SOT- ME- SEM-1		
CO-PO Mapping		
Course Code	BTEC101	
Course Name	Basics of Electrical and Electronics	
	CO	**BT**
CO1	Understand the basics of Electrical Engineering	Understand
CO2	Understand the applications of electrical components	Understand
CO3	Analyze the use and importance of electrical machines in industries	Analyse
CO4	Understand how industries are working with electrical machines	Understand
CO5	Apply test equipment's in electrical projects.	Apply
Course Code	BTMA103	
Course Name	Mathematics-I	
	CO	**BT**
CO1	Apply the concepts of limits, continuity and derivatives to solving problems.	Apply
CO2	Determine convergence or divergence of sequences and series	Evaluate
CO3	Use Taylor and MacLaurin series to represent functions. Solve application problems	Apply
CO4	Understand functions of several variables, limits, continuity, partial derivatives. Identify and solve some system of linear equations.	Understand
CO5	To deal with functions of several variables that is essential in most branches of engineering. The essential tool of matrices and linear algebra in a comprehensive manner.	Analyse
Course Code	BTCS104	
Course Name	Computer Programming-I	
	CO	**BT**
CO1	Understanding of basic components of programming language	Understand
CO2	Understand any other programming language with the knowledge of array and string.	Understand

CO3	Apply function concepts in real time application.	Apply
CO4	Analyze working of structure in c or otherprogramming language programs.	Analyse
CO5	Develop applications using C programming	Create
Course Code	BTPY105	
Course Name	Engineering Physics	
	CO	**BT**
CO1	Understanding of the basic knowledge of harmonic motions.	Understand
CO2	Conceptualization of different electric and magnetic properties of materials	Apply
CO3	Understanding different engineering applications of optical fundamentals.	Understand
CO4	Conceptualization of construction and working of lasers	Apply
CO5	To embrace the concept of the quantum physics and have basic understanding of its principles.	Analyse
Course Code	**BTFS108**	
Course Name	**Fundamentals in Fire & Environment, Health, Safety**	
	CO	**BT**
CO1	Understand concept of industrial safety	Understand
CO2	Evaluate the risk by qualitative risk assessment	Evaluate
CO3	Understand environmental pollution and control measures	Understand
CO4	Understand principles of fire	Understand
CO5	Understand advanced firefighting system	Understand
Course Code	AECC101	
Course Name	Fundamentals of English	
	CO	**BT**
CO1	To emphasize the development of listening and reading skills among learners	Analyse

CO2	To equip them with writing skills needed for academic as well as workplace context	Apply
CO3	To enable learners of Engineering and Technology develop their basic communication skills in English	Understand
CO4	To strengthen the fundamentals in English Language.	Create
CO5	To build up the confidence to communicate with the world.	Create
Course Code	BTME106	
Course Name	ENGINEERING WORKSHOP PRACTICES	
	CO	**BT**
CO1	To give basic training on fitting, carpentry, sheet metal, machine shop, and black smithy.	Understand
CO2	To enable students to understand and practice joining techniques	Understand
CO3	To train students to handle various machine tools.	Understand
CO4	To enable students to understand basic mechanical engineering concepts.	Understand
CO5	To enable students to fabricate components with their own hands.	Understand
SOT- ME- SEM-2		
Course Code	BTEC201	
Course Name	Engineering Fundamentals	
	CO	**BT**
CO1	To provide Basic knowledge of Engineering Material	Create
CO2	To provide Basic knowledge of Thermodynamics, heat engines	Create
CO3	To provide Basic knowledge of Engineering equipment	Create
CO4	To provide Basic knowledge of Measurement	Create
CO5	To provide Basic knowledge of Production	Create
Course Code	BTME202	
Course Name	Engineering Graphics	
	CO	**BT**
CO1	Understand the fundamentals of engineering graphics and remember the basic rules of dimensioning and labelling	Understand
CO2	Develop the ability to learn fundamental of CAD software and its use to solve engineering problems	Understand
CO3	Comprehend the concept of projection and use it to represent the views on reference planes.	Apply
CO4	Apply the technical communication skill for 3-dimensional geometries in the form of 3D models using isometric projection	Create
CO5	Analyze the orientation of geometrical bodies with respect to re	Create

