

COURSE OUTCOMES (COs)

SUBJECT NAME	COURSE CODE	COURSE OUTCOMES	
Engineering Mathematics-I	107001	C101.1	The students will be able to apply Mean value theorems and its generalizations leading to Taylors and Maclaurin's series useful in the analysis of engineering problems.(BT 3)
		C101.2	The students will be able to obtain Fourier series representation and harmonic analysis for design and analysis of periodic continuous and discrete systems. (BT 4)
		C101.3	Students will be able to apply derivative of functions of several variables that are essential in various branches of Engineering. (BT 3)
		C101.4	The students will be able to apply the concept of Jacobian to find partial derivative of implicit function and functional dependence and use partial derivatives in estimating error and approximation and finding extreme values of the function. (BT 3)
		C101.5	The students will be able to apply essential tool of matrices and linear algebra in a comprehensive manner for analysis of system of linear equations, finding linear and orthogonal transformations, Eigen values and Eigen vectors applicable to engineering problems. (BT 3)
Engineering Physics	107002	C102.1	Develop an understanding of interference, diffraction and polarization; relate it to a few engineering applications.
		C102.2	Develop the basics of lasers and optical fibers; list some of their applications.
		C102.3	Develop the concepts and principles of quantum mechanics; relate them to some applications.
		C102.4	Construct the theory of semiconductors; survey their applications in some semiconductor devices.
		C102.5	Identify the basic principles of magnetism and superconductivity; explore few of their technological applications.
		C102.6	Comprehend use of concepts of physics for Non Destructive Testing; list some properties of nano materials and survey some of their applications.
Engineering Chemistry	107009	C109.1	Identify and apply suitable waste water treatment techniques.
		C109.2	Identify and compare instrumental techniques for analysis.
		C109.3	Understand the knowledge of polymer materials for futuristic engineering applications.

		C109.4	Analyze the quality parameters of chemical fuels.
		C109.5	Understand the basic concepts of nanotechnology and Hydrogen.
		C109.6	Understand the causes of corrosion, its consequences and Apply methods to minimize corrosion to improve industrial designs.
Systems In Mechanical Engineering	102003	C103.1	Describe and compare the conversion of energy from renewable and non-renewable energy sources
		C103.2	Explain basic laws of thermodynamics, heat transfer and their applications
		C103.3	List down the types of road vehicles and their specifications
		C103.4	Illustrate various basic parts and transmission system of a road vehicle
		C103.5	Discuss several manufacturing processes and identify the suitable process
		C103.6	Explain various types of mechanism and its application.
Basic Electrical Engineering	103004	C104.1	Differentiate between electrical and magnetic circuits and derive mathematical relation for self and mutual inductance along with coupling effect.
		C104.2	Calculate series, parallel and composite capacitor as well as characteristics parameters of alternating quantity and phasor arithmetic
		C104.3	Derive expression for impedance, current, power in series and parallel RLC circuit with AC supply along with phasor diagram
		C104.4	Relate phase and line electrical quantities in polyphase networks, demonstrate the operation of single phase transformer and calculate efficiency and regulation at different loading conditions
		C104.5	Apply and analyze the resistive circuits using star-delta conversion KVL, KCL and different network theorems under DC supply.
		C104.6	Evaluate work, power, energy relations and suggest various batteries for different applications, concept of charging and discharging and depth of charge.
Basic Electronics Engineering	103010	C110.1	Explain the working of P-N junction diode and its circuits.
		C110.2	Identify types of diodes and plot their characteristics and also can compare BJT with MOSFET.
		C110.3	Build and test analog circuits using OPAMP and digital circuits using universal/basic gates and flip flops.

