Course Outcomes

DEPARTMENT OF FIRST YEAR ENGINEERING

First Year Engineering Semester-I Courses

Course: Applied Mathematics – I

Outcome: At the end of this course students will be

1. Able to state and express the Euler's theorem, types of Matrices, Taylor's series, Demoivre's theorem, Partial derivative & Jacobian of given function.

   Also solve, find the problems on roots of equation, Rank of matrix, n^{th} order derivative, simultaneous equation and extreme values of the function.

2. Able to Prove, show and test the properties of matrices, result on Jacobian, separation of real & Imaginary parts, fitting of curve, statement on Euler's theorem & partial derivative as well as complex number.

3. Able to verify, evaluate the Euler's theorem, consistency of simultaneous equations, linear dependence or independence of vector and the limit of given function.

Course: Applied Mathematics – II

Outcome: At the end of this course students will be

1. Able to solve the differential equation, Compute definite integral by using numerical integration, Find Area and mass bounded by curves, Apply numerical methods for solving first order differential equation, Change the order of integration.

2. Able to Prove, show identities on numerical interpolation, mathematical statement on beta and gamma function, DUIS.

3. Able to Evaluate Definite integral, Double and triple integral by Cartesian to polar coordinates, Volume bounded by curves.

Course: Applied Physics – I

Outcome: At the end of this course students will be

1. Able to state and describe basics of crystal structure parameters, X rays, liquid crystal phases, Semiconductor, Acoustics and Ultrasonic's, Dielectric and Magnetic materials.
2. Able to explain X ray diffraction techniques, variation of Fermi level position , applications of semiconductors , good acoustics, production, materials & applications of ultrasound, magnetic materials and differentiate between types of defects, semiconductor, magnetic materials. and derive characteristics of crystal structure, inter planar distance, Ohms law in magnetic circuit and relation between different parameters of dielectric material.
3. Able to Calculate the parameters of Crystal structure, semiconductor, acoustical of hall, ultrasonics, Magnetic circuit and dielectric materials.
4. Analyze the data and draws conclusion based on solution of problems on crystal structures, Miller Indices, semiconductors.

Course: Applied Physics – II

Outcome: At the end of this course students will be

1. Define basics of interference in thin film & diffraction, optical fiber, Laser , quantum mechanics, superconductivity, and state types and merits of optical fiber, diffraction, de Broglie's duality & uncertainty principle , fundamental blocks of CRO and their applications, approaches of nanotechnology and methods to produce nano materials.
2. Describe and explain the characteristics of thin film , diffraction grating & their applications, optical fiber, construction and working of types of LASER, blocks of CRO & applications, superconductors under different conditions and their applications, approaches and tools of nanotechnology and Derive an expression for thin film interference conditions and its application, Fraunhoffer's diffraction due to silts, optical fiber parameter, equations in quantum mechanics and differentiate between Types of superconductor & optical fiber.
3. Solve numerical based on thin film interference, diffraction, optics parameter, quantum mechanics, electron focusing system
4. Analyze the data and draws conclusion based on solution of problems of thin film interference, diffraction, fiber optics, quantum mechanics, superconductivity, nanoscience & explains applications of thin film interference, superconductivity, nanotechnology and CRO.

Course: Applied Chemistry – I

Outcome: At the end of this course students will be

1. Able to Define and explain Hardness of water its types, BOD & COD, Disinfection, reverse osmosis, polymer, polymerization, plastics and its types rubber, their preparation properties and uses,GT, lubricant and its properties, phase rue cement, refractory and CNTs.
2. Able to discuss estimation of hardness and methods of softening of water, lubrication with mechanism, compounding and fabrication of plastics, applications of plastics in medicine surgery and industry, vulcanization of rubber,reduced phase rule, limitations of phase rule manufacture of cement refractoty and CNT.
3. Able to differentiate or compare various methods of water softening, various types of plastics and various mechanisms of lubrications and apply the phase rule to water system and Pb-Ag system
4. Able to solve numerical based on calculating hardness of water, and softening of water by lime soda and zeolite method, COD of water, Acid No. and Saponification No. of lubricating oil.

Course: Applied Chemistry – II

Outcome: At the end of this course students will be

1. Able to Define and explain Corrosion, Chemical and Electrochemical corrosion, Paint, Metallic coating, Alloy, Purposes of making alloy, composition, properties and uses of non ferrous alloy, Powder metallurgy, Fuel, Characteristics of good fuel, Calorific value, Refining, Knocking, Cracking Octane number and cetane number, propellant, Composite, matrix phase & dispersed phase, Adhesive, Green Chemistry, 12 Principles of green chemistry.
2. Able to discuss Types of corrosion, mechanism. Factors affecting the rate of corrosion. Classification of alloy, steps involved in P.M., Ceramics, Classification, HCV & LCV, Analysis of coal, Refining, Knocking, Cracking, Biodiesel, power alcohol Types of

Composite materials, Physical and chemical factors affecting adhesive action, Bonding process, Synthesis of adipic acid & indigo dye.

