# MECHANICAL ENGINEERING

**Statics** : Simple applications of equilibrium equations.

**Dynamics** : Simple applications of equations of motion, simple harmonic motion, work energy, power.

**Theory of Machines** : Simple examples of links and mechanism, Classification of gears, standard gear tooth profiles wheel types of governors, static(s) and dynamic balancing, Simple examples of vibration of bars, Whirling of shafts.

**Mechanics of Solids** : Stress, strain, Hook's Law, elastic modulii, Bending moments and shearing force diagrams for beams, Simple bending and torsion of beams, Spring, Thinwalled cylinders. Mechanical properties and material testing.

**Manufacturing Science** : Mechanics of metal cutting tool life economics of machining cutting, tool materials. Basic, machining processes, types of machine tools, transfer lines. Shearing drawing spinning, rolling forging extrusion, Different types of casting and welding methods.

**Production Management(s)** : Method and time study, motion, economy and work space design, operation and flow process charts, Product design and cost selection of manufacturing process, Break even analysis, Site Selection, Plant layout, Materials handling selection of equipment for job, Shop and mass production, Duling despatching, Routing.

**Tharmodynamics :** Heat, work and temperature, First and Second laws of thermodynamics, Carnot Rankine, Otto and Diesel-Cycles.

**Fluid Mechanics :** Hydrostatics, Continuity equation, Bemoullis theorem, Flow through pipes, Discharge measurement, Laminar and Turbulent flow, Concept of boundary layer.

**Heat Transfer** : One dimensional steady, state conduction through walls and cylinders, Fins, Concepts of thermal boundary layer, Heat transfer coefficient, Combined heat transfer, Coefficient, Heat ex-exchangers.

**Energy Conversion:** Compression and spark ignition engineers, Compressors, Fans and Blowers, Hydraulic pumps and turbines, Thermal turbo machines, Boilers, Flow of steam through nozzles, Layout of power plants.

**Environmental** Control : Refrigeration cycles, refrigeration equipment **its operation and maintenance, Important refrigerants, Psychometics comfort, Cooling and dehumidification.**