Department of Mechanical Engineering

Course Outcomes [CO'S]

CLASS: SECOND YEAR [2019 COURSE]

SUBJECT/CODE: Solid Mechanics [202041]

1. To acquire basic knowledge of stress, strain due to various types of loading.
2. To draw Shear Force and Bending Moment Diagram for transverse loading.
3. To determine Bending, Shear stress, Slope and Deflection on Beam.
4. To solve problems of Torsional shear stress for shaft and Buckling for the column.
5. To apply the concept of Principal Stresses and Theories of Failure.
6. To utilize the concepts of Solid Mechanics on application based combined mode of loading.

SUBJECT/CODE: Solid Modeling and Drafting [202042]

1. To understand basic structure of CAD systems and their use to create geometric models of simple engineering parts.
2. To introduce the curves and surfaces and their implement in geometric modeling.
3. To apply basic concepts of 3D modeling, viewing and evaluate mass properties of components and assemblies.
4. To apply geometrical transformations in CAD models.
5. To understand data exchange standards and translators for various applications.
6. To create engineering drawings, design documentation and use in manufacturing activities.

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SUBJECT/CODE: Engineering Thermodynamics [202043]

1. To introduce the fundamentals of thermodynamics.
2. To understand the concepts of laws of thermodynamics.
3. To apply the concepts of thermodynamics towards open and closed systems.
4. To be acquainted with Entropy generation and Exergy Analysis.
5. To understand the behaviour of a Pure substance and to analyze Vapour power cycles.
6. To undertake the performance analysis of a steam generator.

SUBJECT/CODE: Engineering Materials and Metallurgy [202044]

1. To impart fundamental knowledge of material science and engineering.
2. To establish significance of structure property relationship.
3. To explain various characterization techniques.
4. To indicate the importance of heat treatment on structure and properties of materials.
5. To explain the material selection process.

SUBJECT/CODE: Electrical and Electronics Engineering [203156]

1. To understand Arduino IDE; an open source platform and its basic programming features.
2. To interface Atmega328 based Arduino board with different devices and sensors.
3. To study principle of operation of DC machines and speed control of DC motors.
4. To know about three phase induction motor working and its applications.
5. To get acquainted with Electric Vehicle (EV) technology and subsystems.
6. To get familiar with various energy storage devices and electrical drives.

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SUBJECT/CODE: Geometric Dimensioning and Tolerancing Lab [202045]

1. To understand requirements of industrial drawings.
2. To read, understand and explain basic Geometric Dimensioning & Tolerancing concepts.
3. To apply various geometric and dimension tolerances based on type of fit.
4. To include surface roughness symbols based on manufacturing process.
5. To measure and verify position tolerances with applied material conditions.
6. To understand requirements for manufacturing and assembly.

SUBJECT/CODE: Engineering Mathematics - III [307002]

1. To make the students familiarize with concepts and techniques in Ordinary & Partial differential equations, Laplace transform & Fourier transform, Statistical methods, Probability theory and Vector calculus.
2. The aim is to equip them with the techniques to understand advanced level mathematics and its applications that would enhance analytical thinking power, useful in their disciplines.

SUBJECT/CODE: Kinematics of Machinery [202047]

1. To make the students conversant with kinematic analysis of mechanisms applied to real life and industrial applications.
2. To develop the competency to analyze the velocity and acceleration in mechanisms using analytical and graphical approach.
3. To develop the skill to propose and synthesize the mechanisms using graphical and analytical technique.
4. To develop the competency to understand & apply the principles of gear theory to design various applications.
5. To develop the competency to design a cam profile for various follower motions.

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SUBJECT/CODE: Applied Thermodynamics [202048]

1. To determine COP of refrigeration cycle and study Psychrometric properties and processes.
2. To study working of engine, Actual, Fuel-Air and Air standard cycle and its Performance.
3. To understand Combustion in SI and CI engines and factors affecting performance parameters.
4. To study emission from IC Engines and its controlling method, various emission norms.
5. To estimate performance parameters by conducting a test on I. C. Engines.
6. To determine performance parameters of Positive displacement compressor.

SUBJECT/CODE: Fluid Mechanics [202049]

1. To understand basic properties of fluids.
2. To learn fluid statics and dynamics.
3. To study basics of flow visualization.
4. To understand Bernoulli's theorem and its applications.
5. To understand losses in flow, drag and lift forces
6. To learn to establish relation between flow parameters.

SUBJECT/CODE: Manufacturing Processes [202050]

1. Describe various sand and permanent mould casting methods, procedure and mould design aspects.
2. Understand basics of metal forming processes, equipment and tooling.
3. Understand sheet metal forming operations and die design procedure.
4. Classify, describe and configure the principles of various welding techniques.
5. Understand plastic processing techniques.
6. To know about composites, its fabrication processes.

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SUBJECT/CODE: Machine Shop [202051]

1. To understand the basic procedures, types of equipment, tooling used for sand casting and metal forming processes through demonstrations and/(or) Industry visits.
2. To understand TIG/ MIG/ Resistance/Gas welding welding techniques.
3. To acquire skills to handle grinding and milling machine and to produce gear by milling.
4. To acquire skills to produce a composite part by manual process.

SUBJECT/CODE: Project Based Learning - II [202052]

1. To emphasize project based learning activities that are long-term, interdisciplinary and student-centric.
2. To inculcate independent and group learning by solving real world problems with the help of available resources.
3. To be able to develop applications based on the fundamentals of mechanical engineering by possibly applying previously acquired knowledge.
4. To get practical experience in all steps in the life cycle of the development of mechanical systems: specification, design, implementation, and testing.
5. To be able to select and utilize appropriate concepts of mechanical engineering to design and analyze selected mechanical system.

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