Department of MECHANICAL Engineering

Course Outcomes	
THIRD SEMESTER	
Course Code	Course Outcomes
BEME301T Mathematics – III	
CO301.1:	Apply Laplace Transform to solve ordinary differential equations, Integral equations and Integro-differential Equations.
CO301.2	Apply Fourier series in the analysis of periodic functions in terms sine and cosine encountered in engineering problems and Fourier Transform to solve integral equations.
CO301.3	: Learn the concept of differentiating, integrating and expanding of analytic functions in complex numbers and their applications such as evaluation of integrals of complex functions
CO301.4	Solve partial differential equations of first order, higher order with constant coefficients and of second order using method of separation of variables.
CO301.5	Analyze real world scenarios to recognize when matrices are appropriate, formulate problems about the scenarios, creatively model these scenarios in order to solve the problems using multiple approaches.
BEME302T Manufacturing Processes	
CO302.1	Understand the importance of manufacturing processes, techniques of pattern making and moulding with their properties. Design gating system along with selection of different types of melting furnaces and special casting process..
CO302.2	Get acquainted with the basic concept of joining process, welding process and its types, defects and application.

CO302.3	Get acquainted with the forming process for metal, mechanics of forming process along with different types of rolling machine.
CO302.4	Understand and define press working process along with its classification, types and terminology, different types of dies and introduction to shaping operation.
CO302.5	Understand introduction to plastics, ceramics and glasses, its properties, application, forming and its shaping.
BEME303T Engineering Thermodynamics	
CO303.1:	Explain thermodynamics concepts, relate laws of the ideal gas, identify various thermodynamic processes and apply the laws to determine the energy transfer in terms of heat and work.
CO303.2	Explain the first law of thermodynamics and apply the law to evaluate open, closed systems, thermal components and devices.
CO303.3:	Interpret the second law of thermodynamics, entropy, and apply the law to evaluate heat engine, heat pump, and refrigerator performance.
CO303.4:	Relate various steam properties, and analyze the different types of processes using steam as working fluid to determine the energy transfer in terms of heat and work.
CO303.5:	Compare various power cycles and analyze the cycles to determine the energy transfer in terms of heat, work and efficiency.
BEME304T Kinematics Of Machines	
CO304.1	Perform kinematic and dynamic analysis (Displacement, Velocity, acceleration, Inertia forces) of a given mechanism using analytical and graphical method.
CO304.2	Understand the concept of compliant mechanisms.
CO304.3	Contrive or synthesize new mechanisms for specific requirements and Perform computer aided analysis of simple mechanisms.
CO304.4	Construct cam profiles and analyse the follower motion.
CO304.5	Understand Geometry of gear, its types, analysis of forces and motions of gear teeth. Study of gear trains and governors.
BEME302P Manufacturing Processes (Practical)	

CO302P.1	Think in core concept of their engineering application by studying various topics involved in branch specific applications.
CO302P.2	Understand the relevance and importance of the Different manufacturing techniques and real life application in industry.
CO302P.3	Design the gating and riser system needed for casting and requirements to achieve defect free casting.
CO302P.4	Analyze the welding process behavior and requirements to achieve sound welded joint while welding different similar and dissimilar engineering material
CO302P.5	Understand the plastic, glass and ceramic Processing
BEME302P Manufacturing Processes (Practical)	
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CO302P.5	Understand the plastic, glass and ceramic Processing
BEME305P Machine Drawing and Solid Modeling	
CO305P.1	Create 2-D orthographic manual drawings as well as digital drawing using CAD software package of standard machine components

CO305P.2	Apply standard practices for creation of 2-D orthographic manual drawings as well as digital drawing using CAD software package of assembly with dimension detailing, part list and ballooning. Also perform 2-D detailing of assembly components.
CO305P.3	Create 3-D solid model and 2-D detailing of simple parts using CAD software package and perform 2-D detailing.
CO305P.4	Create production drawing and process sheet for standard machine components.
CO305P.5	Get hands on experience of reverse engineering process and concepts.
BEME306P Computer Application/Programming	
CO306.1	Understand and explore concepts in basic programming like data types, input/output functions, operators, programming constructs and user defined functions.
CO306.2	Develop capabilities of writing „C“ programs in optimized, robust and reusable code
CO306.3	Apply appropriate concepts of data structures like arrays, structures implement programs for various applications
IV SEMESTER	
BEME401T Machining Processes	
CO401.1	Understand fundamentals of metal cutting
CO401.2	Understand basic construction and operations of lathe shaping, planning
CO401.3	Understand basics of milling and milling cutters. slotting
CO401.4	To know about the surface finishing processes.
CO401.5	Understand the basic of drilling, boring, reaming and broaching.
BEME402T Fluid Mechanics & Hydraulic Machines	
CO402.1	Classify and explain fluid and their properties, fluid in rest condition, types of flow & flow measuring devices and mathematical application of equations on hydraulic components.

