

1. Strength Of Materials -I (BTME 301) :C201	
C201.1	Determine various stresses and Strains developed in structural members and machine elements due to different simple and complex forces.
C201.2	Analyse the resistance offered by the beams imposed by various types of loads and draw shear force and bending moment diagrams.
C201.3	Calculate the bending stresses induced in the beams of different sections.
C201.4	Analyse the individual and combined effect of torque and bending moment on rotating machine elements.
C201.5	Identify and resolve the instability issues in structural members and machine elements having long compression members in the form of Columns and struts.
C201.6	Apply the appropriate method to determine slope and deflection of various beam sections.

2. Theory Of Machines-I (BTME-302):C202	
C202.1	Draw simple mechanisms, and hence to analyze their displacement, velocity and acceleration.
C202.2	Design various mechanisms using lower and higher pairs.
C202.3	Propose suitable belts, chains or rope drives for power transmission under various conditions.
C202.4	Construct the cam profiles for a given follower motion by applying engineering principles.
C202.5	Apply the concepts of friction and wear in various friction devices considering the environmental aspects.
C202.6	Investigate the energy storage and fuel controlling requirements of various systems by using flywheels and Governors, respectively.

3. Machine Drawing (BTME-303): C203	
C203.1	Apply the principles of engineering drawing and exhibit them in production drawings to communicate the information more effectively.
C203.2	Depict various symbols of Sectioning, conventional representation, standard tolerances and machining on production drawings to fabricate the components considering standardization and interchangeability.
C203.3	Draw Various types of screw threads, nuts and bolts, screwed fasteners, welding and riveted joints.
C203.4	Draw orthographic views of a variety of assembled and disassembled machine parts and preparing their bill of materials.
C203.5	Draw orthographic views of a variety of assembled and disassembled I C Engine parts and boiler mountings and preparing their bill of materials.

4. Applied Thermodynamics-I (BTME-304) :C204	
C204.1	Students will be able to understand combustion process in I.C engines, detonation & knocking and will be able to calculate B.H.P, I.H.P and other parameters of engine.
C204.2	Students will be able to understand the characteristics of various vapor power cycles.
C204.3	Students will be able to understand the principle, working and characteristics of various steam-generators and their applications in various engineering fields.
C204.4	Students will be able to understand the working & principle of steam-nozzles and will be able to solve numerical problems related to pressure drop and efficiency of nozzles.
C204.5	Students will be able to understand the working & principle of various steam turbines and will be able to calculate velocity triangle, force, axial thrust, work and efficiency.

5. Manufacturing Processes-1 (BTME-305) :C205

C205.1	Understanding the need of various manufacturing processes and selects suitable manufacturing process to manufacture any part.
C205.2	Apply suitable foundry practices like pattern making, mold making, Core making and getting familiar with traditional sand casting process at casting stage of product manufacturing.
C205.3	Analyze and propose the appropriate casting techniques in manufacturing industries.
C205.4	Implement the knowledge of different metal joining processes in industries to fabricate engineering products.
C205.5	Apply the basics of various advanced welding processes, their applications in the field of engineering.
C205.6	Implement the knowledge of casting and welding processes for the inspection and testing of various defects detect in components.

6. Engg. Materials & Metallurgy (BTME-306) :C206

C206.1	Understand the fundamental concept of Crystallography and analyze the structure of metals at different levels.
C206.2	Analyse the Imperfections in solid occurred during thermal processes.
C206.3	Explain the concept of phase transformation and basic terminologies associated with metallurgy
C206.4	Figure out the concept of different heat treatment process and its application.
C206.5	Study the metallurgical properties of ferrous metals and their alloys.

7. Engg. Materials & Metallurgy Lab (BTME-307) :C207*

C207.1	Develop understanding of the experimental procedures in carrying out different heat treatment operations.
C207.2	Familiarize the procedures for evaluating the mechanical behaviour of materials.
C207.3	Explore the effect of heat treatment on various engineering materials by analysing its microstructure and hardness.
C207.4	Analyse the microstructure of different ferrous and non-ferrous samples.
C207.5	Operate any of the metallurgical equipment at the laboratories to carry out experiments.

