M.TECH, THERMAL POWER ENGINEERING	
Course Code	**16MDE11**
CO1	Model somes implemathematical models of physical Applications.
CO2	Find the roots of polynomial sin Science and Engineering problems.
CO3	Differentiate and integrate a function for a given set of tabulated data,for Engineering Applications
Course Code	**16MTP12**
CO1	Define the element properties such as shape function and stiffness matrix for the various elements.
CO2	Formulate element properties for 1D and 2D elements.
CO3	Develop skill to solve simple Heat Transfer problems using the steps of FEM
Course Code	**16MTP13**
CO1	Students will have a thorough knowledge about the basics of fluid flow, their kinematics and governing equations. Knowledge about types of flow, etc.
Course Code	**16MTP14**
CO1	Students will get an enriched knowledge about the availability and irreversibility associated with the thermodynamic processes,Properties of ideal and real gas mixtures, behavior of pure substances . The basic concepts of combustion, flame propagation and types of flames will also be known.
Course Code	**16MTP151**
CO1	Identify the renewable energy sources and their utilization
CO2	Understand the basic concepts of the solar radiation and analyze the solar Thermal systems for their utilization
CO3	Understand the principle of working of solar cells and their modern manufacturing techniques & their applications
CO4	Understand the concepts of the ocean thermal energy conversion systems and their applications
CO5	Understand the energy conversion from wind energy, geothermal energy, biomass, biogas, fuel cells and hydrogen

Course Code	16MTP16
CO1	Perform experiments to determine the coefficient of discharge of flow measuring devices.
CO2	Conduct experiments on hydraulic turbines and pumps to draw characteristics.
CO3	Test basic performance parameters of hydraulic turbines and pumps and execute the knowledge in real life situations.
CO4	Identify exhaust emission, factors affecting them and report the remedies.
CO5	Determine the energy flow pattern through the hydraulic machines and I C Engine
CO6	Exhibit his competency towards preventive maintenance of IC engines.
Course Code	**16MTP21**
CO1	Summarize both the physics and the mathematical treatment of the advanced topics pertaining to the modes of heat transfer.
CO2	Use principles of heat transfer to develop mathematical models for uniform and non-uniform fins.
CO3	Employ mathematical functions and heat conduction charts in tackling two- dimensional and three-dimensional heat conduction problems.
CO4	Identify free and forced convection problems involving complex geometries with proper boundary conditions.
CO5	Use the concepts of radiation heat transfer for enclosure analysis.
Course Code	**16MTP22**
CO1	Summarize the working principles of Gas and steam turbines nozzle and diffusers.
CO2	Use the principles of thermodynamics to determine the performance of steam and gas turbines.
CO3	Distinguish and demonstrate the working principle and performance of impulse and reaction turbines
CO4	Explain the concepts of axial flow and centrifugal compressors
CO5	Differentiate axial flow and radial flow gas turbines for their analysis.
CO6	Identify the various losses associated with the turbines.
Course Code	**16MTP23**
CO1	Distinguish the various power plant cycle and their working principles.
CO2	Explain combustion phenomenon of different type of fuels and energy associated.
CO3	Demonstrate the working principles of different components of power plant.
CO4	Explain the concepts of power generation by nuclear power plant.
CO5	Differentiate axial flow and radial flow gas turbines for their analysis.
CO6	Identify the design parameters and economics of power plant.

Course Code	16MTP24
CO1	Distinguish different Fuel-air and actual cycles.
CO2	Demonstrate the different types of injection and carburetor systems
CO3	Formulate the flow and combustion phenomenon for modeling
CO4	Identify the various types of emissions ,noise and their control systems
CO5	Recommend the suitable alternative fuel for IC Engine.
Course Code	**16MTP252**
CO1	Explain about the availability and usage of conventional fuels for IC engines.
CO2	Identify possible alternative fuels for IC engines.
CO3	Demonstrate the use of alternative fuels for different types of engines
CO4	Assess the environmental impact standards and procedures of using alternate fuels.
Course Code	**16MTP41**
CO1	Understand the physics and the mathematical treatment of typical heat exchangers.
CO2	Employ LMTD and Effectiveness methods in the design of heat exchangers and analyze the importance of LMTD approach over AMTD approach.
CO3	Examine the performance of double-pipe counter flow (hair-pin) heat exchangers.
CO4	Design and analyze the shell and tube heat exchanger.
CO5	Understand the fundamental, physical and mathematical aspects of boiling and condensation.
CO6	Classify cooling towers and explain their technical features.
Course Code	**16MTP422**
CO1	Understand the Engine inlet and exhaust flow systems
CO2	Explain the phenomenon of I C Engine combustion and their pollutant formation
CO3	Distinguish different combustion models of I C Engines.
CO4	Explain the emission norms and their controlling measures.