CO402.2	Explain behavior of fluid in motion condition and application of Bernoulli's equation to fluid flow measuring devices.
CO402.3	Apply dimensional analysis to design hydraulic machines and different losses of fluid flow through pipes.
CO402.4	(i) Classify different layout of hydro-electric power plant and (ii) Analyze design characteristics of hydraulic machines i.e. turbines (impulse and reaction), Pelton turbine , Francis turbine, propeller turbine and Kaplan turbine
CO402.5	Explain the working principle & design of Centrifugal and reciprocating pump & practical application of similitude & model testing.
BEME403T Material Science & Engineering	
CO403.1	Student will be capable to distinguish microstructure and analyze the effect of Crystalline nature of metals, construct and analyze Iron-Iron carbide equilibrium diagram.
CO403.2	Student will be able to study the commercial steels.
CO403.3	Student will be able to analyze and implement suitable heat treatment processes.
CO403.4	Student will be able to analyze the Cast Iron.
CO403.5	Student will be able to perceive the basics of powder Metallurgy for powder metallurgical components.
BTME404T Mechanics Of Material	
CO404.1	Demonstrate fundamental knowledge about various types of loading and stresses induced
CO404.2	Draw the SFD and BMD for different types of loads and support conditions.
CO404.3	Estimate the strain energy in mechanical elements. And analyse the deflection in beams.
CO404.4	Can design shaft for various loading conditions.
CO404.5	Understand theory of failure and effective designing of column and struct.
BTME405T Professional Ethics	
CO405.1	Understand basic purpose of profession, professional ethics and various moral and social issues
CO405.2	Analyze various moral issues and theories of moral development
CO405.3	Realize their roles of applying ethical principles at various professional levels
CO405.4	Identify their responsibilities for safety and risk benefit analysis.
CO405.5	Understand their roles in dealing various global issues

BEME401P Machining Processes (Practical)	
CO401P.1	Understand basic cutting tools.
CO401P.2	Working of lathe and turning operation
CO401P.3	Shaping and planning operation
CO401P.4	Milling and drilling operation
CO401P.5	Grinding and surface finishing
BEME402P FLUID MECHANICS & HYDRAULIC MACHINES (Practical)	
CO402P.1	Explain what is Stability condition of floating bodies, Law of conservation of Energy.
CO402P.2	Apply Frictional losses and Hydraulic co-efficient in the pipe flow.
CO402P.3	Estimate the Performance characteristics of Pelton Turbine
CO402P.4	Estimate the Performance characteristics of Francis Turbine & Kaplan Turbine.
CO402P.5	Estimate the Performance characteristics of Centrifugal Pump & Reciprocating Pump.
BEME404P Material Testing Lab- (Practical)	
CO404P.1	Analyze the Microstructure and investigate various properties of ferrorous and Non ferrous Materials . Analyse the stress strain behaviour of materials
CO404P.2	Analyse the effect of tensile, shearing force and can utilized the gained while tackling real life engineering problems for different types of Materials
CO404P.3	Understand Microstructures and their Applications for various uses
CO404P.4	Measure torsional strength , hardness of material
CO404P.5	Incorporate the various important concepts learnt while designing components