8. Strength Of Materials Lab (BTME-308) :C208*

C208.1	Investigate the mechanical properties of various materials under direct loading.
C208.2	Select the most suitable hardness testing method to gauge the hardness of given material.
C208.3	Determine impact strength using Impact test and mechanical properties of materials subjected to torsion.
C208.4	Find out the endurance limit of materials subjected to cyclic loads.
C208.5	Calculate the deflection of beams and columns under transverse and axial loading.
C208.6	Evaluate the stiffness and modulus of rigidity of helical springs.

9. Applied Thermodynamics-I LAB (BTME-309) :C209*

C209.1	Student will know the working of 2-stroke and 4-stroke diesel and petrol engines.
C209.2	Student will able to identify the different types of boilers based on operating condition.
C209.3	Student will able to prepare heat balance sheet for the boiler performance.
C209.4	To familiarize with the quality of steam by measuring moisture contents.

10. Workshop Training (BTME-310) :C210*

C210.1	Select and apply the various types of Fabrication Processes for Mechanical applications.
C210.2	Identification and effective use of machine and cutting tools in manufacturing.
C210.3	Demonstrate measurement devices and techniques for different manufacturing applications.
C210.4	Selection, formulation of the Project statement and its execution working in a team considering environment and professional ethics.
C210.5	Exhibit project planning through facility layout, integration of manufacturing practices, safety norms for its implementation and communicate the outcomes via reports and presentations.

11. Strength Of Materials-II (BTME 401) :C211

C211.1	Examine the resilience exhibited by various elastic members due to different loading conditions
C211.2	Apply the appropriate failure theory to limit the applied load on various mechanical systems.
C211.3	Analyse the forces acting on different types of springs in real life problems.
C211.4	Analyse the forces developed in thin and thick cylindrical and spherical shells used in various processes and industries.
C211.5	Investigate the behavior of unsymmetrical elastic members under bending and locate shear centre for different sections.
C211.6	Compute the shear stresses in beams of different sections and centrifugal stresses in discs and Rims.

12. Theory Of Machines-II (BTME-402) :C212

C212.1	Ability to maintain the static equilibrium of various mechanisms using static force analysis.
C212.2	Perform dynamic analysis of 3-bar and 4-bar mechanisms.
C212.3	Assess and solve the complex balancing problems for various mechanisms or machines.
C212.4	Demonstrate the gear theory to calculate the torque transmission of different gear trains.
C212.5	Apply the principles of gyroscopic effects and stabilization on various transport vehicles.
C212.6	Design various mechanisms by performing kinematic synthesis for them.

13. Fluid Mechanics [BTME 403] :C213

C213.1	To learn about the behavior of fluids at rest or in motion and their classifications.
C213.2	Student will understand the effect of fluid pressure as well as the stability of the submerged and floating bodies
C213.3	Able to identify the type of fluid flow and their representation on different coordinate systems as well as different terms such as streamlines, path lines, streak line and timelines.
C213.4	To understand the concept and derivation of Bernoulli's equation and its application to measure the flow rate.
C213.5	Able to know the concept of dimensionless number and its application in various flow situations.

C213.6	To identify the classification of internal flow through the pipes and also determine the losses in pipe flow.
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14. Applied Thermodynamics-II (BTME-404) :C214

C214.1	Students will be able to identify the classification of air-compressors and its representation on P-V & T-S diagram.
C214.2	Students will be able to understand the working principle of positive displacement reciprocating and rotary air compressors.
C214.3	Will be able to describe the working of various types of steady flow air compressors and its phenomenon such as surging, choking and stalling.
C214.4	Students will be able to know the working of air standards cycle such as Brayton cycle and its application in gas turbines.
C214.5	Understand the working principle of turbojet engines, rocket propulsion and various types of propellant used in it.

15. Manufacturing Processes-II (BTME-405) :C215

C215.1	Figure out the mechanism of deformation, types of defects, causes and their remedial measures for different metal forming processes and familiarizing with principles and applications of various high velocity metal Forming Processes
C215.2	Perceive and interpret the basics of Powder metallurgy such as powder preparation, their properties, compacting, sintering techniques and various applications
C215.3	Understand and apply the principles of mechanics and concept of chip formation for metal cutting process along with a theoretical understanding of paramount parameters
C215.4	Develop analytical relation between input and output process parameters for various metal forming and cutting process for measurement of important outcomes such as cutting forces, tool life, load etc.
C215.5	Demonstrate the basics principles of machine tools, machining operations, constructional features, tool geometry, tool material selection, cutting fluids used and numerical calculations for various parameters.