Course Code	BTMA203	
Course Name	MATHEMATICS-II	
	CO	**BT**
CO1	Identify and solve some ordinary differential equations.	Understand
CO2	Based on some experiments, form ordinary differential equations.	Create
CO3	Apply basic knowledge of mathematics to solve real world problems.	Apply
CO4	Analyse and solve engineering problems using Laplace Series.	Analyse
CO5	Use probability and statistical methods in quality control, process control, design and experiments.	Apply
Course Code	BTME204	
Course Name	Engineering Mechanics	
	CO	**BT**
CO1	Apply systematic engineering synthesis and design processes	Apply
CO2	Understand theory based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline.	Understand
CO3	understand specialist bodies of knowledge within the engineering discipline.	Understand
CO4	Apply established engineering methods to complex engineering problem solving.	Apply
CO5	Evalute the beam realted problems	Evaluate
Course Code	BTCY205	
Course Name	Engineering Chemistry	
	CO	**BT**
CO1	The confidence level of students will be improved.	Understand
CO2	The students understand Engineering materials with properties that find various engineering applications.	Apply
CO3	Use the analysis results to ascertain quality of water, and other material	Analyse
CO4	Students would be able to solve the problems in the engineering field related to chemical aspects.	Apply
CO5	Students will have knowledge of all equipments pertaining to mentioned topics.	Understand

Course Code	AECC201	
Course Name	Communication Skills in English	
	CO	**BT**
CO1	To enable learners develop their basic communication skills in English.	Understand
CO2	To equip them with writing skills needed for academic as well as workplace context.	Evaluate
CO3	To prepare students for professional communication at world level.	Apply
CO4	To develop corporate communicational attitude.	Create
CO5	To strengthen digital communication using technological modules and expertise.	Apply
Course Code	**BTME207**	
Course Name	**AutoCAD**	
	CO	**BT**
CO1	Understand the basic commands of AutoCAD software.	Create
CO2	Understand the concept of Computer Aided Drafting using AutoCAD software.	Create
CO3	Apply basic concepts to develop construction (drawing) techniques	Create
CO4	Apply basic concepts of the AutoCAD software	Create
CO5	Understand and demonstrate dimensioning concepts and techniques	Create
SOT- ME- SEM-3		
Course Code	BTC301	
Course Name	Mathematics – III	
	CO	**BT**
CO1	Identify the role of periodic functions in real world problems.	Understand
CO2	Understand the various techniques to analyze the behavior of different Mechanical periodic systems such as 4 – stroke engines	Understand
CO3	Solve the differential equations which are not solvable by analytical methods known so far and thus develop a skill to look for alternatives	Create
CO4	Discuss the role of partial derivatives in engineering problems where multiple factors affect the system.	Understand
CO5	Evaluate physical problems involving partial derivatives	Understand

Course Code	BTME302	
Course Name	Engineering Thermodynamics	
	CO	**BT**
CO1	Use thermodynamic terminology correctly.	Remember
CO2	Explain fundamental thermodynamic properties.	Create
CO3	Explain what sources of energy there are in a thermodynamics system.	Analyse
CO4	Derive and discuss the first and second laws of thermodynamics.	Understand
CO5	Solve problems using the properties and relationships of thermodynamic fluids.	Understand
Course Code	BTME303	
Course Name	Material Science & Metallurgy	
	CO	**BT**
CO1	Understand the properties and characteristic of engineering materials.	Understand
CO2	Identify the properties of metals with respect to crystal structure and grain size	Understand
CO3	Interpret the phase diagrams of materials.	Understand, apply
CO4	Describe about the ferrous, nonferrous metals and alloys.	Understand
CO5	Describe the concept of heat treatment of steels & strengthening mechanisms.	Understand
Course Code	BTME304	
Course Name	Solid Mechanics	
	CO	**BT**
CO1	Define the fundamental concepts of stresses and strains in one dimensional and two dimensional states	Understand
CO2	Sketch shear force and bending moment diagram for different types of beams with various loading conditions	Understand
CO3	Estimate the slope and deflection of beam subjected to various loading conditions	Apply,Create
CO4	Interpret the bending and shear stresses in beams of different shapes	Understand
CO5	Estimate the power required for the shaft	Apply