V SEMESTER	
BEME501T Industrial Economics & Entrepreneurship Development	
CO501.1	Know and understand basic concepts of Industrial Economics, its classification, Law of demand & various concepts related to demand.
CO501.2	Define various factors of production, Polices of firm & industry, Cost concepts & Methods of Depreciation.
CO501.3	Understand inflation & its effects, Direct & Indirect taxes, Types of Competition, Share Market & its terminologies.
CO501.4	Define innovation, creativity, etc. Concepts, development, IPR, Patent & Laws related to Patents.
CO501.5	Understand and execute concept & relations of Entrepreneurship, Entrepreneur, Growth affecting factors, various theories, Women Entrepreneurship & role, setup procedure & polices of SSI.
CO501.6	Know and apply procedure for preparation of project report, market survey & latest SSI schemes of DIC.
BEME502T: Design OF Machine elements	
CO502.1	Understand Mechanical Engineering Design, Design methods, different aspects in design. Design of type of riveted joint, knuckle joint and cotter joint.
CO502.2	Identify design of different types of bolted joints, welded joints and brackets, design of pressure vessel
CO502.3	Understand design of shafts under various loading conditions, design of different types of keys, coupling and springs.
CO502.4	Understand design of power screw and screw jack. Design of different types of clutches and brakes
BEME503T :Advanced production processes	

CO503. 1	Know and understand different types of non-conventional Machining processes and it's application in industry.
CO503. 2	Understand advanced joining processes and it's classification and applications in industry.
CO503.3	Understand advanced machining processes and it's classification in industry.
CO503.4	Understand and die cutting operations, make use of equipment for sheet metal working.
CO503. 5	Understand principle of jig and fixtures apply in industry.
CO503. 6	know principle of Super finishing processes, advantages and disadvantages and applications of laser in surface modifications.
BEME504T: HEAT TRANSFER	
CO504.1	Know and understand various mode of heat transfer, and law of heat transfer and conversion of energy required.
CO504.2	Understand one dimensional steady state and unsteady state heat conduction.
CO504.3	Know how to apply principle of convection and empirical and practical Relation for force convection.
CO504.4	Apply empirical and practical relations for free convection and its system.
CO504.5	Analyzed radiation heat transfer with and without radiation shield.
CO504.6	Design and to analyze heat exchanger equipment.
BEME504P HEAT TRANSFER (PRACTICAL)	
CO504.1	One dimensional steady state and unsteady state heat conduction
CO504.2	Principle of convection and Empirical and practical relations for

	forced convection
CO504.3	Empirical and practical relations for free convection and its systems.
CO504.4	Study and analyze radiation heat transfer.
CO504.5	Study, design and to analyze heat exchanger equipments.
BEME505T: Mechanical Measurement & Metrology	
CO505.1:	Know and understand basic concept of measuring system and generalized model of system elements and calibration.
CO505.2:	Measure linear and angular displacement, speed, load, force, torque & power.
CO505.3:	Measure the pressure, vacuum, sound, light and temperature without analytical treatment.
CO505.4	: Apply basic concept of standards for measurement of straightness and flatness.
CO505.5	: Understand to analyze limit, fits, tolerance & design limit gauge.
CO505.6:	Make use of comparators, optical profile projector and measurement of screw thrad and gear tooth.
BEME 505P: Mechanical Measurement & Metrology (Practical)	
CO505.1	: Understand and apply the basic measurement units and able to calibrate various measuring devices.
CO505.2:	Identify and apply various instruments for the measurement of different parameters, tolerances, advance concepts involved in measuring technology. (Measurements) & proper use of precision measuring instruments.
CO505.3:	Analyze accuracy and its effects on results and its uncertainty.
BEME506P-COMPUTER APPLICATION I (PRACTICAL)	
CO507. 1	Understand and use basic commands in a programming language
CO507. 2	Evaluate and apply knowledge for problem solving in the area of mechanical engineering
CO507. 3	Understand and analyse with mathamatical software.

BEME507P: Industrial Visit	
CO507.1	-Understand industrial culture and working environment.
CO507.2-	Interact with resource person to understand various machines, manufacturing process and techniques used in industry,
CO507.3-	Prepare a report on the gathered data and acquire presentation skills.
VI SEMESTER	
BEME601T: ENERGY CONVERSION - I	
CO601.1	Know and understand the thermal power plant process, boiler and its mountings and accessories.
CO601.2	Understand draught classification and its analysis, performance of steam generators.
CO601.3	Understand various fluidized bed boiler and working principle of cogeneration plant.
CO601.4	Understand the working principle of nozzle and steam turbines.
CO601.5	Analyze steam turbines.
CO601.6	Analyze steam condensers.
BEME602T: CONTROL SYSTEMS ENGINEERING	
CO602.1	Know various Study of Control System components and formulate Mathematical modeling of physical system.
CO602.2	Understand transfer function system representation through Block Diagram and Signal Flow Graph.
CO602.3	Compute system Response & Time Domain Response Analysis.
CO602.4	Analyse control system and to know its stability by using Root