16. Fluid Mechanics Lab (BTME 406): C216*

C216.1	To understand and measure hydrostatic torque on a submerged body.
C216.2	Estimate the friction and measure the frictional losses in fluid flow.
C216.3	To verify problem that incorporate the Bernoulli equation and the continuity equation.
C216.4	To use flow meter to measure flow rate in a pipe.

17. Manufacturing Processes Lab (BTME 407) :C217*

C217.1	To student is able to acquire practical knowledge about different manufacturing processes such as welding, casting, machining and metal forming etc.
C217.2	Quantify the effect of tool geometry on machining characteristics of the work piece.
C217.3	The student is acquires the skills to perform various operations on different machines.
C217.4	Get the practical knowledge to produce gears on milling machine.
C217.5	Determine and analyzed the different cutting forces with dynamometer for turning, drilling and milling operations.

18. Theory of Machines-II LAB (BTME-408) :C218*	
C218.1	To identify and apply the engineering knowledge to categorize various link, kinematic pairs and mechanisms.
C218.2	To conduct the investigations on motorized mechanism like –Flywheel, Governor, Gyroscope, Cam Apparatus and Balancing Apparatus.
C218.3	To understand the working principle of Belt and Pulley for their effective implementation.
C218.4	To Study the engineering principles of journal bearing.
C218.5	To find the velocity ratio of Gear and Gear Trains drives.

19. General Fitness :C219**	
C219.1	Adoption of adherence exercise programs and other healthy behaviors by applying effective behavioral and motivational strategies.
C219.2	Demonstrate the ability to apply an understanding of ethics to the professional arena.
C219.3	Develop knowledge, skills, and abilities related to health and fitness assessment.
C219.4	Determine safe and effective exercise programs to achieve desired outcomes and goals.
C219.5	Development of knowledge of professional obligations including diversity and global awareness.
C219.6	Apply interpersonal skills requisite for successful professional collaboration.

20. Mathematics-III (BTAM-500) :C301	
C301.1	Expand the function into Fourier series.
C301.2	Solve ordinary differential equations by using Laplace Transform.
C301.3	Explain the concept of function of complex variables apply them to fluid flow problems.
C301.4	Evaluate complex integration, series expansion and contour integration.
C301.5	Form basic partial differential equations and apply them to solve engineering problems.
C301.6	Differentiate regular and singular point and apply them to solve Bessel function and Legendre's polynomials.

21. Design Of Machine Elements –I (BTME 501) :C302	
C302.1	Recommend the most suitable material and method to design a machine element taking into account various static and dynamic forces to be acting on it.
C302.2	Propose the dimensions of fasteners and investigate their failure under direct loading conditions.
C302.3	Design the shafts and axles subjected to improvement of torque and/or bending moment on to it.
C302.4	Design of rigid and flexible couplings for torque transmission.
C302.5	Design the appropriate parameters of levers and pipe joints as per the demand of real life problem.

22. Computer Aided Design And Manufacturing (BTME-502) :C303	
C303.1	Apply the CAD/CAM in Conventional Product life cycle and design.
C303.2	Generate the geometrical model to create accurate and precise contour of complex engineering design problems.
C303.3	Use the most appropriate modeling technique and algorithm for CAD/CAM-based product development.
C303.4	Generate a part program for the machining a specific part using the concept of NC/CNC machine tools.
C303.5	Apply the suitable production philosophy such as Group Technology, CIMS and CAPP to fabricate components.
C303.6	Apply the various CAD/CAM technique in manufacturing industries for automation as per their specific requirements.