Course Code	BTME305	
Course Name	Kinematic of Machines	
	CO	**BT**
CO1	Recall the fundamentals of design and the theory of kinematics and mechanisms	Remember
CO2	Explain the various mechanical components such as rivets, welded joints, shafts, couplings, springs and synthesis of mechanisms	Understand
CO3	Apply the various mechanical design and kinematics principles to design various mechanical components	Apply,Creat e
CO4	Analyse the position of machines and their components	Analyse
CO5	Estimate the dimensions and position of various mechanical components	Apply
Course Code	BTME306	
Course Name	Manufacturing Process	
	CO	**BT**
CO1	Understand various metal joining techniques	Understand
CO2	Analyse the effect of process parameters on weld quality	Understand
CO3	Examine Weld parameters required for a given weld process	Apply
CO4	Produce sand cast mould and cast a component	Apply,Analy se
CO5	Evaluate weld quality of the friction welded joints	Evaluate
Course Code	BTME307	
Course Name	Computer Programming III	
	CO	**BT**
CO1	Select optimum programming methods, commands, and processes to identify, formulate, and solve engineering problems.	Analyse
CO2	Demonstrate the significance of MATLAB.	Understand
CO3	Apply knowledge of mathematics, science, and engineering to design and analyze various mechanical engineering systems.	Apply
CO4	Use the techniques, skills, and modern engineering tools necessary for design engineering practice.	Apply,Analy se
CO5	Perform various 2D & 3D plots in MATLAB	Apply
SOT- ME- SEM-4		
Course Code	BTME401	

Course Name	Numerical Methods	
	CO	**BT**
CO1	Solve system of linear equations.	Understand
CO2	Find the most approximate roots of equations in one variables.	Create
CO3	Find approximate derivative and definite integration using numerical techniques	Create
CO4	Interpolation and curve fitting of data	Create
CO5	Derive numerical methods for various mathematical operations and tasks, such as interpolation, differentiation, integration, the solution of linear and nonlinear equations, and the solution of differential equations.	Apply
Course Code	BTME402	
Course Name	Fluid Mechanics	
	CO	**BT**
CO1	Recognize type of fluid flow and flow pattern for internal and external flows.	Apply
CO2	Evaluate transport properties of fluid for internal and external flows	Evaluate
CO3	Apply conservation principles of mass, linear momentum, and energy to fluid flow systems to determine flow quantities and energy losses in fluid flow systems.	Apply
CO4	Evaluate and arrive at reasonable approximations for a fluid flow problem where flow is governed by the continuity equation and Navier-Stokes equation	Evaluate
CO5	Design simple pipe systems to deliver fluids under specified conditions	Apply
Course Code	BTME403	
Course Name	Machine Design-I	
	CO	**BT**
CO1	Recall fundamentals of failure of mechanical components related to static loading	Remember
CO2	Evaluate the life of component under variable loading	Evaluate
CO3	Solve the problem of cylinder for different thickness.	Apply
CO4	Analyze the various stresses in pressure vessels	Analyse
CO5	Compare different transmission devices such as belt and chain drives	Evaluate

Course Code	BTME404	
Course Name	Dynamics of Machines	
	CO	**BT**
CO1	Evaluate the effect of static and dynamic forces on a mechanism.	Evaluate
CO2	Analyse the working of different types of gears and gear trains	Analyse
CO3	Evaluate the gyroscopic couples in devices involving rotating masses.	Evaluate
CO4	Analyse the unbalanced forces in systems with rotating and reciprocating masses	Analyse
CO5	Demonstrate the working of brakes and dynamometers	Understand
Course Code	BTME405	
Course Name	Manufacturing Technology	
	CO	**BT**
CO1	Understand fundamentals of machining and machine tools used in manufacturing.	Understand
CO2	Analyze single point cutting tool geometry with role of different tool angels.	Analyse
CO3	Evaluate role of chip formation and cutting fluid on machining.	Evaluate
CO4	Apply different principles of Lathe machine with machining characteristic in manufacturing	Apply
CO5	Understand fundaments of Milling, drilling and Boring machines and evaluate machining performance.	Understand
Course Code	BTME406	
Course Name	Thermal Engineering	
	CO	**BT**
CO1	To understand about Steam generators	Understand
CO2	To understand the concept of Phase change cycle.	Understand
CO3	To understand the fundamentals of steam Nozzle	Understand
CO4	To understand the fundamentals of Compressor.	Understand
CO5	To understand the fundamentals of condenser.	Understand
SOT- ME- SEM-5		
Course Code	20ME501	

