of water, Coagulation, Sedimentation and Desalination.

UNIT – 2: ENERGY RESOURCES:

Types of fuels, Calorific values, (HCV & LCV) and determinations by Bomb and Boys gas calorimeter, Numerical problems, Coal; Types of coal, Analysis of coal, Liquid Fuel; Refining of petroleum, Knocking, Octane and Certance Values, Pollution from fossil fuels, Combustion and Problems. Renewable; (Solar Cells, Rechargeable Batteries, Fuel Cells) and Non-renewable of energy; (Wind Energy, Geothermal Energy, Ocean Energy) resources of Energy.

UNIT – 3: CORROSION AND ITS PROTECTION:

Corrosion; Definition and its scope, Chemical Corrosion, Electrochemical Corrosion, Mechanism of Chemical and Electrochemical Corrosion, Types of Corrosion; Intergranular Corrosion, Soil Corrosion, Waterline Corrosion, Differential Aeration Corrosion, Galvanic and Concentration Cell Corrosion, Factors affecting corrosion, Protection of corrosion.

UNIT – 4: ENVIRONMENTAL CHEMISTRY:

Environment and its Segments, Zones of Atmosphere, Air Pollution: Air pollutants and their resources; Aerosol and its Types, RSPM, SPM, Acid rain, Green House Effect, Global warming, Ozone Layer Depletion, Water Pollution; Sources of water pollution, Sewage Treatment, Determination and Significance of COD, BOD, TOC. Noise Pollution, Soil Pollution, Radioactive Pollution and e-Waste.

UNIT – 5: ENVIRONMENTAL BIOTECHNOLOGY:

Biotechnology and its applications, fermentation, production of alcohol and vitamins, Biotechnology for environmental Protection, Biological indicators, biosensors, bioremediation, Phytoremediation, bio-pesticides, bio-fertilizers, bioreactors, Social issues, biodiversity and its conservation.

INNOVATIVE TECHNOLOGY & BIO-SCIENCE AS – 105

L	T	P
2	1	2/2

Unit-I Introduction toNanotechnology

Introduction to Nanotechnology, Theoretical Basis of nanotechnology, Quantum confinement andsizeeffect, Classification of Nanomaterials: Nanowires, Quantum Welland Quantum Dots, PropertiesofNanomaterials, Carbonaceous Nanomaterials and their examples. Molecular Nanotechnology, GreenNanotechnology.

Unit-II Applications ofNanotechnology

MicroelectromechanicalSystems(MEMS)&NanoeletromechanicalSystems(NEMS),Nanorobotics,Nanofluidics,Micro-gearsandNano-gears,Nanocompositesandtheirapplications,NanomaterialsforCivilEngineers, Nano-paints, Light and flexible CivilEngg. Structures based oncarbonNanomaterials, Nano-memories. Nano-sensors. Nano-transistors, Introduction to organic electronics.

Unit-III Introduction to BiologicalSciences

Introductiontothecellasaunitoflife,Principlesinvolved inthemaintenanceoflifeprocesses,Ultra-structure and function of cellular components-Prokaryotic and Eukaryotic cells, cell wall,plasma membrane, endoplasmic reticulum, Biomolecules- Carbohydrates. Lipids, AminoAcids,proteins, Nucleic Acids, Tissue Systems. Metabolism, Chromosomes and CellDivision.BasicGenetics-biologicalindicators,bio-sensors,Mutation-causes.typesandeffect.

Unit-IV Advanced BiologicalSciences

Introduction to microbiology, Industrial microbiology, introduction to immunology, Introductiontomolecular genetics, Structure of RNA aid DNA, Concept of Gene, Gene regulation, Basicconceptsof biotechnology: Totipotency and cell manipulation, Classifications of biotechnologies.

Unit-V Nanobiotechnology

Introduction to Nanobiotecnology, Nanobiotechnology in medicine: regenerative medicine, Targeteddrug delivery. Nanotechnology in pharmacy, Nanobiotechnology in Ayurveda, Alternative medicines.Nanobiotechnology in Agricultural, industrial Nanobiotechnology, Nanoimaging, CancertreatmentusingNanotechnology.

BASICS OF ELECTRONICS &COMMUNICATION ENGINEERING

EC-201

L: 2 T: 1 P: 0 Cr: 3

COURSE OUTCOMES

1. Studying semiconductor diodes and their various characteristics
2. Expanding the ideas: construction and working of BJTs and introducing JFET
3. Exploring various types of operational amplifiers
4. Understanding the idea of feedback and thus studying various electronic instruments
5. Learning various parameters of communication systems

SYLLABUS

Unit-I: Semiconductor Diodes:

P-N junction diode, V-I characteristics, static and resistance, linear and non-linear applications of diodes; half wave, full wave and bridge rectifiers, zener diode, characteristics and its use as a voltage regulator, AND, OR, NAND, NOR and Ex-OR gates.