23. Mechanical Measurement and Metrology (BTME – 503) :C304	
C304.1	To develop the knowledge of basics of Measurements, Metrology and measuring devices. Selection of measuring instruments, standards of measurement for calibration
C304.2	To understand the concepts of various measurement systems & standards with regards to realistic applications and principle of various comparators and angular measurement devices for linear & angular measurements.
C304.3	Understand functional principle of elements like sensors and transducers and apply them for measurement of position/displacement, velocity/ acceleration, force and liquid level.
C304.4	Understand working principles of pressure and flow measurement devices and techniques and to measure pressure and flow in a flow field.
C304.5	Acquire knowledge and select different temperature measurement techniques devices and to measure temperature in various engineering applications.
C304.6	Select and use appropriate methods and instruments for speed, force, torque and shaft power measurement.

24. Industrial Automation and Robotics (BTME 504) :C305	
C305.1	To understand automated manufacturing systems and strategies to implement fundamentals of automation to various complex Industrial tasks.
C305.2	To get knowledge about various fluid power control systems and their components.
C305.3	To understand the working and design of Pneumatic and hydraulic system.
C305.4	To learn about fluidic technology and applications of Programmable logic controls used in automated manufacturing systems.
C305.5	To select and use transfer devices and feeders in Industry.
C305.6	To define Robotic Technology and CAM to describe the anatomy, working, programming applications of robot manipulator.

25. Automobile Engineering [BTME-505] :C306	
C306.1	Students will be able to identify various components of automobiles.
C306.2	Apply the knowledge of various internal combustion engine parameters and their implications on fuel economy.
C306.3	Demonstrate the working of different automobile system such as suspension systems, engine, transmission, electric system clutch, and brakes.

C30 6.4	Understand the environmental implications of automobile emissions.
C30 6.5	Student will be able to understand and apply automotive operational principles.
C30 6.6	Identify the cause of breakdown in vehicles and able to plan for preventive maintenance.

26. Computer Aided Design And Manufacturing Lab (BTME-506) :C307*	
C30 7.1	Apply CAD software for making 2D drawings.
C30 7.2	Apply CAD software for preparing 3D drawings of machine assemblies.
C30 7.3	To impart the necessary assembling and drafting skills using standard CAD packages.
C30 7.4	Modeling of simple machine parts and assemblies from the part drawings using standard CAD packages.
C30 7.5	To expose the students to the techniques of CNC programming through CNC simulation software by using G-Codes and M-codes.

27. Mechanical Measurement and Metrology Lab (BTME – 507) :C308*	
C30 8.1	An ability to apply the knowledge of Measurements, Metrology and measuring devices for instruments calibration and error measurement.
C30 8.2	Understand the concepts of various measurement systems & standards with regards to realistic applications and principle of various comparators and angular measurement devices for linear & angular measurements.
C30 8.3	Able to understand principle of functional elements like sensors and transducers and apply for measurement of position/displacement, velocity/ acceleration, force and liquid level.
C30 8.4	Get the knowledge of pressure and flow measuring devices to measure pressure and flow.
C30 8.5	Acquire knowledge and select different temperature measurement techniques devices and to measure temperature in various engineering applications.
C30 8.6	Select and use appropriate methods and instruments for speed, force, and torque and shaft power measurement.

28. Industrial Automation and Robotics Lab (BTME-508) :C309*	
C30 9.1	Create solutions in analysis, design and development of components, devices and equipment of hydraulic and pneumatic systems
C30 9.2	Demonstrate knowledge of the relationship between mechanical structures of industrial robots and their operational workspace characteristics
C30 9.3	Getting familiar with the basics of physical and technological based hydraulic and pneumatic control elements such as DCVs and Pressure Control Valves with the aim of better understanding of working of fluid power systems.
C30 9.4	The student is able to use hydraulic and pneumatic actuators for holding/clamping parts in jig and fixtures.
C30 9.5	Familiarize with robotic arm, its configuration and effectors.
C30 9.6	Acquaint with different hydraulic and pneumatic valves.

29. Automobile Lab (BTME-509) :C310*	
C31 0.1	Student should able to do the engineering analysis of the automobiles.
C31 0.2	Student will able to know the application of engineering principles to automotive sub-systems such as power unit, transmission, suspension, electric, braking, steering and fuel supply systems.
C31 0.3	Student will get familiarized with cooling and lubrication application in automobiles.
C31 0.4	Student will able to trouble shooting and rectification in different systems used in automobiles.