Course Name	Computer Aided Design	
	CO	**BT**
CO1	Comprehend modes of heat transfer and apply principles of heat transfer to solve engineering problems.	Apply
CO2	Analyze and Solve problems involving steady and unsteady heat conduction	Analyse
CO3	Evaluate convection heat transfer problems for a variety of flow conditions using appropriate convection correlations	Evaluate
CO4	Analyze heat exchanger performance using LMTD and NTU methods	Analyse
CO5	Evaluate radiative heat exchange between two or more surfaces of different geometries	Evaluate
Course Code	20ME502	
Course Name	Heat Transfer	
	CO	**BT**
CO1	Comprehend modes of heat transfer and apply principles of heat transfer to solve engineering problems.	Apply
CO2	Analyze and Solve problems involving steady and unsteady heat conduction	Analyze
CO3	Evaluate convection heat transfer problems for a variety of flow conditions using appropriate convection correlations	Evaluate
CO4	Analyze heat exchanger performance using LMTD and NTU methods	Analyze
CO5	Evaluate radiative heat exchange between two or more surfaces of different geometries	Evaluate
Course Code	20ME503	
Course Name	Machine Design-II	
	CO	**BT**
CO1	Design bearings that are used in various engineering and commercial applications	Apply
CO2	Design gears that are used in various engineering and commercial applications	Apply
CO3	Identify the concept of materials handling systems in industries	Understand
CO4	Design various components namely rope and crane hook for their safe use	Apply
CO5	Design gear box after understanding the concepts of various types of gear drives	Apply

Course Code	20ME504	
Course Name	Industrial Engineering	
	CO	**BT**
CO1	Enable students to understand industrial knowledge for smooth functioning of Industry	Understand
CO2	Enable students to understand work study and method study	Understand
CO3	Impart knowledge among students about inventory control	Apply, Analyse
CO4	Enable students to understand Ergonomics of products and its significance	Understand
CO5	Impart knowledge among students about process control and its significance	Apply, Analyse
Course Code	20ME505	
Course Name	Turbomachinery	
	CO	**BT**
CO1	Identify various types of fluid machines and their principal applications.	Understand
CO2	Understand working principles, operating characteristics and factors affecting performance of fluid machines.	Understand
CO3	Estimate main operating parameters such as forces, torque, flow rate and efficiencies of fluid machines.	Understand
CO4	Apply basic conservation equations to predict the performance of different fluid machines.	Apply
CO5	Evaluate a similarity analysis between a laboratory tested model and a full scale fluid machine.	Evaluate
Course Code	20ME506A	
Course Name	**Professional Elective –I (Odd)FINITE ELEMENT METHODS**	
	CO	**BT**
CO1	Recall the fundamental theory of FEM and concepts behind formulation methods in FEM.	Understand
CO2	Explain the role and significance of variational methods considering linear, quadratic, and cubic shape functions	Apply
CO3	Modify the real world problems to 1D, 2D and 3D cases of finite element analysis by applying various FEA elements such as bars, beams, plane and iso-parametric elements	Apply