	Locus Method.
CO602.5	Compute stability by using Domain analysis, Bode & Polar Plot.
CO602.6	Know state space representation of Continuous Time system.
(BEME603T):Operation Research	
C603.1	Compute LPP solution by Graphical method, Simplex method, Sensitivity analysis
C603.2	Use transportation model, Solution by MODI method, Assignment model, traveling salesman problem, Branch and bound techniques.
C603.3	Know and understand concept of Game theory, Criteria and optimal strategy mx2,2xn game methods, Sequencing model, n job 2 machine, n job 3 machine, 2 job m machine problems, inventory models, Analysis of Inventory model, ABC analysis
C603.4	Compute Network model, Formulation of network, CPM & PERT analysis, cost analysis, concept of crashing
C603.5	Apply techniques of Replacement model, Replacement of items that fails suddenly, Group replacement.
C603.6	Know and apply Queuing theory, M/M/I model, Simulations concept and application in waiting line simulations
BEME604T :MECHATRONICS	
CO604.1	Apply basics of mechatronics and its application
CO604.2	Understand system interfacing and data acquisition system
CO604.3-	Know basic of mechanical actuating system, electrical actuating system and pneumatic and hydraulic actuating system
CO604.4-	Analyze basics of digital logic and components of

	microprocessor CO604.5- Undertake basic of programmable logic control and applications of PLC control
CO604.6	Understand basic of SCADA, MEMS, etc
BE ME 604P: Mechatronics (Practical)	
CO604.1	Understand and use the basic components of mechatronics system.
CO604.2	Use and evaluate system using PLC and its ladder programming language.
CO604.3	Use and apply acquired knowledge gain in various electro pneumatic and electro hydraulic systems.
BEME605T :Dynamics of Machines	
CO605.1	Understand concepts of machine element dynamics, D' Alembert Principle, Concept of Precession, Gyroscopic Couple & Gyroscopic effect on airplane, ship & vehicle.
CO605.2	Execute and draw Dynamic force analysis of planer linkages by graphical method, virtual work method, Cam Dynamics, etc.
CO605.3	Study balancing of rotating masses & balancing of reciprocating mechanism.
CO605.4	Understand Fluctuation of energy of Flywheel, Flywheel selection, turning moment vs. crank angle diagram, Concept, types, working & characteristics of Governor.
CO605.5	Understand and apply Derivation of equation of motion for vibratory system, free vibration of single degree of freedom with & without damping, Logarithmic decrement, Forced vibration of single degree of freedom system, vibration isolation, whirling of shaft & critical speed of rotors.
CO605.6	Define Vibration absorber, Equation of motion for two degree of freedom, Torsional oscillation of two-disc & three-disc rotors and FFT analyzer
BEME605P: DYNAMICS OF MACHINES (Practical)	

CO605.1	Compute the moment of inertia of rigid bodies.
CO605.2	Demonstrate the working principles of gyroscope and cam.
CO605.3	Analyze and evaluate vibrations and balancing.
BEME607P:COMPUTER APPLICATION II (PRACTICAL)	
CO607. 1	Understand the concept and meaning of DBMS and apply it for Industrial application.
CO607. 2	Use the Entity relationship model and design ER Database scheme.
CO607. 3	Design and modify the Database using different SQL and DDL commands
BEME608P: Industrial Case Study	
CO608.1	-Observe men, machine and interaction in industrial working.
CO608.2	Identify various industrial problems.
CO608.3	Solve the problems identified by applying engineering knowledge.
CO608.4	-Develop analysis skill with industry interaction.
VII SEMESTER	
BEME701T: Industrial Engineering	
CO701.1:	Define productivity and apply the concept and practical application of productivity. .
CO701.2:	Estimate the time for completion of activity, method study and design of work place.
CO701.3:	Compute various forecasting methods.
CO701.4:	Know and understand maintenance, their types, Reliability, maintainability, data analysis.
CO701.5:	define and apply modern tools of quality controls.
CO701.6	: Know Statistical Quality Control, Quality Planning, assurance, audit and Philosophy of quality improvements