30. Industrial Training (IT500) :C311 *	
C31 1.1	To expose students to the 'real' working environment and get acquainted with the organization structure, business operations and administrative functions.
C31 1.2	To have hands-on experience in the students' related field so that they can relate and reinforce what has been taught at the university.
C31 1.3	To promote cooperation and to develop synergetic collaboration between industry and the university in promoting a knowledgeable society.
C31 1.4	To set the stage for future recruitment by potential employers.

31. Design Of Machine Elements –II BTME 601 :C312	
C312.1	Design and suggest the most suitable belts, chains or rope drives for given power transmission.
C312.2	Design and develop an appropriate gear by predicting their strength and potential failure for different conditions.
C312.3	Design flywheel for the mechanical system under consideration.
C312.4	Compute equivalent radial and axial load on sliding and roller bearing and will predict bearing life and their failure using printed catalogue data.
C312.5	Design spring as energy restore member for various systems.
C312.6	Design clutch and brake for given power transmission system.

32. Heat Transfer (BTME)-602 :C313	
C313.1	Apply conservation of mass and energy to a thermal system.
C313.2	Understand and solve conduction, convection and radiation heat transfer problems.
C313.3	Design or analyze the performance of heat exchangers.
C313.4	Design or analyze the performance of fins.
C313.5	Describe heating and cooling in various applications.
C313.6	Apply mechanisms involved in radiation heat transfer and heat exchange between surfaces.

33. Fluid Machinery (BTME 603) :C314	
C314.1	To learn about the behavior of fluids at rest or in motion and their classifications.
C314.2	Student will understand the effect of fluid pressure as well as the stability of the submerged and floating bodies
C314.3	Able to identify the type of fluid flow and their representation on different coordinate systems as well as different terms such as streamlines, path lines, streak line and timelines.
C314.4	To understand the concept and derivation of Bernoulli's equation and its application to measure the flow rate.
C314.5	Able to know the concept of dimensionless number and its application in various flow situations.
C314.6	To identify the classification of internal flow through the pipes and also determine the losses in pipe flow.

34. Statistical and Numerical Methods (BTME-604) :C315	
C315.1	Compute numerical solution of algebraic, transcendental and simultaneous linear equations.
C315.2	Develop numerical skills in solving the problems involving various numerical methods for Interpolation, differentiation and integration using finite differences.
C315.3	Analyzing and solving the ordinary differential equations with initial value and boundary value problems.
C315.4	Recognize elements and variables in Statistics and Summarize Qualitative and Quantitative data.
C315.5	Apply various probability distributions for drawing inferences and making decisions.
C315.6	Use appropriate test of significance for statistical hypothesis.

35.Heat Transfer Lab(BTME 605) :C316	
C316.1	Student will able to estimate the thermal conductivity of insulating powder and glass wool.
C316.2	Student will able to evaluate the heat transfer through dropwise and filmwise condensation
C316.3	Student will able to carry out the experiment for measure the heat transfer coefficient in forced and natural convection.
C316.4	Student can carry out experimentation for determining heat transfer through different heat transfer devices such as parallel and counter flow heat exchanger.
C316.5	Student will understand the heat transfer through radiation and can able to measure emissivity and Stefan Boltzmann Constant for grey body.

36. Fluid machinery Lab (BTME-606) :C317*	
C317.1	Understand the basic principles and remember the applications of Hydraulic machines.
C317.2	Analyze performance of turbines and pumps
C317.3	Analyze the requirements for a power plant and select the most appropriate Hydraulic turbine or pump according to applications
C317.4	Study the constructional features of Hydraulic turbines and pumps.
C317.5	Evaluate the effect of vane shape and vane angle on the performance of centrifugal fan/Blower.

37.Minor Project (BTME-607) :C318*	
C318.1	To acquaint with the process of doing literatures survey/industrial visit and identifying the problem
C318.2	To familiarize the process of solving the problem in the group
C318.3	Toacquaintwiththeprocessofapplyingbasicengineeringfundamentalinthedomainofpractical applications
C318.4	To inculcate the process of research and able to write a technical document

38.General Fitness(GF-600) :C319**

C319.1	Adoption of adherence exercise programs and other healthy behaviors by applying effective behavioral and motivational strategies.
C319.2	Demonstrate the ability to apply an understanding of ethics to the professional arena.
C319.3	Develop knowledge, skills, and abilities related to health and fitness assessment.
C319.4	Determine safe and effective exercise programs to achieve desired outcomes and goals.
C319.5	Development of knowledge of professional obligations including diversity and global awareness.
C319.6	Apply interpersonal skills requisite for successful professional collaboration.