CO4	Analyse the bars, trusses, beams, heat transfer, fluid flow, and dynamic problems using suitable boundary conditions to a local as well as global equations.	Analyse
CO5	Estimate the deflections, stresses, and strains induced during failure of various components.	Understand
Course Code	20ME506B	
Course Name	**Professional Elective –I (Odd)(Additive Manufacturing)**	
	CO	**BT**
CO1	Understand fundamentals of Additive manufacturing (AM) with classification of AM process	Understand
CO2	Apply various designing and slicing techniques that enable AM and create programming for tool path.	Apply
CO3	Understand fundamentals of polymer material based AM processes.	Understand
CO4	Analyze the characteristics of Powder based AM process.	Analyse
CO5	Explain different materials used for building three dimensional AM components.	Understand
SOT- ME- SEM-6		
Course Code	20ME601	
Course Name	Operation Research	
	CO	**BT**
CO1	This module aims to introduce students to use quantitative methods and techniques for effective decisions–making model formulation and applications that are used in solving business decisions.	Understand
CO2	Operations research is important because it is a helpful tool used to solve complex problems under uncertainty.	Evaluate
CO3	Operation research is a problem solving and decision taking technique. It is considered a kit of scientific and programmable rules which provides the management a “quantitative basis” for decisions.	Apply
CO4	Most operations research studies involve the construction of a mathematical model. The model is a collection of logical and mathematical relationships that represents aspects of the situation under study. A model is always an abstraction that is of necessity simpler than the real situation.	Analyse
CO5	The central objective of operations research is optimization, i.e., "to do things best under the given circumstances." This general concept has many applications, for instance, in agricultural planning, biotechnology, data analysis, distribution of goods and resources, emergency and rescue operations, engineering etc.	Remembering

Course Code	20ME602	
Course Name	Manufacturing System Management	
	CO	**BT**
CO1	To understand Overview of Manufacturing: Manufacturing Industries & Products, Manufacturing Operation, Production Facilities, Product/Production	Create
CO2	To understand computer numeric control	Analyse
CO3	To understand Flexible Manufacturing System	Understand
CO4	To learn about Manufacturing Support Systems	Apply
CO5	To understand recent trends used in manufacturing system	Apply
Course Code	20ME603	
Course Name	Mechanical Vibration and Noise Engineering	
	CO	**BT**
CO1	Recall the basic concept of vibration and able to differentiate between damped and undamped vibrations.	Understand, apply
CO2	Analyze and understand single and two degree of freedom system.	Apply
CO3	Formulate equation of motions of multi degree freedom system.	Remember
CO4	Compare various methods and interpret the results.	Analyse
CO5	Construct equations of motion for continuous system.	Apply
Course Code	20ME604	
Course Name	Refrigeration & Air Conditioning	
	CO	**BT**
CO1	Understand the construction and working of various refrigeration & air-conditioning systems and list its applications.	Understand
CO2	Analyse the various configuration of vapour compression refrigeration system and evaluate its performance.	Understand
CO3	Investigate the performance of different conventional and nonconventional refrigeration systems	Apply
CO4	Develop generalized psychometrics of moist air and apply to air-conditioning processes	Apply
CO5	Design thermal comfort conditions with proper psychometric processes and evaluate its impact on human comfort, productivity, and health	Evaluate

Course Code	20ME605A	
Course Name	**Professional Elective –II (Even) (PRODUCT DESIGN AND VALUE ENGINEERING)**	
	CO	**BT**
CO1	To develop a solution oriented approach by in depth knowledge of Product Development & Value Engineering	Understand
CO2	To address the underlying concepts, methods and application of Product Development & Value Engineering.	Understand
CO3	To understand various Product Design for Manufacturing and Assembly	Understand
CO4	To understand Product Development Processes and Product Planning	Understand
CO5	To develop understanding for Product Analysis and Material Selection	Evaluate
Course Code	20ME605B	
Course Name	**PROFESSINAL ELECTIVE-II ADVANCED MANUFACTURING PROCESSES**	
	CO	**BT**
CO1	To understand the application of water as a utility in plant operations	Understand
CO2	To understand the application of air as a utility in plant operations	Understand
CO3	To understand the application of steam as a utility in plant operations	Understand
CO4	To understand the application of refrigeration as a utility in plant operations	Understand
CO5	To understand the application of venting and vacuum systems as a utility in plant operations	Understand
Course Code	20OE01	
Course Name	**Open Elective PLANT UTILITIES**	
	CO	**BT**
CO1	To understand the application of water as a utility in plant operations	Understand
CO2	To understand the application of air as a utility in plant operations	Understand
CO3	To understand the application of steam as a utility in plant operations	Understand
CO4	To understand the application of refrigeration as a utility in plant operations	Understand
CO5	To understand the application of venting and vacuum systems as a utility in plant operations	Understand

