

## NAGPUR INSTITUTE OF TECHNOLOGY, NAGPUR

### Department of Mechanical Engineering

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### Program Outcomes (UG)

PO1	<b>Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2	<b>Problem analysis:</b> Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3	<b>Design/development of solutions:</b> Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO4	<b>Conduct investigations of complex problems:</b> Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO5	<b>Modern tool usage:</b> Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO6	<b>The engineer and society:</b> Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO7	<b>Environment and sustainability:</b> Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO8	<b>Ethics:</b> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9	<b>Individual and team work:</b> Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10	<b>Communication:</b> Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO11	<b>Project management and finance:</b> Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO12	<b>Life-long learning:</b> Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

### Program Specific Outcomes

<b>PSO1</b>	To develop capabilities to face the challenges in industry through industry institute interaction.
<b>PSO2</b>	in the field of Electrical Engineering.
<b>PSO3</b>	Student should be able to use computational techniques to design and analyse Electrical systems
<b>BE ME- III T Applied Mathematics – III</b>	
<b>C301.1</b>	The students would be able to solve numerical on Fourier Series & partial differential equations.
<b>C301.2</b>	The students would be apply partial differential equations in column buckling problems, behavior of structures subjected to dynamic loads and in unsteady flow problems in fluid mechanics.
<b>C301.3</b>	The students would be apply problems related to finite element analysis using calculus of variations
<b>C301.4</b>	The students would be able to analyze structures for static and dynamic loads using matrices and Eigen value.
<b>C301.5</b>	There are several applications of Numerical methods using computers especially in structural and Fluid Mechanics where classical solutions are tedious.
<b>C301.6</b>	The students would be able to optimize the recourses using simplex methods of linear programming.
<b>BE ME 302T KINEMATICS OF MACHINE</b>	
<b>CO302.1</b>	Understand the principles of kinematic pairs, chains and their classification, DOF & inversions
<b>CO302.2</b>	Analyze the planar mechanisms for position, velocity and acceleration.
<b>CO302.3</b>	Design cams and followers for specified motion profiles.
<b>CO302.4</b>	Evaluate Kinematics characteristics of gears
<b>CO302.5</b>	Synthesis of mechanism by graphical method.
<b>CO302.6</b>	Understand the concept of friction and its application like clutch , brake & dynameters etc.
<b>BE ME 303T FLUID MECHANICS</b>	
<b>CO303.1</b>	State the Newton's law of viscosity and Explain the mechanics of fluids at rest and in motion by observing the fluid phenomena.
<b>CO303.2</b>	Calculate force of buoyancy on a partially or fully submerged body and Analyze the stability of a floating body.
<b>CO303.3</b>	Derive Euler's Equation of motion and Deduce Bernoulli's equation.
<b>CO303.4</b>	Evaluate pressure drop in pipe flow using Hagen-Poiseuille's equation for laminar flow in a pipe.
<b>CO303.5</b>	Examine energy losses in pipe transitions and sketch energy gradient lines.
<b>CO303.6</b>	Analyze Development of Boundary Layer on a flat plate and calculate Lift and Drag force .
<b>BE ME 304T MANUFACTURING PROCESSES</b>	
<b>CO304.1</b>	Understand the principle and working of pattern making and moulding processes
<b>CO304.2</b>	Understand gating system and the principle and working of casting process
<b>CO304.3</b>	Understand the principle and working of various joining process
<b>CO304.4</b>	Understand the principle and working of various forming process
<b>CO304.5</b>	Understand the principle and working of various press working process
<b>CO304.6</b>	Understand the principle and working of various plastic manufacturing process
<b>BEME305T ENGINEERING METALLURGY</b>	