39. Non-Conventional Energy Resources (DE/ME-1.3) :C320

C320.1	Student will able to understanding the conventional and non-conventional energy resources and their impact on environment and the society.
C320.2	Student will able to know the design procedure used for solar collectors.
C320.3	Overview of principles of wind energy conversion system.
C320.4	Develop the dexterity in various direct energy conversion systems & applying them for power generation.
C320.5	Grasping the fundamentals knowledge of biogas conversion, geothermal and tidal energy systems.

40.Course Name: Non-traditional machining processes(DE/PE-2.0) :C321

C321.1	Determine the need of latest trends in manufacturing, flexible manufacturing system, computer integrated manufacturing and development of nontraditional machining processes based on mechanical, electrical, thermal and chemical source of energy.
C321.2	Impart knowledge of metal removal mechanism of various machining processes using mechanical energy source.
C321.3	Exposure to the principles of the machining processes based on electrochemical energy source.
C321.4	Explain the principle of chemical machining processes.
C321.5	Understand the working principle, theory of material removal, process variables of various electro-thermal energy based machining processes.
C321.6	Implement the knowledge of mechanical, electrical, thermal and chemical energy source in a combined way to improve the machining efficiency like ultrasonic assisted electric discharge machining known as hybrid machining processes.

41.BTME 801 INDUSTRIAL ENGINEERING & MANAGEMENT :C401

C401.1	Familiarize with industrial engineering concept and understand different concept regarding production and productivity in industries.
C401.2	Understand different concepts of management and application of different theories systematic management.
C401.3	Designing of organizational structure for management planning, decision making and control decision.
C401.4	Catch-up with details of plant location and layouts for plant development.
C401.5	Acquaint with concept of Productivity and methods to improve productivity
C401.6	Understand the concept of Work Analysis and work measurement along with various methods employed in work analysis and work measurement.

42. Refrigeration and Air Conditioning (BTME 802) :C402	
C402.1	Understand the principles and the applications of refrigeration systems.
C402.2	Analyze performance of vapor compression refrigeration system.
C402.3	Study the working principles of vapor absorption, thermoelectric, steam jet refrigeration system.
C402.4	Able to understand the use of psychometry in analyzing refrigeration systems.
C402.5	Evaluate cooling and heating loads in an air conditioning system.

43. Mechanical Vibrations (BTME-803): C403	
C403.1	Represent and analyses the harmonic motions.
C403.2	Compute the natural frequency of given single degree of freedom, free undamped or damped vibratory system to avoid resonance condition and determine various parameters to design different types of dampers.
C403.3	Assess the functionality of vibration measuring instruments and design and suggest a suitable vibration absorber for given system subjected to different boundary conditions.
C403.4	Determine the natural frequencies and modes shapes for a given multi degrees of freedom vibratory system.
C403.5	Analyze the vibratory motion of the continuous systems of uniform cross section bearing homogeneous and isotropic properties.

44. Refrigeration and Air Conditioning Lab (BTME-804) :C404*	
C404.1	Study of refrigerant compressors, expansion devices used in vapour compression refrigeration system, thermostat with range and differential setting, charging of refrigeration system
C404.2	Trial on pilot ice plant to evaluate cycle performance and actual coefficient of performance
C404.3	Participate in a group atmosphere for the understanding of an industrial refrigeration system.
C404.4	Communicate effectively both verbally and in written form through the preparation of journal report and practical presentation.

45. Mechanical Vibrations Lab (BTME- 805): C405*	
C405.1	Analyze the viscosity of given fluid by single wire torsional pendulum.
C405.2	Compute the natural frequency of coupled pendulum and cantilever beam.
C405.3	Determine the modulus of elasticity from free vibration test.
C405.4	Study mathematical equations for different types of vibrations for single and multi-degree freedom systems and its applications.
C405.5	Determine the coefficient of dry friction.

