

THIRD YEAR

Course Title: Dynamics of Machinery:

- Understand the principles in mechanisms related to moving vehicles and gyroscope effects.
- Solve the problems on friction in screw and nuts on inclined plane, working of clutches, brakes, dynamometers and its methods of operation.
- Understand the concepts of turning moment diagram and its uses for different machines, methods to construct, working of governors and its simple problems on them.
- Study and examine the effects of unbalances resulting from prescribed motions in mechanism.
- Visualize the effects of dynamics of undesirable vibration.

Course Title: Design of Machine Members – I:

- Apply the fundamental of stress analysis, theories of failure and material science in design of machine members.
- Make proper assumptions with respect to material, factor of safety, load conditions for various machine members.
- Apply stress analysis for knuckle joint , cotter joint and keys
- Design different types of elements used in machine members.

Course Title: Machine Tools: • Develop a strong foundation in machine tool engineering

- Apply knowledge and hands-on competence in design and development of machine tool
- Illustrate the working of lathe, drilling, boring, milling, shaper, slotting, planning machines
- Summarize finishing processes and associated machines

Course Title: Engineering Metrology:

- Understand tolerances and fits for selected product quality.
- Apply appropriate method and instruments for inspection of various gear elements and thread elements.
- Understand the standards of length, angles
- Understand the evaluation of surface finish and measure the parts with various comparators.
- Evaluate the quality of machine tools with alignment test.

Course Title: Thermal Engineering – II:

- Understand ideal steam power cycles.
- Remember various components being used in steam and gas power plants.
- Analyse the energy transfer and transfer motion in power cycle components with their performance evaluation.
- Acquire knowledge on working of rocket and jet propulsion including their performance engines evaluation

Course Title: Design of Machine Members – II:

- Apply the fundamental of theories of failure and material science in design of machine members.
- Understand the process of selection in suitable bearing based on the application of loads and predict the life of bearing.

- Design IC engine parts.
- Design power transmission elements such as gears, belts, chains, pulleys, ropes and power screws.

Course Title: Finite Element Methods:

- Understand the basic concepts and principles related to finite element methods.
- Apply finite element methods for all structural elements.
- Apply finite element methods for heat transfer analysis of 1d and 2d elements.
- Understand dynamic analysis of finite element methods in bars, truss and beams.

Course Title: Heat Transfer:

- Ability to analysis the modes of heat transfer.
- Ability to derive relation for different modes of heat transfer.
- Ability to perform thermal circuit analysis for practical engineering problems by using heat transfer concepts.
- Ability to Analysis and design heat exchangers.

Course Title: Refrigeration & Air Conditioning:

- Understand various refrigeration cycles and working of its system components.
- Acquire knowledge on design aspects of refrigeration and air conditioning equipment's.
- Analyse psychrometry and human comfort.
- Demonstrate various heat pump circuits.

Course Title: Automobile Engineering:

- Identify the layouts and different parts of the automobile.
- Explain the working of various parts like engine, transmission, clutch, brakes, steering, suspension, electrical circuits and need of servicing in automobile engines.
- Understand the environmental implications of automobile emissions
- Develop a strong base for understanding future developments in the automobile industry.