CO305.1	Understand the engineering material & its classification, atomic structure of metals, imperfections, mechanism of plastic deformationalloys
CO305.2	Understand Binary equilibrium diagrams, solid solutions, Iron-Iron carbide diagram, invariant reactions.
CO305.3	Understand Time-temperature transformation curves and heat treatment processes and surface hardening
CO305.4	Understand Alloy steels, Tool steels, Effect of alloying elements on properties of steels and stainless steels.
CO305.5	Understand Cast iron, their types, alloy cast iron, on ferrous alloys, brasses and bronzes
CO305.6	Remember Principles of hardness measurement, Hardness Test, Non destructive Tes, Powder metallurgy process and its applications..
<b>BEME306P MACHINE DRAWING</b>	
CO306.1	Outline standards for drawing sheets, name blocks, lines, section dimensioning
CO306.2	Reproduce Orthographic projections of elements.
CO306.3	Illustrate type/size and standard practices for threads, bolts, nuts, keys.
CO306.4	Reproduce assembly and dismantling, fit and tolerances.
CO306.5	Illustrate of some standard assemblies.
CO306.6	Reproduce production drawing.
<b>BE ME 307P TECHNICAL REPORTS &amp; SEMINAR</b>	
CO307.1	Students will be able to familiarize themselves with new technical topics
CO307.2	students will be able to participate in technical seminars and paper contests
<b>BEME 401T APPLIED MATHEMATICS – IV</b>	
CO401.1	The students would be able to solve numerical on Fourier Series & partial differential equations.
CO401.2	The students would be apply partial differential equations in column buckling problems, behavior of structures subjected to dynamic loads and in unsteady flow problems in fluid mechanics.
CO401.3	The students would be apply problems related to finite element analysis using calculus of variations
CO401.4	The students would be able to analyze structures for static and dynamic loads using matrices and Eigen value.
CO401.5	There are several applications of Numerical methods using computers especially in structural and Fluid Mechanics where classical solutions are tedious.
CO401.6	The students would be able to optimize the recourses using simplex methods of linear programming.
<b>ME 402T ENGINEERING THERMODYNAMICS</b>	
CO402.1	Understand basic concepts of thermodynamics system, zeroth law of thermodynamics, First law of thermodynamics and ideal gas.
CO402.2	Analysis of First law of Thermodynamics for Closed System undergoing a process and cycle (Control Mass System) and Open System (Control Volume System) and Steady Flow process.
CO402.3	Analysis of Second Law of Thermodynamics, Entropy, Reversible and Irreversible Processes, Availibility of the systems.
CO402.4	Calculate properties of the steam using steam table and Mollier chart.
CO402.5	Calculate the efficiency of vapour carnot cycle and rankine cycle with regeneration, superheating and reheating.
CO402.6	Estimate workdone and efficiency of otto, diesel, dual, brayton, stirling, Ericson air standard cycles.
<b>BE ME 403T HYDRALIC MACHINE</b>	

CO403.1	Understand the Basic concept of compressible flow and impact of jet
CO403.2	To design the Elements of Hydroelectric power plant and impulse turbine.
CO403.3	To understand Reaction turbine, Kalpan Turbine and their performance characteristics.
CO403.4	To understand Hydrodynamic pump their application and their design and performance characteristics.
CO403.5	To understand Positive displacement pump, their basic principal and other miscellaneous pump.
CO403.6	To understand Model testing of hydraulic machines and other water lifting devices.
<b>BE ME 404T MACHINING PROCESSES</b>	
CO404.1	Identify, Classify and select the tool materials, Tool Geometry, and calculate the tool's life.
CO404.2	Demonstrate the operations, application and recent development of lathe machines
CO404.3	Understand the operation, mechanism and Industrial application of shaper, slotter and Planner.
CO404.4	Prepare the job on milling machine along with selecting of various tools and operations.
CO404.5	Identify the types of grinding machines along with advanced finishing processes.
CO404.6	Select tools and processes for drilling, reaming, boring and broaching operations.
<b>BE ME 405T MECHANICS OF MATERIAL</b>	
CO405.1	Understand the Basic concept of simple stresses and strain.
CO405.2	Evaluate shear force, bending moment and stresses in beam.
CO405.3	Analyze deflection of beam and interpret principal plane & principal stresses.
CO405.4	Analyze Column & struts in buckling for various end conditions. Design shaft on strength and rigidity criteria under various loading.
CO405.6	Analyze fracture and strain energy under different types of loading.
CO405.5	Understanding theories of failure for static & dynamic loading.
<b>BE ME 406T ENVIRONMENTAL STUDIES</b>	
CO406.1	Understand important aspects in environment and natural resources
CO406.2	Understand of ecosystem, energy flow and ecological system
CO406.3	Understand biodiversity introduction values threats to bio-diversity
CO406.4	Understand pollution definition, solid waste management, Disaster management Floods, Earth quakes, Cyclone and land slides.
CO406.5	Unsustainable to sustainable development, Environmental ethics, Preserving Resources for future generations, Environment legislations.
CO406.6	Understand Global population, Environment and human health, Human rights
<b>ME 407P MINI PROJECT</b>	
C407.1	Student will learn regarding fabrication/construction of a simple mechanical or electro-mechanical working model using various manufacturing processes.
C407.2	Students will be able to familiarize themselves with new technical topics
C407.3	Students participate in technical seminars and paper contests
<b>BE ME 501T INDUSTRIAL ECONOMICS AND INDUSTRIAL DEVELOPEMENT</b>	
CO505.1	Understand the concept of Industrial Economics and law of demand in market.
CO505.2	Explain the various financial aspects involved in manufacturing industry.
CO505.3	Define the price of the product in different market competition.
CO505.4	Extend innovation and creativity to Intellectual Property Rights (IPR).
CO505.5	Summarize for selecting Entrepreneur as career option
CO505.6	Prepare business project report on innovative/creative idea
<b>BE ME 502T DESIGN OF MACHINE ELEMENTS</b>	

