

Course Outcomes (CO) - B. Tech. - SEMESTER I & II

Sr. No.	Subject Code	Course Title	Code	Course Outcome
1	ELE 105 /ELE 205	Electro-techniques	a	To acquire knowledge and comprehend fundamentals of electromagnetism, to develop the capability to solve the magnetic circuits using the fundamental laws
			b	To know the various applications which work on the principle of electromagnetic induction
			c	To develop a skill to choose appropriate electrical machine required for an application by analyzing their performance parameters like efficiency, voltage regulation in case of static devices and speed regulation in case of rotary machines.
			d	To analyse various configurations of electrical circuits working with alternating supply (both single phase and three phase)
			e	To know how to make measurements of various quantities in single phase and three phase circuits
2	COM108/ COM208	Fundamentals of Computers and Programming	a	Demonstrate a basic understanding of computer hardware and software
			b	Develop proficiency in writing small to medium sized programs in a procedural programming language.
			c	Apply problem-solving skills and knowledge of computing fundamentals to a wide variety of engineering, science and technology problems
			d	Expose, diagnose, and fix errors in a program, using systematic testing and debugging techniques
			e	Have developed interest in the field of computers to be able to adjust to the demands of current trends and technology

3.	ASM-101/ ASM-201	Engineering Mathematics – I	a	Develops skill of higher derivative, expansion of functions in ascending power of variable & value of the function in neighborhood of some points.
			b	Able to determine limits of indeterminate function. Applicable to already word problems & Engineering Problems.
			c	Gain the knowledge to solve differential equation arising in different Engineering branch and able to form mathematical & physical interpretation of its solution which place important role in all branches of Engineering.
			d	Learn the evaluation policy of some special function like gamma & Beta function. & their relation which is helpful to evaluate some definite integral arising in various branch of Engineering.
			e	Able to calculate rank of matrix, characteristic equation & characteristic roots & use the applicability of Cayley Hamilton Theorem to find inverse of matrix which is very important in many engineering application.
			f	Develops the ability to trace the curve for a given equation of a curve & its nature.
			g	Gain knowledge to find radius of curvature & torsion of given curve which is helpful in civil Engineering , Mechanical Engineering & Rods and Building Construction & it is also useful in Research & development.
4.	ASP102 / ASP202	Engineering Physics	a	Gain basic understanding of the combined effect of electric and magnetic fields their application for designing various electromagnetic and semiconductor devices.
			b	Acquire fundamentals of Optics, especially wave nature of light (e.g., interference etc.) and its

				applications towards telescopes, microscopes, astronomy and fibre optics.
			c	Develop basic knowledge on the historical development and time-to-time applications of quantum mechanics in electronic devices (e.g., Photovoltaic cell, Hall sensor etc.).
			d	Obtain basic understanding of the particle nature of light (e.g., Photoelectric effect, Compton scattering etc.) and their applications.
			e	Gain basic knowledge on the properties, production and applications of X-rays.
			f	Understand the fundamentals of atomic structure and related theory & experiments.
			g	Attain basic knowledge on different types of LASERs and their applications.
			h	Develop an ability to conduct experiments, as well as to analyse and interpret data related to the Electromagnetism, Optics, Modern and Laser Physics.
5	ASC103/ASC203	Engineering Chemistry	a	Gain knowledge about types of boiler problems, various physical and chemical techniques for water treatment and its analysis, desalination process used to produce potable water from brackish water.
			b	Differentiate between air and water pollution. Posses the knowledge about their adverse effect on the environment and their preventive measures.
			c	Gain chemical knowledge on concepts of polymers, their structural properties and moulding techniques required for solving interdisciplinary problems in polymer industries.
			d	Gain basic knowledge about biomolecules, nanomaterials, fullerenes, super conductors, and brass alloy, and also able to apply them in multi-

				disciplinary engineering branches.
			e	Acquire knowledge on dyes and drugs, methods of dyeing, color theory, synthesis of antimalarial and antibiotic drugs.
			f	Perform the experiments on pH-metry, Potentiometry, Conductometry, Colorimetry and chromatography as well as to analyze and interpret the data to address issues related to engineering problems.
			g	Acquire the knowledge of various types of Corrosion, their significance and preventive measures.
			h	Acquire the basics of non conventional sources of energy and green chemistry.
6	AMD 104/ AMD 204	Engineering Mechanics	a	Solve for the resultants & moments of any force systems and determine equivalent force systems
			b	Determine the internal forces in plane trusses and beams
			c	Solve the mechanics problems associated with friction forces
			d	Obtain the centroid, first moment and second moment of an area
			e	Describe the motion of a particle in terms of its position, velocity and acceleration in different frames of reference and analyze the forces causing the motion of a particle
			f	Apply work, energy, impulse and momentum relationships for a particle in motion
			g	Understand free & forced vibration, single degree of freedom, concept of earthquake induced waves and its affect.

