

COURSE OUTCOMES ( M.E - ENGINEERING DESIGN)

REGULATION: 2017

S.NO	COURSE NAME	COURSE OUT COMES	
1	C101- Applied Mathematics for Engineers	C101.1	Apply various methods in matrix theory to solve system of linear equations.
		C101.2	Analyze the Maximize and minimize functional that occur in various branches of Engineering Disciplines.
		C101.3	Compute probability, standard distributions of discrete and continuous random variables.
		C101.4	Acquire the concept of Laplace transforms in Partial Differential Equations.
		C101.5	Evaluate the Fourier transforms in Partial Differential Equations.
2	C102 - Engineering Fracture Mechanics	C102.1	Understand elastic, plastic and elasto-plastic deformation under stress -strain condition.
		C102.2	Apply the concepts of fatigue crack with the design of components under static load condition.
		C102.3	Analyse the energy balance with the design of components under static load condition.
		C102.4	Evaluate the crack growth with the design of components under static load condition.
		C102.5	Familiarise with the design of components that contain crack and its growth under fatigue load condition.
3	C103 - Computer Applications in Design	C103.1	Familiarize with the computer graphics application in design.
		C103.2	Understand the parametric curves and surfaces generated in computer graphics.
		C103.3	Explain the parametric solids generated in computer graphics.
		C103.4	Understand the visual reality in parametric curves, surfaces and solids generated in computer graphics.
		C103.5	Understand the computer aided design standards systems in various softwares.
4	C104 - Quality Concepts in Design	C104.1	Understand the design fundamentals and design of casting, forging, machining, metal forming and welding.
		C104.2	Familiarise the quality of design, to conduct and analyse experiments.
		C104.3	Apply failure mode and effect analysis and design for six sigma.
		C104.4	Acquire knowledge of the design of experiments.
		C104.5	Understand the reliability principles in the design of an engineering product or a service.

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5	C105 - Advanced Finite Element Analysis	C105.1	Understand the Finite Element Formulation of Plate and Shell Elements and its application.
		C105.2	Knowledge in material & geometric non-and plasticity.
		C105.3	Apply the Finite Element coincepts under dynamic conditions.
		C105.4	Analyse the Finite Element concepts in fluid mechanics and heat transfer.
		C105.5	Acquiant the error norms, convergence rates and refinement in finite element method.
6	C106 - Design of Material Handling Equipments	C106.1	Understand about various material handling equipment.
		C106.2	Design the chain, rope, hooks and brakes in material handling equipment.
		C106.3	Able to develop the gear drives and cranes in material handling equipment.
		C106.4	Design the various conveyors and escalators.
		C106.5	Acquire design concepts of elevators, hoisting machine and forklift trucks.
7	C107 - CAD Laboratory	C107.1	Ability to use software package for three dimensional modelling software
		C107.2	Study the commands, toolbars and menus of the software.
		C107.3	Ability to create 3D models of mechanical Components.
		C107.4	Ability to do drafting and detailing of mechanical Components.
		C107.5	Ability to check interference in assembly of mechanical components.
8	C108 - Advanced Analysis and Simulation Laboratory	C108.1	Ability to analyse stress and deflection on beam.
		C108.2	Ability to do thermal analysis and heat transfer on plates.
		C108.3	Ability to do vibration analysis on spring mass system.
		C108.4	Ability to analyse 3D models of mechanical Components.
		C108.5	Understand the basics of MATLAB.
9	-Mechanisms Design and Simulation	C109.1	Understand the fundamentals of kinematic in mechanism and robots.
		C109.2	Analyse the kinematics of variuos mechanisms and robot manipulators.
		C109.3	Understand the fundamentals concept of coupler curve in mechanisms.
		C109.4	Apply the concepts on synthesis of four bar mechanism.