CO502.1	Understand principles of design, failures of the joints and its actual application in the industry.
CO502.2	Design of different types of bolted joint, welded joints and Brackets. Design of Pressure vessel
CO502.3	Design of shaft under various loading condition. Design of different types of keys. & Springs.
CO502.4	Design of power screw and screwjack. Design of different types of clutches and brakes
<b>BE ME 503T ADVANCED PRODUCTION PROCESSES</b>	
CO 503.1	Understand different types of non-conventional machining processes and its applications in industry
CO 503.2	Apply advanced joining processes, its classification and applications in industry.
CO 503.3	Apply advanced machining processes, its classification and applications in industry.
CO 503.4	Understand Die cutting operations, equipments for sheet metal working
CO 503.5	Apply principle of jig and fixtures its classification and applications in industry
CO 503.6	Understand principle of superfinishing processes, advantages and disadvantages and application of LASER in surface modification
<b>BE ME 504T HEAT TRANSFER</b>	
CO 504.1	Understand the basic modes of heat transfer. Compute temperature distribution in steady-state and unsteady-state heat conduction.
CO 504.2	Understand and analyse heat transfer through extended surfaces.
CO 504.3	Interpret and analyze forced convection heat transfer.
CO 504.4	Interpret and analyze free convection heat transfer.
CO 504.5	Understand the principles of radiation heat transfer.
CO 504.6	Design heat exchangers using LMTD and NTU methods. Basics of mass transfer.
<b>BE ME 505T MECHANICAL MEASUREMENT AND METROLOGY</b>	
CO 505.1	Students will appreciate/ Comprehend the importance of accuracy and its effects on results and its uncertainty. Students will describe basic concepts of mechanical measurement and errors in measurements.
CO 505.2	Students will Understand methods of measurement for various quantities like force, torque, power, displacement, velocity/ speed and acceleration.
CO 505.3	Students will Understand methods of measurement for various quantities like Pressure, Vacuum, Sound, Light and Temperature. Students will select appropriate temperature measuring device for various applications
CO 505.4	Students will Understand basic concepts of Metrology ; Students will select linear measuring instrument for measurement of various components
CO 505.5	Students Interpret angular and taper measurement devices for measurement of various components
CO 505.6	Students will Identify /evaluate quality of surface produced using various methods , Students will discriminate capabilities of machining process by measuring surface finish of the component produced
<b>BE ME 506T COMPUTER APPLICATIONS 1</b>	
CO 506.1	Understand the basic Concept of C language
CO 506.2	Interprete the application of C language to Mechanical Engineering Problems
<b>BE ME 507T INDUSTRIAL VISIT</b>	
CO 507.1	get practical exposure and opportunities for acquiring knowledge regarding manufacturing and service industries/organizations
CO 507.2	acquaint them with industrial culture.
CO 507.3	describe the usage of different technologies/tools/concepts related to Design, operations, quality control, maintenance, automation in industries.

