

DEPARTMENT OF MECHANICAL ENGINEERING

Academic Year -2024-25

Course Outcomes

B.TECH.5th SEM

**Heat & Mass Transfer
(BME 501)**

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Understand the fundamentals of heat and mass transfer.
(CO2)	Apply the concept of steady and transient heat conduction
(CO3)	Apply the concept of thermal behavior of fins
(CO4)	Apply the concept of forced and free convection.
(CO5)	Apply the concept of radiation for black and non-black bodies
(CO6)	Conduct thermal analysis of heat exchangers.

MACHINE DESIGN (BME502)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Recall the basic concepts of Solid Mechanics to understand the subject
(CO2)	Classify various machine elements based on their functions and applications
(CO3)	Apply the principles of solid mechanics to machine elements subjected to static and fluctuating loads.
(CO4)	Analyze forces, bending moments, twisting moments and failure causes in various machine elements to be designed.
(CO5)	Design the machine elements to meet the required specification

INDUSTRIAL ENGINEERING (BME503)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Understand the concept of production system, productivity, facility and process planning in various industries
(CO2)	Apply the various forecasting and project management techniques
(CO3)	Apply the concept of break-even analysis, inventory control and resource utilization using queuing theory
(CO4)	Apply principles of work study and ergonomics for design of work systems
(CO5)	Formulate mathematical models for optimal solution of industrial problems using linear programming approach

Heat Transfer Lab (BME 551)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Apply the concept of conductive heat transfer.
(CO2)	Apply empirical correlations for both forced and free convection to determine the value of convection heat transfer coefficient
(CO3)	Apply the concept of radiation heat transfer for black and grey body
(CO4)	Analyze the thermal behaviour of parallel or counter flow heat exchangers
(CO5)	Conduct thermal analysis of a heat pipe

MACHINE DESIGN Lab (BME552)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Apply the principles of solid mechanics to design various machine Elements subjected to static and fluctuating loads.
(CO2)	Achieve an expertise in design of Sliding contact bearing in industrial applications
(CO3)	Write computer programs and validate it for the design of different machine elements
(CO4)	Evaluate designed machine elements to check their safety.

Internet of Things Lab (BME553)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Understand Internet of Things and its hardware and software components
(CO2)	Interface I/O devices, sensors & communication modules
(CO3)	Remotely monitor data and control devices
(CO4)	Design prototype of IoT based smart system
(CO5)	Develop IoT based projects for real life problem

Mini Project (BME554)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Identify and define real-world engineering problems through literature review and technical research.
(CO2)	Apply fundamental engineering principles and modern tools to design and develop feasible solutions.
(CO3)	Demonstrate hands-on skills in fabrication, modeling, simulation, or programming based on project requirements.
(CO4)	Work effectively as a team, managing roles, responsibilities, and timelines in a collaborative environment.
(CO5)	Communicate technical findings through well-structured reports, presentations, and demonstrations.

Constitution of India (BNC501)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Understand the historical background and making of the Indian Constitution.
(CO2)	Explain the key features of the Constitution, including the Preamble, Fundamental Rights, and Directive Principles.
(CO3)	Describe the structure and functions of the Union and State governments, including the legislative, executive, and judiciary organs.
(CO4)	Analyze the roles of important constitutional bodies such as the Election Commission, UPSC, and CAG.
(CO5)	Apply constitutional values in personal and professional life, promoting responsible citizenship and ethical behavior.

I C Engine Fuel & Lubrication (BME 052)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Explain the working principle, performance parameters and testing of IC Engine.
(CO2)	Understand the combustion phenomena in SI and CI engines and factors Influencing combustion chamber design
(CO3)	Understand the essential systems of IC engine and latest trends and developments in IC Engines.
(CO4)	Understand the effect of engine emissions on environment and human health and methods of reducing it.
(CO5)	Apply the concepts of thermodynamics to air standard cycle in IC Engines
(CO6)	Analyze the effect of various operating parameters on IC engine performance

Mechatronic Systems (BME 054)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Identify key elements of mechatronic and its representation by block diagram.
(CO2)	Understand the concept of sensors and use of interfacing systems.
(CO3)	Understand the concept and applications of different actuators
(CO4)	Illustrate various applications of mechatronic systems.
(CO5)	Develop PLC ladder programming and implementation in real life problem