3. Able to differentiate between galvanizing and tinning. Or anodic and cathodic coating. Methods of controlling corrosion, effect of alloying elements, Advantages and Applications of PM, Catalytic and thermal cracking. Adv. Of biodiesel, Anti knock agents, Advantages and applications of Composite material and adhesives, Applications of Green chemistry.
4. Able to solve numerical based on calculating GCV & NCV of fuel, the components and elements present in solid fuel. Also the amount of Oxygen and air by weight & volume required for complete combustion of given fuel, atom economy in green chemistry.

Course: Communication Skills

Outcome: At the end of this course students will be

1. Communicate effectively in verbal form through basic language skills
2. Apply grammar and vocabulary effectively for life-long learning
3. Develop basic official correspondence for effective written communication
4. Demonstrate self-education through comprehension of technical texts and basic technical writing

Course: Environmental Studies

Outcome: At the end of this course students will be

1. Able to define EVS, its scope & importance, Natural resources; renewable energy resources, sustainable development, environmental pollution and its sources, MoEF, functions of pollution control boards; Green Building, In-door air pollution, Carbon Credit, Disaster management, earthquake
2. Able to explain effects of environmental pollution, need of public awareness, ecosystem, energy & mass transfer in an ecosystem, social, economic and environmental aspects of sustainable development, 3R, Concept of carbon credit.
3. Able to classify, compare and explain energy resources, Classification & Importance of Natural resources. Explain the impact of global environmental crisis, Ecological succession. Carrying Capacity
4. Able to illustrate, effect of depletion of natural resources, working principle of hydropower, geothermal plants, wind turbines, PV cells, disaster management techniques for earthquake, control of air pollution, various case studies related to Environmental degradation.

Course: Engineering Mechanics

Outcome: At the end of this course students will be

1. Able to state and describe the concepts and types of Force system, Moment, Couple, Equilibrium, Beam and support reaction, Friction, Truss and Basic concept related to Dynamics.
2. Able to identify, classify and explain Types of force system, Conditions of Equilibrium, Zero force member processes, Work energy principle, D'Alemberts principle, Conservation of momentum, draw a-t, v-t, x-t curves.
3. Able to solve the problems on Resultant of force system in 2D and 3D, Support reaction at various load, Centroid, Wedge and ladder friction, Kinematics of particles, kinematics of Rigid body and Kinetics of a Particle.

4. Able to analyze Truss, Friction, Rectilinear Motion, Projectile Motion, Velocities based on Instantaneous Centre of rotation.
5. Able to answer the oral questions/queries by examiner/evaluators and write assignments and answers in English.

Course: Engineering Drawing

Outcome: At the end of this course students will be

1. Able to introduce the basic idea of drawing instruments, symbolic lines & geometric constructions by 1st angle method & significance of I. S. conventions.
2. Able to visualize various views of solid objects, sections & sectional views of given objects.
3. Able to draw & read various orthographic projections & isometric projections of engineering components.
4. Able to draw various engineering curves by standard procedure.
5. Able with basic concepts required to study Machine Drawing especially for Mechanical & Automobile engineering branches.

Course: Structured Programming Approach

Outcome: At the end of this course students will be

1. Able to state, define and describe Algorithms, Data types, operators, function, Control statements, Data Input and Output, Array, String, structure, union.
2. Able to classify, explain and compare control statements and looping constructs in C, Storage Classes, structure and union, Referencing operator & Dereferencing operator.
3. Able to apply, demonstrate and illustrate Looping and Control statements, Passing Arguments to a Function, function concept on problem statements.
4. Able to calculate and analyze One-dimensional and Multidimensional array, Structure within structure, Operation on structures, Array of Structure.
5. Able to create, design and construct different Algorithm and flowchart, control and looping constructs in C.
6. Able to communicate basic concepts in C using different techniques.

Course: Basic Electrical and Electronics Engineering

Outcome: At the end of this course students will be able to

1. State and describe different theorems and equations in D.C and A.C circuits.
2. Classify, compare and explain different electrical and electronics circuits and their analyzing methods.
3. Solve the problems on D.C and A.C circuits.
4. Analyze and calculate parameters of A.C series /parallel circuit and 1phase xmer.
5. Derive and determine expression's and conditions for given circuits.
6. Answer the oral questions/queries by examiner/evaluators and write assignments and answers in English.