<b>BE ME 601T ENERGY CONVERSION 1</b>	
<b>CO 601.1</b>	Understand layout of power plant and principle, fuel, classification, components of steam generator.
<b>CO 601.2</b>	Calculate the chimney height, diameter, efficiency and performance of the boiler.
<b>CO 601.3</b>	Understand Fluidized bed boiler, coal handling, ash handling and cogeneration.
<b>CO 601.4</b>	Calculate maximum discharge, critical pressure ratio and effects of friction, calculation of throat and exit areas, supersaturated flow of steam Nozzles.
<b>CO 601.5</b>	Calculate work done, thrust and power, dimensions and proportioning of the blades, efficiencies of steam turbines.
<b>CO 601.6</b>	Understand quality and quantity of cooling water required, Dalton's law of partial pressure, sources of air leakages and Cooling towers.
<b>BE ME 602T CONTROL SYSTEMS ENGINEERING</b>	
<b>CO602.1</b>	Analysis of Control System components, Translational, rotational mechanical systems, Electric systems, Electronic system and Electromechanical system by using Modeling of physical system.
<b>CO602.2</b>	Prescribe control components and control systems using block diagrams , Signal Flow Graph by using Masons Gain Formula and transfer functions
<b>CO602.3</b>	Analyze systems responses for various kinds of input signals and also to analyze transient responses of simple control system
<b>CO602.4</b>	Experimental determination and analysis of stability, limitations. Root locus plot.
<b>CO602.5</b>	Determination and analysis of frequency response of control systems
<b>BE ME 603T OPERATIONS RESEARCH</b>	
<b>CO603.1</b>	Understand the concept of mathematical modeling and optimum utilization of resources by using Linear Programming Model.
<b>CO603.2</b>	Utilize resources effectively by using allocation technique.
<b>CO603.3</b>	Apply sequencing technique to reduce cycle time of the product
<b>CO603.4</b>	Evaluate the project by using CPM & PERT Network technique
<b>CO603.5</b>	Identify replacement policies for different type of items.
<b>CO603.6</b>	Simulate the situation of waiting line, inventory to take decision on resources planning.
<b>BE ME 604T MECHATRONICS</b>	
<b>CO604.1</b>	Understand basic mechatronics system, design, control system
<b>CO604.2</b>	Understand basics of microprocessor, analog electronics circuits
<b>CO604.3</b>	Analysis of actuatures, mechanical and electrical actuators
<b>CO604.4</b>	Understand basics of logic gates and digital electronics circuits
<b>CO604.5</b>	Understanding about PLC and programming Languages
<b>CO604.6</b>	Analysis of Mechtronics and example of Mechatronics System
<b>BE ME 605T DYNAMICS OF MACHINE</b>	
<b>CO605.1</b>	Interpret the theory behind gyroscopic couple and to predict the effect of gyroscopic couple in aircraft, ships and automobiles and concept of D Alembert's principle
<b>CO605.2</b>	Investigate static and dynamic force in planar mechanism graphically
<b>CO605.3</b>	Predict balancing of rotating and reciprocating masses.
<b>CO605.4</b>	Analyze different types of mechanical governors and flywheel.
<b>CO605.5</b>	Understand the concept of single degree of freedom vibratory system.
<b>CO605.6</b>	Understand the concept of two degree of freedom vibratory system.
<b>BE ME 607T COMPUTER APPLICATIONS II</b>	

<b>CO607.1</b>	Understand the concept and meaning of DBMS and also its industrial applications.
<b>CO607.2</b>	Summarise Entity Relationship Model and be able to apply the knowledge to industrial application.
<b>CO607.3</b>	Summarise the database for modification and updation.
<b>BE ME 606T FUNCTIONAL ENGLISH</b>	
<b>CO606.1</b>	<b>1. Functional Grammar</b> c. Question tag errors d. Preposition errors e. Misplaced modifiers f. Lexical errors g. Voice change h. Direct and indirect speech i. Simple, Compound and Complex j. Phrases and Idioms i. All the above items mentioned will ensure correct grammatical usage of English Language. ii. Both Written and spoken English can be improved with these items divided in steps will ensure step by step learning iii. Correction as mentioned above will ensure accuracy in correspondences iv. Correct grammatical usage of English v. To help the students to Compete all Competitive Examinations Both Written and spoken English can be improved with these items divided in steps will ensure step by step learning. 1. Prefixes/Suffixes 2. Technical jargons (assignments) 3. Words/Phrases derived from other languages 4. Synonyms / Antonyms 5. Analogies /Give one word for  i. Vocabulary building is the gist of this unit which will help in all Competitive exams and over all development of the personality with command over language - English ii. Technical Jargons will give an edge over the profession you are in iii. Analogies will particularly help in logical thinking and analytical thinking iv. IPA will help in correct pronunciation and knowing the different varieties of English particularly for e branches as these employees often migrate to foreign countries.
	<b>2. Job Interviews</b>