46. Major Project (BTME-806) :C406***	
C406.1	To acquaint with the process of doing literature survey/industrial visit and identifying the problem.
C406.2	To familiarize the process of solving the problem in the group
C406.3	To acquaint with the process of applying basic engineering fundamental in the domain of practical applications
C406.4	To inculcate the process of research and able to write a technical document

47. General Fitness (GF-800) :C407**	
C407.1	Adoption of adherence exercise programs and other healthy behaviors by applying effective behavioral and motivational strategies.
C407.2	Demonstrate the ability to apply an understanding of ethics to the professional arena.
C407.3	Develop knowledge, skills, and abilities related to health and fitness assessment.
C407.4	Determine safe and effective exercise programs to achieve desired outcomes and goals.
C407.5	Development of knowledge of professional obligations including diversity and global awareness.

C407.6	Apply interpersonal skills requisite for successful professional collaboration.
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48. Human Resource Management (HU-251) :C408	
C408.1	Understand the basic concepts of human resource management and different managerial functions, and their scope in order to take the benefits from various policy of management.
C408.2	Familiar with different ACT like Employment Exchanges act and Contract Labour and to understand about the different recruitment and selection process.
C408.3	Enhance the basic knowledge of training and employee development, to know the basic difference between Job satisfaction and Job description.
C408.4	Study the different motivational theories which help to motivate the worker.
C408.5	Graduate engineer will be familiarized with the issues in wage administration, Bonus, Incentives, performance appraisal Fringe & retirement terminal benefits.
C408.6	Apply good Human Relation Policy to improve work culture in industries.

49. Total Quality Management (DE/ME-2.5) :C409	
C409.1	Develop an understanding on quality management philosophies and frameworks.
C409.2	Adopt TQM methodologies for continuous improvement of quality.
C409.3	Measure the cost of poor quality, process effectiveness and efficiency to identify areas for improvement.
C409.4	Apply benchmarking and business process reengineering to improve management processes.
C409.5	Determine the set of indicators to evaluate performance excellence of an organization

50. Non-Destructive Testing (DE/ME-2.4) :C410	
C410.1	Interpret about the need and significance of non-destructive testing methods for product quality.
C410.2	Exposure to construction, working and applications of radiographic examine technique to check the fault in the engineering product.
C410.3	Perceive the basic principle, scope and applications of various magnaflux inspection techniques
C410.4	Understand the basic principle and flaw detection of engineering products using electrical methods.
C410.5	To pertain the basic principle and flaw detection of engineering products using ultrasonic methods.
C410.6	Study the concept and application of photo elasticity.

51. Course Outcomes IC ENGINE(DE/ME-1.1) :C411	
C411.1	Understanding contextual knowledge of various types of internal combustion engines and demonstrate the ability to perform a thermodynamic analysis and interpretation of power cycles of internal combustion engines using ideal gas cycles, air cycles, and fuel-air cycles.
C411.2	Describe and explain the working principle of different types of internal combustion engines, their typical design features alongwith the valve timing diagram
C411.3	Demonstrate the knowledge of conventional and non-conventional fuels for IC engines and ability to perform a combustion analysis of these fuels in the basic cycles
C411.4	Identify and develop the knowledge of fuel metering and fuel supply systems for different types of engines, governing mechanism and their application to modern engines
C411.5	Interpret normal and abnormal combustion phenomena in SI engines and design parameters of combustion chamber to reduce environmental pollutants for public health and safety
C411.6	Demonstrate the fundamental principle of power boosting by means of turbo charging, interpret engine performance parameters and apply mathematical equations to solve the problems that are related to engine's performance

52. Course Title: Industrial Training (BTME-IT) :C412*

C412.1	Explore different professional engineering practices and prepare a technical report based on the industrial exposure and project undertaken.
C412.2	Get acquainted with the organisational structure, business strategies, and administrative functions.
C412.3	Learn industrial etiquette like punctuality and target oriented working.
C412.4	To enable the students to handle responsibilities and work pressure effectively.
C412.5	Learn interpersonal and technical communication skills.
C412.6	Develop the ability to work as an effective team member.