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	C109	C109.5	Acquaint concepts on synthesis of coupler curve based mechanism.
10	C110 - Mechanical Behaviour of Materials	C110.1	Understand the concept of material and its behaviour.
		C110.2	Analyse the material behaviour under dynamic loads and design approach.
		C110.3	Acquire the concept of material selection.
		C110.4	Explain the modern metallic materials.
		C110.5	Discuss the properties and application of non metallic materials
11	C111 - Integrated Mechanical Design	C111.1	Investigation on shaft subject to combined static and variable loads.
		C111.2	Design of gears and gear boxes for various applications.
		C111.3	Analyse about brakes and clutches under dynamic loads.
		C111.4	Examine the integrated design while assembling variuos components.
12	C112 - Vibration Analysis and Control	C112.1	Apply the fundamental concepts of vibrating system.
		C112.2	Analyse two degree of freedom system under free and forced vibration.
		C112.3	Acquire the concepts of multi degree freedom and continuous system.
		C112.4	Examine vibration control of mechanical systems.
		C112.5	Demonstrate the Experimental methods in vibration analysis
13	C113 - Advanced Metal Forming Techniques	C113.1	Understand the theory of plasticity and forming.
		C113.2	Analyse manufacturing methods of forming with finite element methods.
		C113.3	Acquire concept of sheet metal forming techniques.
		C113.4	Study the powder metallurgy and special forming processes.
		C113.5	Acquaint electromagnetic forming and its application.
14	-Advanced Mechanics of Materials	C114.1	Understand basic concept of elasticity.
		C114.2	compute the deflection of beams under unsymmetrical bending condition.
		C114.3	Evaluate the stresses in flat plate and curved members.
		C114.4	Analyse the torsion on non circular sections.

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	C114	C114.5	Determine the stresses in rotating member and contact stresses.
15	C115 - Vibration Laboratory	C115.1	Determine the overall response based upon the initial conditions.
		C115.2	Study the effect of dynamics on vibrations.
		C115.3	Compute the natural frequency (or frequencies) of vibratory systems.
		C115.4	Determine the system's modal response.
		C115.5	Develop a passive vibration absorber in a forced system.
16	C116 - DESIGN PROJECT	C116.1	Identify / Analyze a problem in Mechanical Engineering field.
		C116.2	Demonstrate a depth of knowledge of Mechanical Engineering.
		C116.3	Analyze complex Mechanical Engineering problems. Develop appropriate tools to find the solution for the problem.
		C116.4	Apply appropriate Engineering techniques, methodology and design processes of any components.
		C116.5	Develop solutions to problems and apply innovative approaches in design of Mechanical systems and machines.
17	C117 - Product Lifecycle Management	C201.1	Understand the basic concept of Product lifecycle management
		C201.2	Gain knowledge on PLM/PDM functions and features.
		C201.3	Study the PLM modules of PLM softwares.
		C201.4	Examine the role of PLM in industries.
		C201.5	Develop customisation of PLM/PDM software.
18	C201 - DESIGN OF HYDRAULIC AND PNEUMATIC SYSTEMS	C202.1	Summarize the features and function of hydraulic motors, actuators
		C202.2	Explain the different types of pressure valves and regulation elements
		C202.3	Explain the different type of Hydraulic circuit and systems
		C202.4	Explain the different type of Pneumatic circuit and Electro pneumatic systems
		C202.5	Explain the circuit analysis of Electromagnetic and electronic control of Hydraulic and Pneumatic
	Case I)	C202.1	Student apply the knowledge gained to create projects that meet industrial requirement

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19	C202 - Project Work (Phase I)	C202.2	Familiarize with designing solutions for complex engineering problems and design system components.
		C202.3	Applying ethics principles and to commit the responsibilities and norms of engineering practice,
		C202.4	Recognize the need for the preparation and the ability to engage in independent thereby also promoting to communicate effectively on complex engineering activities and being able to design and write effective documentation.
20	C203 - Project Work (Phase II)	C203.1	Apply the knowledge of Engineering fundamentals, mathematics and an engineering specialization, thereby formulating research work and analyse complex engineering problems.
		C203.2	Familiarize with designing solutions for complex engineering problems and design system components, thereby formulating research based knowledge for the design of project work.
		C203.3	Impart appropriate techniques, resource and modern engineering and modeling to engineering design problems with an understanding of the limitations.
		C203.4	Applying Engineering ethics principles and to commit the responsibilities and norms of engineering practice, at the same time functioning effectively as a individual and holding good team work.
		C203.5	Recognize the need for the preparation and the ability to engage in independent and life-long learning process, thereby also promoting to communicate effectively on complex engineering activities and being able to design and write effective documentation.