Unit-II: Transistors (Bjt & Jfet):

Bipolar junction transistor (BJT) , biasing and amplifier action, load line analysis of transistor amplifier, BJT amplifier configurations and their comparison using small signal h-parameter model, Junction field Effect transistor (FET), biasing and amplifier action.

Unit-III: Operational Amplifier:

Op-am- basics, practical op-ampcircuits, inverting and non-inverting amplifier, summing amplifier, integrators and differentiators.

Unit-IV: Feedback And Electronic Instruments:

Feedback concept, Barkhausen Criteria of oscillation, Wein Bridge and phase shit oscillator, cathode Ray oscilloscope (CRO), electronics multimeters.

Unit-V: Communication Systems:

Introduction to modulation, amplitude modulation generation of AM waves, demodulation of AM wave, introduction to FM.

Text Books:

1. Boylestad & Nashelsky, Electronic Devices and Circuit Theory, 9th Ed, Pearsons
2. Dinesh Prasad, Basic of Analog Electronics, Scitech Publications

Reference Books:

1. Sedra and Smith, Micro Electronic Circuits, 6th Ed, Oxford Press

FUNDAMENTAL OF COMPUTING
CS- 201

L: 2 T: 1 P: 0 Cr: 3

COURSE OUTCOMES

1. Students will able to understand the basics of computer, generation & types of computer, its components and number system
2. Students will able to understand the concept of algorithms, flowchart and c programming language
3. Students will able to develop c programs for string manipulation, sorting and searching techniques
4. Students will able to describe the functions, structure and different types of operating systems
5. Students will able to understand basics of networking, internet and database management systems

SYLLABUS

UNIT-1: BASICS OF COMPUTERS

Computer fundamentals, Bits and Bytes, CPU, Memory, Types of memory, Input and output devices, I/O devices, Operating system, applications software's, system software. Number system, decimal number system, Binary number system, octal number system, hexadecimal number system. Generation of computer, Classification of computer,

UNIT-II: C PROGRAMMING

Algorithms, flow chart, The C character set, constants, variable, keywords, operator and expressions, decision controls, if and else, conditional operator, for loop, while loop and do-while loop,, switch case, user defined functions, call by value and by reference, array, and single dimensional, 2D matrix, multidimensional arrays

UNIT-III: SEARCHING AND SORTING

Strings, library string functions, pointers and structures, searching and sorting, linear search, binary search, sorting techniques: bubble sort, selection sort

UNIT-IV: OPERATING SYSTEM

OS definition, role of OS in computer system, multi programming, time sharing OS, multitasking OS, multiprocessing OS, real time system OS , client server computing, distributed OS, function of OS (user interface, GUI, program execution, I/O management, Resource management,

UNIT-V: NETWORKING & DBMS

Network, communication models, transmission media, connection topologies, LAN, WAN, MAN, ISO-OSI model of networking, Internet, ISP, WWW, Email, URL, Web browsers, websites, intranet, DBMS, DBMS applications, Advantage of DBMS, Data abstraction

Books:

1. "Computer Fundamentals & Programming in C", ReemaThareja, Oxford University Press
2. Ashok Kamthane, "Programming with C ".
3. M N Doja, "Introduction to Computers and Information Technology"
4. C Programming by YaswantKanetkar

ENGINEERING GRAPHICS

ME-250

L: 0 T: 0 P: 4 Cr: 2

COURSE OUTCOMES

1. Student will able to understand basics of drawing and design of engineering components
2. Student will able to understand scaling of designs
3. Student will able to understand the different view of any object
4. Student will able to understand detail construction of any object
5. Student will able to understand sheet metal work

SYLLABUS

Unit-I: Orthographic Projection

Conversion of pictorial/ isometric views into orthographic views of machine block. Identification of surface in orthographic views. Some practice on auto-Cad package.

Unit-II: Isometric Projection

Isometric scale, isometric projection of solids, missing line and missing views. Isometric view of simple objects when their orthographic views are given. Preparation of isometric views using Auto-Cad package.

Unit-III: Sectioning

Conventional representation in section of engineering materials. Methods of sectioning, sectional views of machine components, brackets, bushed bearing and foot step bearing. Unit IV FASTENERS: Sketches of different types of threads, permanent fasteners (riveted and welded joints), temporary fasteners (nut and bolt assembly, studs, keys. etc.)

Unit-V: Building Drawings

Symbols of electrical and sanitary items. Terminology used in building drawing, plan and elevation of 2/3- rooms building using Auto-CAD package, from corrosion, refractories, their manufacturer and properties: neutral, acid and basic refractors; glass its types and manufacture.

Text Books

A.N. Siddiqui, Z.A. Khan and Mukhtar, Engineering Graphics with Primer on Autocad

Reference Books

N.D. Bhutt, Engineering Drawing