CO606.2	<ol style="list-style-type: none"> <li>1. Interview Techniques</li> <li>2. Types of interview</li> <li>3. Preparing for interview</li> </ol> <p>i. In order to clear the last and the most important hurdle in placement is oral communication i.e. Interview round, this unit is designed to help the students understands the psyche of the employer and his expectation from the employee.</p> <p>ii. Will ensure and boost the confidence of the interviewer</p> <p>iii. An apt description in which the interviews are conducted and the types of interviews.</p>
CO606.3	<p><b>3. Formal Correspondence ( memo form &amp; e-mail form)</b></p> <ol style="list-style-type: none"> <li>1. Job Application &amp;Resume Writing</li> <li>2. Inquiry &amp; Quotations &amp; Order &amp; complaints</li> <li>3. Circulars/ Notices &amp; Memos</li> </ol> <p>i. This unit is designed to give written skills required almost in all formal correspondence.</p> <p>iv. This particular Unit will give an edge over the competitors and help the learners to use the most coveted style in which formal correspondences are done and required.</p>
CO606.4	<p><b>4. Analytical Comprehension</b></p> <ol style="list-style-type: none"> <li>1. Fictional passages</li> <li>2. Non-fictional passages</li> </ol> <p>i. This unit which will help in all Competitive exams and command over language</p> <p>ii. Improve the understanding and interpretative skills</p> <p>iii. Will enhance vocabulary</p> <p>iv. Will help in understanding different context and the culture or the scientific investigation behind it.</p> <p>v. Improve reading habits, very important skill required to learn language.</p>
CO606.5	<p><b>5. Technical Writing &amp; Scientific Writing (Projects Proposals)</b></p> <ol style="list-style-type: none"> <li>1. Technical Reports (Accident, feasibility, trouble, progress, investigation etc.)</li> <li>2. Manuals</li> </ol> <p>i. In order to be proficient in working and reporting the necessary information to the Upper and Middle Management this unit will help the students understand the technicality of the formal writings as these.</p> <p>ii. Will help students learn how proposals are forwarded</p> <p>iii. Will also ensure to help to write-research papers</p> <p>iv. Will help students to manage Projects independently</p> <p>v. Will help students to become Entrepreneur</p>
<b>BE ME Industry Case Study</b>	
CO608.1	Identify various industrial/organizational problems.
CO608.2	solved industrial/organizational problems using methods/techniques/theories studied in curriculum



CO608.3	Prepare technical report & present work on case study done at industry
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<b>BE ME 701T Industrial Engineering</b>	
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CO701.1	Student should able to gain the knowledge of Productivity and its technique.
CO701.2	Student should be able to estimate of time required for completion of any activity or job.
CO701.3	Student should be able to Forecast the demand for future.
CO701.4	Student should be able to apply the Maintenance and Reliability policy.
CO701.5	Student should be able to design sampling plans and various tools for quality control.
CO701.6	Student should be able to understand advance tools of quality control.

<b>BE ME 702T3 Automobile Engineering</b>	
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CO702.1	Understand the basic concepts of automobile, classification and its components.
CO702.2	Exposure to different types of clutches and transmission of gear box with its working and application.
CO702.3	Understand the concept of transmission system and different types of brake used in automobile.
CO702.4	Analyze the concept of linkage and steering linkage mechanism with different types used in automobile and different types of suspension system.
CO702.5	Understand the electrical system used in automobile, Classification, specification wheel and tyre.
CO702.6	Understanding of Body and Safety Considerations and Modern Developments in Automobiles

<b>BE ME 703T Computer Aided Design</b>	
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CO703.1	Understand the fundamentals of various computer aided design Processes.
CO703.2	Understand the transformation & various transformation techniques
CO703.3	Understand the various Techniques for Geometric Modeling & Curve plotting
CO703.4	Understand the fundamentals of finite element method for shaft.
CO703.5	Understand the fundamentals of finite element method for truss & CST Element.
CO703.6	Understand the various Optimization in engineering design techniques.

<b>BE ME 704T and BEME704P ENERGY CONVERSION - II (Theory)</b>	
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CO704.1	Design Reciprocating air compressor.
CO704.2	Compute the problems on Rotary air compressor.
CO704.3	Understand the internal combustion engine and its application.
CO704.4	Analysis of design parameter of the internal combustion engine.
CO704.5	Estimate the problems on Refrigeration System.
CO704.6	Calculate the problems on Air conditioning System.