		C110.4	Use different electronics measuring instruments to measure various electrical parameters.
		C110.5	Select sensors for specific applications.
		C110.6	Describe basics of communication system.
Programming and Problem Solving	110005	C105.1	Apply various skills in problem solving.
		C105.2	Choose most appropriate programming constructs and features to solve the problems in diversified domains.
		C105.3	Apply the programming skills for the problems those require the writing of well-documented programs including use of the logical constructs of language,Python.
		C105.4	Apply significant experience with the Python program development environment.
Engineering Mechanics	1100011	C111.1	Determine resultant of coplanar concurrent.
		C111.2	Determine centroid, second moment of area and solve problems on dry friction.
		C111.3	Analyze simple equilibrium systems, determine reactions of beams and calculate forces in cables using principles of equilibrium.
		C111.4	Analyze trusses for member forces, frames for joint reactions and apply principles of resultant and equilibrium to forces in space.
		C111.5	Calculate position, velocity and acceleration of particle in rectilinear, curvilinear and projectile motion using principles of kinematics.
		C111.6	Calculate position, velocity, acceleration, work done, energy, power, impulse, momentum of particle using principles of kinetics.
Workshop	111006	C106.1	Familiar with safety norms to prevent any mishap in Workshop
		C106.2	Handle appropriate hand tool, cutting tool and machine tools to manufacture a job
		C106.3	Understand the construction, working and functions of machine tools and their parts.
		C106.4	Know simple operations (Turning and Facing on Centre Lathe machine)
Engineering Mathematics-II	107008	C108.1	Students will be able to solve Differential Equation (DE) of first order & first degree using appropriate method.
		C108.2	Students will be able to apply knowledge of differential equation to solve practical problems such as Newton's Law of cooling, L-C-R circuit, Rectilinear Motion, Heat Transfer, Orthogonal Trajectories.
		C108.3	Students will be able to apply the concept of Fourier Series expansions & find the Fourier Coefficients

			using integral formulae or Harmonic analysis. Evaluate integrals using Beta, Gamma, Reduction and DUIS techniques.
		C108.4	Students will be able to analyze the equation of curve, trace the curve and measure arc length of the curve.
		C108.5	Students will be able to apply the concepts of 3-D geometry to find equation of Sphere, Cone and Cylinder in various form.
		C108.6	Students will be able to evaluate multiple integrals and find area bounded by curves, volume bounded by surfaces, Centre of gravity and Moment of inertia.
Engineering Graphics	102012	C112.1	Draw the fundamental engineering objects using basic rules and able to construct the simple geometries.
		C112.2	Draw fully-dimensioned 2D, 3D drawings using computer aided drafting tools.
		C112.3	Construct the various engineering curves using the drawing instruments
		C112.4	Apply the concept of orthographic projection of an object to draw several 2D views and its sectional views for visualizing the physical state of the object.
		C112.5	Apply the visualization skill to draw a simple isometric projection from given orthographic views precisely using drawing equipment.
		C112.6	Draw the development of lateral surfaces for cut section of geometrical solids.
Environmental Studies-I	101007	C107.1	Demonstrate an integrative approach to environmental issues with a focus on sustainability
		C107.2	Explain and identify the role of the organism in energy transfers in different ecosystems.
		C107.3	Distinguish between and provide examples of renewable and non renewable resources & analyze personal consumption of resources.
		C107.4	Identify key threats to biodiversity and develop appropriate policy options for conserving biodiversity in different settings.
Environmental Studies-II	101014	C114.1	Have an understanding of environmental pollution and the science behind those problems and potential solutions.
		C114.2	Have knowledge of various acts and laws and will be able to identify the industries that are violating these rules.
		C114.3	Assess the impact of ever increasing human population on the biosphere: social, economic issues and role of humans in conservation of natural resources.
		C114.4	Learn skills required to research and analyze

			environmental issues scientifically and learn how to use those skills in applied situations such as careers that may involve environmental problems and/or issues
Project Based Learning	110013	C113.1	Students will be able to define, analyze and solve societal, health and safety problem.
		C113.2	Students will be able to Identify and apply appropriate tools.
		C113.3	Students will be able to apply ethical practices, project management techniques and work in team
		C113.4	Students will be able to communicate effectively in verbal and written form.
Language and Communication Skills		C116.1	The student are well acquainted with Listening, Speaking, Reading and Writing Skills
		C116.2	Use correct words according to the situation and construct sentences.
		C116.3	Pronounce, articulate and speak effectively.
		C116.4	Think critically and take decisions in day to day situations as a part of the team.
		C116.5	Communicate effectively.