

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. | Engineering Mathematics – III | C201 | 207002 | 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. | Manufacturing Process-I | C202 | 202041 | 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. | Computer Aided | C203 | 202042 | Understand the importance of CAD in the light of allied technologies such as CAM,CAE, FEA, CFD, |

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

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

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| | | | | 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. | Engineering Metallurgy | C211 | 202049 | 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 intrprt 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 |
| | | | | Recozine how metals can be possess the skills and techniques necessary for modern materials engineering |
| 12. | Applied Thermodynamics | C212 | 202050 | Learn fundamentals of I.C.Engines,constructin 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. | Electrical & Electronics Engineering | C213 | 202052 | 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 |

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| | | | | 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. | Machine Shop – I | C214 | 202053 | 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. |
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