MECHANICAL ENGINEERING
SEMESTER PATTERN (CHOICE BASED CREDIT SYSTEM)

COURSE OUTCOMES

THIRD SEMESTER

3ME01 MATHEMATICS - III

Course Outcomes:

Students will be able to -

1. Demonstrate the knowledge to solve ordinary Linear Differential equations with constant coefficient and its reducible equation using particular integral and complementary function and apply method of variation of parameter to solve ordinary Linear differential equations
2. Define the Laplace transform and its inverse transform for the basic functions. Locate the Laplace transform of periodic function. Apply the Laplace transform to solve differential equation
3. Apply False Position, Newton Raphson method to solve nonlinear & polynomial equations Apply Gauss Elimination method, Gauss Seidal iterative method, Relaxation method to solve system of linear equations, Apply Eulers method, Runge-Kutta method, Picards method to solve differential equations
4. Define Gradient, divergent and curl of vector point functions. Finds the directional derivatives of scalar point functions. Discuss the Irrotational and solenoidal vector fields. Define line surface and volume integrals

3ME02 MANUFACTURING PROCESSES

Course Outcomes:

Students will understand the

1. basic concept of foundry process and related activities
2. concept of complete sand casting process with advance casting methods
3. fundamentals of welding processes
4. various processes like electroplating, anodizing etc and their importance in industries

3ME03 MECHANICS OF MATERIALS

Course Outcomes:

Students will be able to -

1. Determine the stress & strain in the member subjected to axial, bending & torsional load
2. To observe different types of material behavior such as elastic, plastic, ductile and brittle
3. Apply SF and BM diagrams to analyze resistance offered by the beam and able to solve practical problems in real world
4. Apply deflection criteria to check the stability of beam

3ME04 ENGINEERING THERMODYNAMICS

Course Outcomes:

Students will be able to

1. Understand the basic concepts of thermodynamics, thermodynamic systems, work and heat
2. Apply first law of thermodynamics and application of first law to flow and non-flow processes
3. Apply second law of thermodynamics and understand concept of entropy
4. Understand the properties of steam, work done and heat transfer during various thermodynamics processes with steam as working fluid
5. Understand the concept of air standard cycles

3ME05 FLUID MECHANICS

Course Outcomes:

The student will be able to:

1. identify importance of various fluid properties at rest and in motion
2. derive and apply general governing equations for various fluid flows
3. Understand the concept of boundary layer theory and flow separation.
4. Calculate energy losses in pipe flow.
5. evaluate the performance characteristics of hydraulic jets

3ME10 Machine Drawing - Lab

Course Outcomes:

Student will be able to -

1. Demonstrate the techniques of sectioning and visualizing the objects
2. Imagine, understand and sketch the missing views
3. Develop surfaces of objects and apply knowledge during their fabrication
4. Understand the concept of intersection of solid objects
5. Understand and apply the conventions for materials and parts used in industries
6. Prepare detail machine assembly drawings

FOURTH SEMESTER

4ME01 MATERIAL SCIENCE

Course Outcomes:

Students will understand the -

1. Basic concepts of metallurgy and types of materials.
2. Iron-Carbon Equilibrium Diagram, critical temperatures, formation of microstructures and they will get the knowledge of alloys.
3. Uses and practical applications of ferrous & nonferrous materials
4. Various heat treatment processes, powder metallurgy and industrial applications.

4ME02 ENERGY CONVERSION - I

Course Outcomes:

1. Students will study the concept steam and steam power plant, mounting and accessories.
2. Students will demonstrate the calculation of various efficiency & related parameters.
3. Student will show the adequate knowledge of fuel & ash handling systems.
4. Students will demonstrate the knowledge of condenser & application.
5. Students will understand the concepts of steam nozzles & steam turbine.

4ME03 MANUFACTURING TECHNOLOGY

Course Outcomes:

1. Apply the knowledge of theory of metal cutting, tool selection & calculate cutting forces
2. Demonstrate the knowledge of basics of turning operations
3. Understand the drilling and boring operations and working of drilling & boring machines
4. Understand the milling and gear cutting operations and working of respective machines
5. Understand the working of grinding, shaper, planer and slotter machines
6. Understand the knowledge of unconventional machining processes

4ME04 BASIC ELECTRICAL DRIVES AND CONTROL

Course Outcomes:

Students will be able to -

7. Understand the working of electrical drives and their components
8. Understand the basics of DC motors and their characteristics
9. Understand the working of AC motors, induction motors and concept of braking
10. Understand the different speed control methods of A.C. and D.C. motors
11. Understand the design of transducers and their applications
12. Understand the industrial applications of different drives

4ME05 HYDRAULIC AND PNEUMATIC SYSTEMS

Course Outcomes:

Students will be able to -

1. Demonstrate basic concepts of prime movers and turbines
2. Utilize the knowledge of centrifugal and reciprocating pumps for applications
3. Reveal the importance of other water lifting devices
4. Solve the elementary treatment on compressible fluid flow
5. Understand the concept of hydrostatic and hydrokinetic systems
6. Use the knowledge of hydraulics & pneumatics in developing project work