7	CIME 105 / CIME 205	Engineering Drawing	a	To read, understand and apply the knowledge of orthographic projections (production related features and instructions) in manufacturing industry, process industry and other allied engineering application.
			b	To communicate with the globally recognized engineers and the engineers of different discipline of engineering for research and development activities.
			c	To get knowledge of projections of different solid objects.
			d	To perceive the idea of sectional view and advantages of it.
			e	To apply the concept of intersections of solids for various engineering applications.
			f	To understand and apply the concept of surface development for fabricating and manufacturing industrial devices.
			g	To create the image of three dimensional figures with the help of isometric projections.
8	CICH106 /CICH206	Basics of Civil and Environmental Engineering	a	A clear appreciation and understanding of the scope of environmental engineering and the types of problems and issues that are involved
			b	An understanding of the interdisciplinary nature of problems associated with environmental engineering and the environment, and the broad range of skills and expertise that are required
			c	The global climate system and human interactions of major biogeochemical cycles sufficiently to critically evaluate forecasts for global change
			d	To describe and apply the fundamentals of air and water pollution to solve basic environmental engineering problems

			e	The objectives of water and wastewater treatment and to the most important regulations for sustainable development.
9	EC109/ EC209	Basics of Electronics Engineering	a	Analyze components associated with digital and analog electronic systems.
			b	Demonstrate proficiency in the use of electronic equipment and devices.
			c	Assist in the design, operation, and troubleshooting of electronic systems.
			d	Analyzing electronics devices and circuits using computer simulations.
			e	Solve electronic devices and systems using mathematical concepts.
10	MED 210 / MED 110	Basic Mechanical Systems	a	Gain knowledge about different conventional and non-conventional energy sources
			b	Differentiate between different types of fuels and their calorific values and able to calculate the minimum mass (or volume) of air required for complete combustion of fuels
			c	Gain knowledge about various types of boilers, the mountings and accessories and able to calculate the boiler efficiency and to design the chimney dimensions
			d	Perform thermodynamic analysis of Otto, Diesel and Dual cycle models
			e	Differentiate between the types and working of internal combustion engines: 2-stroke/4-stroke engines & SI and CI engines
			f	Acquire the knowledge of the operation, construction and design of various components of thermal, hydro- and nuclear power plants
			g	Operate the machine tools like lathe, shaper and drilling machine

			h	Possess the knowledge about the principles of operation of various refrigeration and air conditioning systems for domestic as well as industrial purpose.
11.	ASE 111/ ASE211	English and Communication Skills	a	Ability to prepare and make small presentations
			b	Ability to write effective business letters, emails, CV and reports
			c	Comprehend answering strategies in group discussions and interviews
			d	Ability to voice opinion in discussions and convey ideas
			e	Comprehend different types of communication and importance of effective communication in a work place
12.	MED 112 / MED 212	Workshop Practice	a	Acquire knowledge of the safety measures which are followed in workshop while using hand tools and general purpose machine tools.
			b	Develop creativity, craftsmanship, approach to work and planning capabilities within students.
			c	Given a drawing of a product/part such as carpentry job, fitting job, sheet metal job, assembly of system and pipe fitting, apply the various hand tools and general purpose machine tool to make or assemble the product/part.
			d	Select and use various measuring and gauging instrument which are required for different types of jobs.
13.	ASM-102/ ASM 202	Engineering Mathematics – II	a	Gain the knowledge to develops the concepts of surface $Z = f(x, y)$, its partial derivatives, Euler Theorem & modified Euler Theorem for homogenous function & deduction develops ability to solve problems related to partial derivatives.
			b	Learn to expand any functions of two variables in

				the ascending power of variables and also develops error and approximation, extremum value of a given function related to engineering application.
			c	Develops the ability to solve higher order & first degree linear non homogenous differential equation arising in various branch of engineering and related mathematical model develops arising to form mathematical modeling of Real World Problem with its physical interpretation.
			d	Solve some differential equation which is not solvable in ordinary case but its series solution gives an idea of developing special function which has important role in some physical phenomena arising in engineering problems.
			e	Develop the concepts of Laplace transformation & inverse Laplace Transform with its property to solve partial Differential equation and Ordinary Differential Equation with given boundary conditions which is helpful in all engineering & research work.