Course Code	20OE02	
Course Name	**Open Elective Corrosion Science**	
	CO	**BT**
CO1	To gain the basic knowledge of Corrosion	Understand
CO2	To understand the thermodynamic and kinetics of corrosion	Understand
CO3	To distinguish the different forms of corrosion	Understand
CO4	To gain the knowledge of different corrosion control mechanism	Evaluate
CO5	To understand the major industrial hazards due to corrosion	Understand
Course Code	20OE03	
Course Name	**Open Elective HEATING VENTILATION AND AIR CONDITIONING**	
	CO	**BT**
CO1	Classify phenomenon of sensible heating and cooling	Apply
CO2	Discover and study the importance of Psychometric chart in HVAC	Analyse
CO3	Analyze importance of HVAC in industrial applications	Analyse
CO4	Estimate importance of duct material and design in transporting cool air	Understand
CO5	Apply awareness of HVAC fundamentals.	Apply
Course Code	20OE04	
Course Name	**Open Elective Nanotechnology**	
	CO	**BT**
CO1	Able to understand fundamentals of nanotechnology and its application	Understand
CO2	Able to characterize different nanomaterials	Understand
CO3	Familiarize themselves with nanotechnology potentialities	Analyse
Course Code	20OE05	
Course Name	**Open Elective Sustainable Building Technology**	
	CO	**BT**

CO1	To get familiar with the green building rating system across the world & in India.	Understand
CO2	To describe concepts required for sustainable building design and building practices	Understand
CO3	To provide alternative concept for green building design.	Analyse
CO4	To focus Environmental issues related to building materials and construction	Apply
CO5	To emphasize importance of water management systems	Evaluate
Course Code	20OE06	
Course Name	**Open Elective Soft Skill & Interpersonal Communication**	
	CO	**BT**
CO1	To understand and develop the soft skills	Understand
CO2	To understand the importance of communication	Understand
CO3	To develop interpersonal communication	Analyse
Course Code	20OE07	
Course Name	**Open Elective Industry 4.0**	
	CO	**BT**
CO1	Understand the drivers and enablers of Industry4.0	Understand
CO2	Appreciate the smartness in Smart Factories, Smart cities, smart products and smart services	Understand
CO3	Able to outline the various systems used in a manufacturing plant and their role in an Industry 4.0world	Analyse
CO4	Appreciate the power of Cloud Computing in a networked economy	Apply
CO5	Understand the opportunities, challenges brought about by Industry 4.0 and how organizations and individuals should prepare to reap the benefits	Understand
SOT- ME- SEM-7		
Course Code	20ME701	
Course Name	Energy Management System	
	CO	**BT**
CO1	To impart knowledge about Current Energy Resources and its usage related to industries, countries and its availability.	Understand
CO2	To provide information about Energy Audits and its significance.	Create
CO3	Make students understand energy calculations and estimation of energy related optimization	Understand

CO4	To impart knowledge about energy project financing and payback periods for retrofits.	Understand
CO5	To impart knowledge about industry relevant energy audit methods and government regulations.	Understand
Course Code	20ME702	
Course Name	Fluid Power Control	
	CO	**BT**
CO1	To Understand hydraulic and pneumatic system	Understand
CO2	To learn about Energy Losses in Hydraulic System	Create
CO3	To explore Hydraulic Circuit Design	Create
CO4	To understand different types of Pneumatics, Cooling, Drying, Conditioning	Understand
CO5	To learn about different Pneumatic Actuators, Pneumatic Control Valves	Create
Course Code	20ME703 A	
Course Name	**Professional Elective - III (Odd)ROBOTICS**	
	CO	**BT**
CO1	Recall the concept of kinematics and dynamics of rigid body motion	Understand
CO2	Classify the robots and to understand the various subcomponents of industrial manipulator.	Understand
CO3	Prepare the Kinematic and Dynamic Model for different types of Industrial Manipulator.	Create
CO4	Compare the suitability of Robots in industrial applications and newer technologies associated with them	Create
CO5	Evaluate the trajectory of industrial manipulator considering all the motion and forces.	Evaluate
Course Code	20ME703 B	
Course Name	**Professional Elective - III (Odd)TOTAL QUALITY MANAGEMENT**	
	CO	**BT**
CO1	To facilitate the understanding of Quality Management principles and process.	Understand

