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DEPARTMENT OF MECHANICAL & ENGINEERING

SYLLABUS

Name of the Subject	Basic Mech. Engg.	Subject Code	ME102
Semester	I & II	Board of Studies	Mechanical Engg.
Maximum Marks	ESE-35	Minimum Marks	
Lecture Periods/Week	Tutorial Periods/Week	Practical Periods/Week	Credits
2	1	0	3

UNIT – I

Law of Thermodynamics : Thermodynamic systems, property, control volume, work, heat as path function, first Law of thermodynamics, and its application to non-flow and flow process, equilibrium, various process, second law of thermodynamics, its corollaries, clausius inequality, entropy: point function, principle of increase of entropy, entropy change during various thermodynamic processes, Carnot cycle.

UNIT – II

Air Standard Cycles : Otto, Diesel, Dual combustion cycles there efficiencies, mean effective pressure.

Properties of Steam : Types of Steam, Wet, Saturated and Superheated Steam, calculation of heat value of steam of any value.

UNIT – III

Mechanical Properties of engineering materials : Hardness, Ductility, Malleability, Toughness, Brittleness, Stress – Strain Curve for ductile and brittle material etc. Normal and shear stress, Relation between Elastic constants, Stresses in varying cross sectional area, Composite bars on axial loading.

Introduction to manufacturing : Types of Welding – Gas Welding, Arc. Welding, Equipments used, Different types of Welded joints, Working principle, function & specification of Simple Lathe machine, Shaper.

Text Books :-

1. Thermodynamics – R. Yadav
2. Production Technology – Hajra & Choudhary
3. Strength of Materials – Timoshenko & Yound

Reference Books :-

1. Engineering Thermodynamics – P.K. Nag
2. Thermodynamics – Cengel and Boles
3. Manufacturing Process – Bagman
4. Strength of Material – Ryder
5. Strength of Materials – Sadhu Singh