BEME702T3: ELECTIVE -1 Automobile Engineering	
C0702.1	now and understand basic concept of layout of chassis and its main component, frame, rigid vehicle. Various type of engine used in automobile their fuel supply system cooling & lubricating system.
C0702.2	Understand necessity requirement & type of clutches system & transmission.
C0702.3	Understand various types of transmission system & components. Necessity and type, working of breaks.
C0702.4	Understand principle of steering & various terminology used in steering system, working & function of suspension system.
C0702.5	Understand working & various methods of testing & charging of electrical system and ignition system. Various concept used in wheels &tyres.
C0702.6	Understand safety consideration, modern development in automobile.
BEME702T4: ELECTIVE -1 Power Plant Engineering	
CO702.4.1	know and understand sources of energy and power, indian energy scenario with various term's and definition in fluctuating load and it's effect. Economics in power plant and it's scheduling.
CO702.4.2	Understand ideal working fluid for vapour power cycles with regeneration and reheating. Gas turbine and steam turbine power plant with regeneration and reheating.
CO702. 4.3	understand properties and analysis of coal with combustion reaction and it's equipment for burning coal. Layout of steam power plant and it's various components.

CO702.4.4	understand components of hydroelectric power plant, it's classification and it's comparison with other power plant with hydrology containing rainfall, hydrograph.
CO702. 4.5	Understand components of nuclear reactor and it's classification. Effect of nuclear waste on environment and it's disposal.
CO702. 4.6	understand components of gas turbine power plant and it's classification. Different components of diesel power plant and it's performance along with emerging technologies
BEME703T: COMPUTER AIDED DESIGN	
CO703.1	Know basic concept of CAD, Comparison between CAD and conventional design, generation of algorithms for basic geometric entities.
CO703.2	Understand Introduction to windowing & clipping, 2D transformation, 3D transformation.
CO703.3	Know Techniques for geometric modeling and assembly modeling.
CO703.4	Understand Finite element analysis of one dimensional problem, Finite element modeling and Potential energy approach.
CO703.5	Analyse Truss and Two dimensional Problems, Derivation of shape functions for CST element, Pre processing and Post processing..
CO703.6	Know optimization in Design, objectives of optimum design, Johnson's method of optimum design, Optimum design with normal and redundant specifications of simple machine elements
BEME703P: COMPUTER AIDED DESIGN (Practical)	
CO703.1	Understand and analyse the basic algorithms used in software

	development for Computer Aided Design.
CO703.2	Understand the various softwares available for modeling mechanical parts and analyse and evaluate mechanical engineering problems.
CO703.3	Understand the various softwares available for stress analysis of mechanical parts and evaluate problems using software
BEME704T :ENERGY CONVERSION — II	
C0704.1	Understand construction, operation and analysis of Positive displacement type of air compressors.
C0704.2	Know and understand construction, operation and analysis of Blowers, Centrifugal and Axial flow compressor.
C0704.3	Understand introduction, classification , working, Combustion and Fuel
C0704.4	Apply Testing of I. C. Engines, procedure and Performance with measuring instruments.
C0704.5	Execute detail analysis of conventional single stage vapour compression refrigeration system and Introduction to Vapor absorption and air
C0704.6	Apply concepts and analysis of Psychometric process of simple Air conditioning system.
BEME704P :ENERGY CONVERSION-II (Practical)	
C0704.1	Perform experiments to understand working and operation of compressors, I. C. Engines and Mini Power Plant.
C0704.2	Demonstrate the working and operational terminology. of I. C. Engine.
C0704.3	Understand and apply the knowledge of Vapour Compression Refrigeration and air conditioner system.

BEME705T: DESIGN OF MECHANICAL DRIVES	
CO705.1	Understand and Execute design of Coupling, Design of Flywheel; Functions, design of flywheel. Design of Bearings
CO705.2	Understand and Execute design of Flat belt drive, analysis of belt tension, condition for transmitting maximum power, Design of V- belt drive; Functions, Design of Roller chain drive. Design of Wire rope drive
CO705.3	Understand and Execute design of Gears, Design of Spur Gear drive, Helical gear drive. Design of Bevel Gear drive.
CO705.4	Understand and Execute design of Worm Gear drive, Design of I.C. Engine Components, Introduction to selection of material for I.C. Engine components
BEME705P: DESIGN OF MECHANICAL DRIVES (PRACTICAL)	
CO705.1	Design various mechanical components like gears, belts, bearings, wire rope etc.
CO705.2	Select and design antifriction bearings
CO705.3	Analyze different mechanical drives and also design them
BEME706P: PROJECT SEMINAR	
CO706.1	-Learn to collect technical information from different types of literature surveys like reference books, hand books, journals, internets, etc.
CO706.2	-Demonstrate a sound technical knowledge of their selected project topic.
CO706.3-	Undertake problem identification, formulation and solution.