<b>BE ME 705T DESIGN OF MECHANICAL DRIVES</b>	
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CO705.1	Design of Coupling, Flywheel and Bearings.
CO705.2	Design of Flat belt drive, V belt drive Roller chain drive and wire rope drive.
CO705.3	Design of Spur Gear, Helical Gear and Bevel Gear Drive.
CO705.4	Design of Worm Gear Drive and I. C. Engine components,

<b>BE ME 706T PROJECT SEMINAR</b>	
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CO706.1	students will execution to inculcate the habit of learning and work as a member of the team to achieve the final objective.
CO706.2	students will identify project topic, collection of literature, preparation with seminar delivery.schedule preparation and report

<b>BE ME 801T Industrial Management</b>	
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CO801.1	Understanding of evolution of management thoughts and the principles of scientific management.
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CO801.2	Understand the functions of personnel management and the related legislations
CO801.3	Explore the core concept in marketing, Product Life cycle, Pricing.
CO801.4	Awareness regarding concept of finance management, various sources of generating the finance and to understand the books of account
CO801.5	Understand the Channel of product distribution, concept of material management, Purchase function, Vender Selection, Ethics in purchasing and various codifications.
CO801.6	Get overview of the marketing function and the various sources of finance.
<b>ELECTIVE-II BE ME 802 T5 REFRIGERATION AND AIRCONDITIONING (Theory)</b>	
CO802.1	Student should understand the basics of various refrigeration cycles and its nomenclature.
CO802.2	Analyze the Compound Vapour Compression Refrigeration system and multiple evaporator system.
CO802.3	Compute the problems on Air cycle refrigeration & its application.
CO802.4	Understand the concepts of Basics and application of the Cryogenics.
CO802.5	Understand the various Advanced Psychometric processes & Calculate its Heat Load Calculations
<b>BE ME 802 T2 COMPUTER INTEGRATED MANUFACTURING</b>	
CO805.1	Understand the role of computer integrated manufacturing systems & Concurrent Engineering.
CO805.2	Prepare Manual part programming & to perform the manufacturing on CNC.
CO805.3	Form part families by using various techniques of Group Technology.
CO805.4	select and integrate process equipment for flexible manufacturing and computer integrated manufacturing systems
CO805.5	Develop Computer Aided process planning under diverse manufacturing situations
CO805.6	manage shop floor control by using CAQC, CMM, Inventory Models.
<b>BE ME 803 T -ADVANCE INTERNAL COMBUSTION (IC) ENGINE</b>	
CO803.1	Understand the basic concept of I.C. engine and its components.
CO803.2	Apply the concept of Automotive fuels & Fuel injection in Automobile domain.
CO803.3	Understand the Combustion in S.I. Engine.
CO803.4	Understand the Combustion in C.I. Engine.
CO803.5	Understand the Air pollution & control
CO803.6	Analysis of Engine testing and performance parameters
<b>BE ME 804T AUTOMATION IN PRODUCTION</b>	
CO804.1	Understand the automation which is used to increase production and types of automation.
CO804.2	Exposure and analysis of numerical control system, NC machines, CNC machines, DNC machines.
CO804.3	Understand the concept of industrial robotics robot anatomy, and robot applications etc.
CO804.4	Cultivate the understanding about automated material handling systems, automated storage and retrieval system.
CO804.5	Understand the automated inspection and group technology, machine cell design etc.
CO804.6	Learn the concept of computer aided manufacturing, computer aided process planning and flexible manufacturing system.
<b>BE ME 805T ENERGY CONVERSION - III</b>	
CO805.1	Analysis of the gas turbine plant and method of improvement of thermal efficiency of gas turbine plant.

<b>CO805.2</b>	Compute the problems on jet propulsion its applications and the operation of Nuclear Power plant.
<b>CO805.3</b>	Understand the solar energy and its applications.
<b>CO805.4</b>	Understand the energy auditing and its applications.
<b>CO805.5</b>	Apply the concept of Hydraulic circuit in industrial applications.
<b>CO805.6</b>	Apply the concept of Pneumatic Circuit in industrial applications.
<b>ME 807P</b>	<b>MAJOR PROJECT</b>
<b>CO807.1</b>	Students will be able to execute designed to inculcate the habit of independent learning & work on it and also in a capacity as a member of group to achieve the final intended objectives.
<b>CO807.2</b>	Students will be able to apply the acquired knowledge for solving real life engineering problems.
<b>CO807.3</b>	Students will be able to Design of some mechanical system. This may comprise of machines, thermal/hydraulic / pneumatic system, design of some small industry and like.
<b>CO807.4</b>	Students will be able to experimental / practical verification of some mechanical engineering systems.
<b>CO807.5</b>	Students will be able to study of some industry manufacturing some product. This study may comprise of various aspects such as plant layout, mechanical handling systems, assembly shop, quality control system, maintenance system, various service systems, design, development and planning functions, techno-economic studies etc., feasibility of small scale industry.
<b>CO807.6</b>	Application / design / analyse Software development for particular etc.













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