Department of Mechanical Engineering

B.E. 5th Sem

Course: Heat Transfer

At the end of Heat Transfer course the student will be able:

- **CO 1:** To solve steady state heat transfer problems of 1-D heat conduction with and without internal heat generation.
- **CO 2:** To design and analyze the performance of extended surfaces.
- **CO 3:** To describe heat transfer through insulation, design considerations and apply Lumped heat capacity method for analysis of unsteady state heat transfer.
- **CO 4:** To explain the laws of radiation and its applications.
- **CO 5:** To predict heat transfer coefficients for forced and free convection heat transfer applied to internal and external flow conditions.
- **CO 6:** To design and analyze the performance of heat exchangers using NTU and LMTD methods.

Course: Metrology & Quality Control

Course Code: (5ME02)

At the end of Metrology & Quality Control course the student will be able:

- **CO 1:** To study concept of inspection, quality control and its importance to industry.
- **CO 2:** To explain the skills of controlling various out of control processes using statistical quality control tools.
- **CO 3:** To understand the importance of improving production and productivity using work study approach
- **CO 4:** To understand the standards of measurements: line standards, end standard, wave length Standard.
- **CO 5:** To study concept of linear measurement and angular measurements.
- **CO 6:** To study advance inspection techniques CMM, profile projector.

Course Code: (5ME01)

Course: Kinematics of Machines

Course Code: (5ME03)

At the end of Kinematics of Machines course the student will be able:

- **CO 1:** To present the knowledge of basic parts of mechanisms and machines.
- **CO 2:** To analyze the velocity and acceleration of plane mechanism.
- **CO 3:** To synthesize the mechanism for engineering purpose equipment.
- **CO 4:** To solve the problems of friction in equipment such as brakes, clutches and dynamometers.
- **CO 5:** To design the cam profile and to select proper cam and follower mechanism
- **CO 6:** To select appropriate gears for transmitting the power for required power and gear ratio.

Course: Measurement System (PE-I)

Course Code: (5ME04)

At the end of Measurement System course the student will be able:

- **CO 1:** To analyze different measurement systems.
- **CO 2:** To calculate different errors in the measurement system.
- **CO 3:** To use strain gauges for several needs.
- **CO 4:** To measure and analyze forces and flows by using different measurement devices.
- **CO 5:** To compare and analyze the different vibration measurement devices.
- **CO 6:** To compare the various tachometers and measure speed of motors or rotating shafts by using tachometers.

Course: Modern Manufacturing Techniques (OE-I) Course Code: (5ME05)

At the end of Modern Manufacturing Techniques course the student will be able:

- **CO 1:** To study rapid prototyping method
- **CO 2:** To study elements of ultrasonic machining Process
- **CO 3:** To study elements of electro chemical process.
- **CO 4:** To study thermal metal removal process.
- **CO 5:** To study electron beam machining process.
- **CO 6:** To study composite materials and manufacturing methods.

B.E. 6th Sem

Course: Design Of Machine Elements

Course Code: (6ME01)

At the end of Design Of Machine Elements course the student will be able:

- **CO 1:** To understand the concept of various stresses and apply the design procedure to riveted joints and welded joints..
- **CO 2:** To understand design procedure of knuckle joint, springs and power screw
- **CO 3:** To analyse & select types of shafts, keys, couplings for various machines and industrial applications.
- **CO 4:** To analyse the various types of bearings and understand the design procedure of IC Engine parts.

Course: Dynamics Of Machines

Course Code: (6ME02)

At the end of Dynamics Of Machines course the student will be able:

- **CO 1:** To apply basic concept of static force analysis and lubrication mechanism.
- **CO 2:** To understand the knowledge of dynamic force analysis analytically and graphically.
- **CO 3:** To apply the knowledge of space mechanism and vehicle dynamics.
- **CO 4:** To understand concept of free vibration and force vibration.
- **CO 5:** To understand concept of Torsional vibration.
- **CO 6:** To analyze the concept of balancing of machinery.

Course: Control System Engineering

Course Code: (6ME03)

At the end of Control System Engineering course the student will be able:

- CO 1: To classify feedback control systems and to explain modern control engineering tools necessary for engineering practice.
- CO 2: To formulate the mathematical models of spring-mass-damper systems.
- CO 3: To identify, formulate and solve control engineering problems using hydraulic and pneumatic systems.
- **CO 4:** To analyze the stability of systems using Root Locus and Bode Plots.
- CO 5: To describe the concept of transient response and steady state error.
- CO 6: To design a control system or components to meet the desired needs.

Course: Computer Aided Design & Simulation (PE-II) **Course Code: (6ME04)**

At the end of Computer Aided Design & Simulation the student will be able:

- **CO 1:** To understand the concept of CAD/ CAM and CIM
- CO 2: To describe representations of curves and surfaces CAD
- CO 3: To understand requirements of Solid Modelling Methods

- **CO 4:** To apply the knowledge of geometric transformation.
- CO 5: To understand Simulation of Mechanical Systems

CO 6: To understand the Mechanical & Manufacturing simulation systems.

Cour	se: Non-Conventional Energy Sources(OE-II)	Course Code: (6ME05)
	At the end of Non-Conventional Energy Systems course	e the student will be able:
CO 1:	To explain various non-conventional energy sources like geothermal, ocean thermal etc. and their importance for	e solar, wind, biomass, the present energy scenario.
CO 2:	To describe the basics of solar energy measurement, sto	rage and utilization.
CO 3:	To classify the methods of solar energy collection and d collectors.	ifferent types of solar
CO 4:	To explain the working of tidal, wind, ocean thermal an	d geothermal power plants.
CO 5:	To compare various biomass energy resources and biom	ass conversion techniques.
CO 6:	To describe the working of direct energy conversion tec and solar photovoltaic.	hniques such as fuel cells