CO2	To facilitate the understanding of PRINCIPLES AND PHILOSOPHIES OF QUALITY MANAGEMENT	Understand
CO3	To facilitate the understanding of STATISTICAL PROCESS CONTROL AND PROCESS CAPABILITY	Understand
CO4	To facilitate the understanding of STATISTICAL PROCESS CONTROL AND PROCESS CAPABILITY	Understand
CO5	To facilitate the understanding of QUALITY SYSTEMS ORGANIZING AND IMPLEMENTATION	Understand
Course Code	20ME704	
Course Name	B. Tech Project	
	CO	**BT**
CO1	Undertake problem identification, formulation and solution by considering ethical responsibilit	Understand
CO2	Demonstrate a sound technical knowledge of their selected project topic and function as a member of a team in the solution of engineering problems	Understand
CO3	Formulate and develop a hardware/software based prototype model	Apply
CO4	Achieve skill to write technical documents and deliver oral presentation before an evaluation committee which in turn shall develop the communication skills	Apply
CO5	Identify and apply appropriate steps to solve problems they have met during implementation of their project	Apply
Course Code	20ME705	
Course Name	Renewable energy	
	CO	**BT**
CO1	Understand the principle of solar radiation and its availability at various locations	Understand
CO2	Evaluate the ways to use solar energy for various applications like heating, cooling, water distillation and electricity and evaluate their performance.	Evaluate
CO3	Interpret and classify the ways to harness the energy from Biomass.	Apply
CO4	Understand and analyze the Wind and wave energy conversion.	Understand
CO5	Summarize the ways to harness energy from other renewable energy sources like geothermal, ocean, Fuel cell, hydrogen etc.	Understand
SOT- ME- SEM-8		

Course Code	20ME801	
Course Name	Power Plant Engineering	
	CO	**BT**
CO1	Select the suitability of site for a power plant based on load forecasting and calculate load factor, capacity factor, average load and peak load of a power plant.	Create
CO2	Summarizing characteristics of different types of fuel used in power plants and propose new solutions to curb environmental problems.	Create
CO3	Perform thermodynamic analysis of thermal power plant and evaluate plant efficiency	Create
CO4	Evaluate performance parameters of gas turbine & diesel power plant and compare their thermodynamic performance	Evaluate
CO5	Identify the need of hydropower and estimate the power generation using hydraulic turbines with respect to the available head.	Evaluate
Course Code	20ME802	
Course Name	B. Tech Project	
	CO	**BT**
CO1	Undertake problem identification, formulation and solution by considering ethical responsibility	Understand
CO2	Demonstrate a sound technical knowledge of their selected project topic and function as a member of a team in the solution of engineering problems	Create
CO3	Formulate and develop a hardware/software based prototype model	Create
CO4	Achieve skill to write technical documents and deliver oral presentation before an evaluation committee which in turn shall develop the communication skills	Evaluate
CO5	Identify and apply appropriate steps to solve problems they have met during implementation of their project	Evaluate
Course Code	20ME803A	
Course Name	**Professional Elective - IV (Even)Automation in Mechanical Systems**	
	CO	**BT**
CO1	To provide students information about basics of Automation and its fundamentals.	Create
CO2	To provide students information about Multi-Tasking Tools and their usage	Create
CO3	To provide students information abouttransmission and distribution of electricity automation and electro mechanical control system	Create

CO4	To provide students information about drawing (P&ID) electronics indicators, switchgears and panel accessories power systems	Create
CO5	To provide students information about drive system electrical panel and wiring knowledge	Create
Course Code	20ME803B	
Course Name	**Professional Elective - IV (Even)Maintenance Management**	
	CO	**BT**
CO1	To understand the concept of Maintenance	Understand
CO2	To understand Maintenance system	Understand
CO3	To understand Pareto's principles	Understand
CO4	To understand Maintenance work measurement	Understand
CO5	To understand Maintenance man power planning	Understand