CO706.4	-Design engineering solutions to complex problems utilizing a systems approach of technical writing, critical thinking and competence in presenting.
VIII SEMESTER	
BEME801T: Industrial Management	
CO801.1	Apply various principles, concepts of management, Principles of Henry Fayol & it functions.
CO801.2	Know and understand meaning, functions of personal management, worker's welfare, etc.
CO801.3	Know and correlate meaning & concepts of marketing management, new product development, etc.
CO801.4	Understand Financial management, sources of finance & various concepts related to budget.
CO801.5	Know meaning, principles & selection of plant location, plant layout, Industrial safety, types of production, etc.
CO801.6	Identify recent trends in production & operation management and understand Reverse Engineering.
BEME802T1 :Finite Element Method	
CO802.1.1-	Apply basic concepts of finite element method which consist types of element, boundary conditions, shape function, co ordinate systems etc. It also includes basics of solid mechanics and matrix algebra.
CO802.1.2-	Understand truss element, beam element and frame elements stiffness matrix and their use.
CO802.1.3	Know multipoint constraint 1D element, 2D CST element and isoparametric elements stiffness matrix and their use.
CO802.1.4	Understand concept of heat transfer and un-damped free vibration in finite element problems and also software basics as pre-processing and post-processing.

BEME802T2 :COMPUTER INTEGRATED MANUFACTURING	
CO805.2.1	.Evaluate and understand Concept ,scope and Components of CIM along with the Basic Concept of Concurrent Engineering.
CO805.2.2.	Define NC, CNC & DNC their Basic Components and classification of CNC machine tools.
CO805.2.3.	Know Group Technology, benefits of GT and issues in GT. Part families, classification and coding with Production flow analysis.
CO805.2.4	. Understand Flexible manufacturing systems, Level of Flexibility. FMS components, Material handling & storage system, along with FMS Layout Configurations.
CO805.2.5.	Understand Manufacturing Planning, Computer aided process planning (CAPP), Retrieval & Generative CAPP systems and various Production Planning.
CO805.6.	Apply Computerized statistical process control, Shop floor control, Shop floor data collection techniques, CAQC and Automated inspection devices.
BEME802P2: COMPUTER INTEGRATED MANUFACTURING	
CO802P2.1	Understand the basic of computer integration with respect to software and hardware in manufacturing.
CO802P2.2	Evaluate and create different NC manual part programming for manufacturing of components.
CO802P2.3	Understand and apply the knowledge of group technology, computer aided process planning and flexible manufacturing system.
BEME802P5: REFRIGERATION AND AIR CONDITIONING (Practical)	
C0802P5.1	Demonstrate the use of various tools and equipments used for installation, maintenance & repair of refrigeration systems and testing and charging of vapour compression refrigeration system.
C0802P5.2	Understand and analyse various types of compressor, condenser, expansion devices and evaporators used in RAC

	and also perform experiments on vapour compression test rig to determine COP of the system.
C0802P5.3	Understand and analyse vortex tube, window air conditioning system and performs experiments on Air-conditioning test rig.
BEME803T1 ELECTIVE-III: ADVANCED MANUFACTURING TECHNIQUES	
CO803.1.1	Study Need, classification and historical development of nontraditional machining processes.
CO803.1.2	Understand Machining and process parameters of AJM process, Ultrasonic machining process, water jet machining process.
CO803.1.3	Study ECM, EDM, LBM and plasma arc machining process.
CO803.1.4	Study details study of MIG and TIG, LASER beam welding and submerge arc welding etc.
CO803.1.5	Study solid phase welding such as ultrasonic welding, friction welding with recent developments.
CO803.1.6	Study various advance casting processes like continuous casting, evaporative pattern casting, centrifugal casting, etc.
BEME803T5: ELECTIVE ADVANCE INTERNAL COMBUSTION (IC). ENGINE - ELE=III	
C0803 5.1	Understand engine classification, its components, different lubrication system and engine losses.
C0803.5.2	Know conventional and alternative fuel of automobile with the fuel injection system.
C0803.5.3	Understand combustion stage, ignition system and modern tech charging the SI. engine
C0803.5.4	Know and incorporate combustion stages, ignition system an

