

**AMRUTVAHINI COLLEGE OF ENGINEERING, SANGAMNER****Department of Mechanical Engineering****Course Outcome (CO)****S.E 2015 PATTERN**

Sr no	Course	C.N.	Course Code	Course Outcome
1.	<b>Engineering Mathematics – III</b>	<b>C201</b>	<b>207002</b>	Solve higher order linear differential equations and its applications to model and analyze mass spring systems
				Apply Integral transform techniques such as Laplace transform and Fourier transform to solve differential equations involved in vibration theory, heat transfer and related mechanical engineering applications
				Apply Statistical methods like correlation, regression in analyzing and interpreting experimental data applicable to reliability engineering & To apply probability theory in testing and quality control.
				Perform Vector differentiation , analyze the vector fields and APPLY to fluid flow problems
				Perform Vector integration, analyze the vector fields and APPLY to fluid flow problems
				Solve Partial differential equations such as wave equation, one and two dimensional heat flow equations.
2.	<b>Manufacturing Process-I</b>	<b>C202</b>	<b>202041</b>	Select appropriate molding, core making and melting practice and estimate pouring time, solidification rate and Design riser size and location for sand casting process.
				Understand and analyze Hot and Cold Working, Rolling, Forging, Extrusion and Drawing Processes.
				Understand the Difference of thermoplastics and thermosetting and Explain polymer processing techniques
				Classify and Explain different welding processes and Evaluate welding characteristics
				Understand, Design and Analyze different sheet metal working processes.
				Understand the constructional details and Working of Centre Lathe.
3.	<b>Computer Aided</b>	<b>C203</b>	<b>202042</b>	Understand the importance of CAD in the light of allied technologies such as CAM,CAE, FEA, CFD,

	<b>Machine Drawing</b>			PLM.
				Understand the significance of parametric technology and its application in 2D sketching.
				Understand the significance of parametric feature-based modeling and its application in 3D machine Component Modeling.
				Ability to create 3D assemblies that represent static or dynamic Mechanical Systems.
				Ability to ensure manufacturability and proper assembly of components and assemblies.
				Ability to communicate between Design and Manufacturing using 2D drawings.
4.	<b>Thermodynamics</b>	<b>C204</b>	<b>202043</b>	Interpret various laws of thermodynamics
				Understand the concept of entropy and various gas laws
				Explain various gas power cycles, gas refrigeration cycles and availability
				Determine performance parameters of various vapour power and vapour refrigeration cycles
				Demonstrate steam generators and their performance parameters
				Demonstrate various psychrometric processes
5.	<b>Material Science</b>	<b>C205</b>	<b>202044</b>	Understand the fundamentals (structure, properties) of materials, apply these fundamentals to select materials and process for real word problems.
				Analyze different types of crystal structure, crystal imperfections and its effect on material properties.
				Understand and analyze destructive and nondestructive techniques.
				Understand, articulate and utilize corrosion prevention techniques.
				Understand and articulate surface modification techniques for real world engineering problems.
				Recognize powder metallurgy and it's practical applications.
6.	<b>Strength of Materials</b>	<b>C206</b>	<b>202051</b>	DEFINE various types of stresses- strain developed on determinate, Indeterminate members ,composite sections and temperature stresses
				DRAW Shear force and bending moment diagram for various types beams with Transverse Loading and supports.
				COMPUTE the Moment of inertia, bending stresses and shear stresses on a beam for Different cross sections of the beam.

				EVALUATE the slope & deflection at different locations of various beams and Understood the concept of Strain energy.
				CALCULATE torsional shear stresses in shaft and critical load on the column using Euler's and Rankin theory.
				APPLY the concept of principal stresses and theories of failure to determine stresses On a 2-D element.
7.	<b>Audit course</b>	<b>C207</b>	<b>202055</b>	Understood human values, their significance and role in life.
				Promote self-reflection and critical inquiry that foster critical thinking of one's value and the values of others.
				Practice respect for human rights and democratic principles.
				Familiarized with various living and non-living organisms and their interaction with environment.
				Understood the basics regarding the leadership and to become a conscious professional.
8.	<b>Fluid Mechanics</b>	<b>C208</b>	<b>202045</b>	Understand basic properties of fluids.
				Learn fluid statics and dynamics
				Study basics of flow visualization
				Understand Bernoulli's theorem and its applications
				Understand losses in flow, drag and lift forces
				Learn to establish relation between flow parameters.
9.	<b>Soft Skills</b>	<b>C209</b>	<b>202047</b>	DEVELOP understanding about self through SWOT analysis
				DEVELOP the listening and effective oral presentation skill.
				UNDERSTAND the job profile and write resume according to respective job profiles
				APPLY the writing skills to communicate with industries through e-mails.
				DEVELOP the abilities as team member and leadership qualities in group discussion activities.
10.	<b>Theory of Machines – I</b>	<b>C210</b>	<b>202048</b>	Identify mechanisms in real life applications.
				Perform static and dynamic analysis of slider crank mechanisms and Determine moment of inertia of rigid bodies experimentally

				Classify & Explain working of friction clutches, brakes & dynamometers
				Perform kinematic analysis of mechanisms by analytical method
				Analyze velocity and acceleration of simple mechanisms by graphical methods.
				Analyze velocity and acceleration of mechanisms involving Coriolis component of acceleration by graphical methods.
11.	<b>Engineering Metallurgy</b>	<b>C211</b>	<b>202049</b>	To understand and describe how metals and alloys formed and how the properties change due to microstructure .
				To conduct experiments , as well as to analyze and interpret data
				Apply core concept in Engineering Metallurgy to solve engineering problems
				Recognize how metals can be strengthened by alloying ,cold working and heat treatment
				Select materials for Design and Construction
				Recognize how metals can possess the skills and techniques necessary for modern materials engineering
12.	<b>Applied Thermodynamics</b>	<b>C212</b>	<b>202050</b>	Learn fundamentals of I.C.Engines, construction and working Principle of an engine and compare Actual, Fuel-Air and Air standard cycle performance.
				Understand Combustion in SI and CI engines and its controlling factor in order to extract maximum power.
				Explain emission from IC Engines and its controlling method, Various emission norms.
				Test testing of I. C. Engines and methods to estimate Indicated, Brake and Frictional Power and efficiencies.
				Understand theory and performance Calculation of Positive displacement compressor.
				Study the various aspect of IC Engine through visit of Automobile service station.
13.	<b>Electrical &amp; Electronics Engineering</b>	<b>C213</b>	<b>202052</b>	Understand and apply different types of DC Machines And Speed control Methods
				Distinguish and Analyse between different types of 3 phase IM And Characteristics
				To Understand and apply different types of special Purpose MOTOR
				Apply programming concept to UNDERSTAND

				role of Microprocessor and
				Understand Microcontroller in embedded systems"
				"DEVELOP interfacing of different types of sensors and other hardware devices with Atmega 328 microcontroller
14.	<b>Machine Shop – I</b>	<b>C214</b>	<b>202053</b>	Understanding of Various shop floor machine activities.
				Design and Manufacturing of spur gear on milling machine using indexing head.
				Understand the operations on Surface grinding using table grinder.
				Design and Manufacturing of sheet metal component involving different operation with the use dies and press.
				Design and Manufacturing of plastic components by understanding various plastic manufacturing processes.