MSc Mechanical Engineering Core Courses

Specialization in Thermo Fluids

Core Courses Total 15 credit hours, each course is of 3 credit hours

Course No.	Course Title
ME-5101	Engineering Analysis and Statistics
ME-5102	Research Methodologies and Design of Experiments
ME-5103	Convection Heat Transfer
ME-5104	Advanced Thermodynamics
ME-6101	Computational Fluid Dynamics

Specialization in Applied Mechanics and Design

Core Courses Total 15 credit hours, each course is of 3 credit hours

Course No.	Course Title
ME-5101	Engineering Analysis and Statistics
ME-5102	Research Methodologies and Design of Experiments
ME-5201	Experimental Mechanics
ME-5202	Dynamics of Machinery
ME-6202	Finite Element Analysis

Optional Courses Total 9 credit hours, each course is of 3 credit hours

Course No.	Course Title
ME-5105	Conduction Heat Transfer
ME-5106	Radiation Heat Transfer
ME-5107	Automatic Control
ME-5108	Instrumentation
ME-5109	Gas Dynamics (Compressible Flow)

ME-5110	Industrial Furnaces and Boilers
ME-5111	Energy Conversion and Prime Movers
ME-5112	Nuclear Engineering
ME-5113	Magneto Hydrodynamics
ME-5114	Electromechanical Systems
ME-5115	Flow Induced Vibration
ME-5116	Theory of Thermal Stresses
ME-5117	Vacuum Science and Technology
ME-5118	Propulsion Theory and Engineering for Aeronautics and Astronautics
ME-5119	Corrosion Engineering
ME-5120	Reservoir Engineering
ME-5121	Control Engineering

Compulsory Thesis

ME-5100 Postgraduate Research Thesis

Specialization in Applied Mechanics and Design

Core Courses Total 15 credit hours, each course is of 3 credit hours

Course No.	Course Title
ME-5101	Engineering Analysis and Statistics
ME-5102	Research Methodologies and Design of Experiments
ME-5201	Experimental Mechanics
ME-5202	Dynamics of Machinery
ME-6202	Finite Element Analysis

Optional Courses Total 9 credit hours, each course is of 3 credit hours

Course No.	Course Title
ME-5115	Flow Induced Vibrations
ME-5121	Control Engineering
ME-5203	Analytical Stress Determination
ME-5204	Experimental Stress Analysis
ME-5205	Theory of Plasticity
ME-5206	Fatigue of Metals and Structures
ME-5207	Theory of Elastic Stability
ME-5208	Theory of Plates and Shells

ME-5209	Computer Aided Design
ME-5210	Composite Materials
ME-5211	Micro Processors in Mechanical Engineering Design
ME-5212	Advanced Design of Machine Elements
ME-5213	Synthesis of Mechanisms
ME-5214	Fracture Mechanics
ME-5215	Design Against Fatigue
ME-5216	Computer Simulation of Mechanical Systems
ME-5217	Tribology
ME-5218	Theory and Design of Micro-Electromechanical System
ME-5219	Structural Dynamics and Aero-Elasticity
ME-5220	Pipeline Design Engineering
ME-5221	Cathodic Protection System
ME-5222	Mechanics of Composite Material
ME-5223	Nanotechnology Applications in Engineering
ME-5224	Stress Analysis and Design Aspects of Rotating Machinery
ME-6201	Advanced Mechanical Vibration

Compulsory Thesis

ME-5200 Postgraduate Research Thesis

Specialization in Energy Engineering

Core Courses Total 15 credit hours, each course is of 3 credit hours

Course No.	**Course Title**
ME-5101	Engineering Analysis and Statistics
ME-5102	Research Methodologies and Design of Experiments
ME-5301	Energy Statistics and Energy Demand Forecasting
ME-6301	Renewable Energy Technologies
ME-6302	Energy Systems Modeling and Analysis

Specialization in Energy Engineering

Core Courses Total 15 credit hours, each course is of 3 credit hours

Course No.	Course Title
ME-5101	Engineering Analysis and Statistics
ME-5102	Research Methodologies and Design of Experiments
ME-5301	Energy Statistics and Energy Demand Forecasting
ME-6301	Renewable Energy Technologies
ME-6302	Energy Systems Modeling and Analysis

Compulsory Thesis

ME-5300 Postgraduate Research Thesis