	techniques of charging the C.I. engine with auxiliary apparatus
C0803.5.5	Understand air pollution cause due to LC. engine with exhaust treatment system for controlling the pollution.
C0803.5.6	Execute testing of all important parameter of the engine, with as characteristics.
BEME803T5: ELECTIVE ADVANCE INTERNAL COMBUSTION (IC). ENGINE	
C0803 5.1	Understand engine classification, its components, different lubrication system and engine losses.
C0803.5.2	Know conventional and alternative fuel of automobile with the fuel injection system.
C0803.5.3	Understand combustion stage, ignition system and modern tech charging the SI. engine
C0803.5.4	Know and incorporate combustion stages, ignition system an techniques of charging the C.I. engine with auxiliary apparatus
C0803.5.5	Understand air pollution cause due to LC. engine with exhaust treatment system for controlling the pollution.
C0803.5.6	Execute testing of all important parameter of the engine, with as characteristics.
BEME804T : AUTOMATION IN PRODUCTION	
CO804.1.	Understand definition, types, reasons, strategies for automating, arguments for and against automation along with partial automation and manual assembly lines.
CO804.2	.Know basic concepts, coordinate system and machine motion,Types of NC system ,part programming and tape formats, APT programming and Adaptive control.
CO804.3	.Familiarze with robot anatomy, end effectors, sensors, robot

	programming and applications.
CO804.4	.Understand Automated Guided Vehicle Systems and their Types, AGVS. Vehicle guidance & routing, Traffic control & AS/RS.
CO804.5.	Execute Automated inspections, Machine vision image acquisition & digitization, image processing &Group Technology: Part families, parts classification & coding, Opitz classification systems production
CO804.6.	Know about Manufacturing planning, manufacturing control, Computer integrated manufacturing, FMS and CAPP.
BEME804P:Automation in Production Practical	
CO804.1	Know and understand various types of automation and their properties
CO804.2	Analyse programming of the part, with NC manual part programming and make the part/s with the NC machine
CO804.3	Write and create programs to operate Industrial Robot for pick/place operations and understanding group technology and FMS
BEME805T: ENERGY CONVERSION — III	
C0805.1	Understand Principles and working, and analysis of Gas Turbine.
C0805.2	Understand Principles & working of turbojet, turboprop, Ramjet & pulse jet and its analysis. Introduction and working of Nuclear Power Plant.
C0805.3	Define the principle and working of various solar energy equipments.
C0805. 4	Execute Energy Auditing

C0805.5	Know various Hydraulic systems.
C0805.6	Know various Pneumatic Systems.
BEME805P: ENERGY CONVERSION - III (PRACTICAL)	
CO805.1	CO805.1 Principle and working, and study of Gas turbine and jet propulsion system.
CO805.2	CO805.2To study energy auditing.
CO805.3	CO805.3 To Study principle and working of various solar energy system.
CO805.4	CO805.4 Study of various hydraulic system.
CO805.5	CO805.5 Study of various pneumatic system.
BEME806P:: PROJECT	
CO806.1-	Convert their conceptual ideas into working projects which will be of an analytical, experimental, design or computational nature (or a combination of these), with significant elements of originality.
CO806.2-	Explore the possibility of publishing papers in peer reviewed/UGC approved journals/conference/proceedings.
CO806.3-	Enhance their knowledge through an on-line collection of evidence, work and other information that shows the development of student learning, knowledge, skills and abilities thereby promoting learning through independent research.
CO806.4-	Ultimately promotes for inter-personal communication, punctuality, demonstration of appropriate written and oral communication skills with overall Work-Integrated-Learning.
CO806.5-	Develop an understanding of social, cultural, professional,

	ethical, global and environmental responsibilities of the professional Engineer, and the principles of sustainable design and development.
CO806.6-	Learn new software applications & skills in the selected areas of Engineering.