



Lokmanya Tilak Jankalyan Shikshan Sanstha's
PRIYADARSHINI BHAGWATI COLLEGE OF ENGINEERING
Harpur Nagar, Umred Road (Near Bada Tajbagh), Nagpur-24
(Approved by AICTE, New Delhi, Govt. of Maharashtra
and affiliated to Rashtrasant Tukdoji Maharaj Nagpur University)
Email: principalpbcoe@gmail.com, Website: www.pbcoe.edu.in
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Department of Mechanical Engineering

Course Outcomes

B. Tech. Third Semester (CBCS)

Course Name: Mathematics – III	
Code: BTME301T	
At the end of the course student will be able to :	
C01	Apply Laplace Transform to solve ordinary differential equations, Integral equations and Integro-differential Equations.
C02	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.
C03	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
C04	Solve partial differential equations of first order, higher order with constant coefficients and of second order using method of separation of variables.
C05	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.

Course Name: Manufacturing Processes	
Code: BTME302T	
At the end of the course student will be able to :	
C01	Understand the importance of manufacturing processes, techniques of pattern making and molding with their properties. Design gating system along with selection of different types of melting furnaces and special casting process.
C02	Get acquainted with the basic concept of joining process, welding process and its types, defects and application.
C03	Get acquainted with the forming process for metal, mechanics of forming process along with different types of rolling machine.
C04	Understand and define press working process along with its classification, types and terminology, different types of dies and introduction to shaping operation.
C05	Understand introduction to plastics, ceramics and glasses, its properties, application, forming and its shaping.



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Department of Mechanical Engineering

Course Name: Fluid Mechanics	
Code: BTME303T	
At the end of the course student will be able to :	
CO1	Analyze fluid behaviors based on properties and identify fluid flow types in practical applications.
CO2	Apply fluid statics principles to assess pressure distributions, determine buoyancy, and analyze stability.
CO3	Demonstrate proficiency in solving fluid dynamics problems using the Navier-Stokes equation, Bernoulli's equation, and related principles in various engineering scenarios.
CO4	Differentiate laminar and turbulent flows, apply dimensional analysis techniques, and interpret dimensionless parameters.
CO5	Calculate energy losses in pipes, understand fluid behavior in series and parallel configurations, and analyze lift and drag forces.

Course Name: KINEMATICS OF MACHINES	
Code: BTME304T	
At the end of the course student will be able to :	
CO1	Perform kinematic and dynamic analysis (Displacement, Velocity, acceleration, Inertia forces) of a given mechanism using graphical method.
CO2	Understand the concept of compliant mechanisms.
CO3	Contrive or synthesize new mechanisms for specific requirements.
CO4	Construct cam profiles and analyze the follower motion.
CO5	Understand Geometry of gear, its types, analysis of forces and motions of gear teeth. Study of gear trains.

Course Name: Material Science and Engineering	
Code: BTME306T	
At the end of the course student will be able to :	
CO1	Student will be capable to distinguish micro structure and analyze the effect to crystalline nature of metals, construct and analyze Iron-Iron carbide equilibrium diagram.
CO2	Student will be able to study the commercial steels with their applications and properties.
CO3	Student will be able to analyze and implement suitable heat treatment processes.
CO4	Student will be able to analyze the Cast Iron and their properties.
CO5	Student will be able to perceive the basics of powder Metallurgy for powder metallurgical components.



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Course Name: Manufacturing Processes	
Code: BTME302P	
At the end of the course student will be able to :	
C01	Think in core concept of their engineering application by studying various topics involved in branchspecific applications.
C02	Understand the relevance and importance of the Different manufacturing techniques and real lifeapplication in industry.
C03	Design the gating and riser system needed for casting and requirements to achieve defect free casting.
C04	Analyze the welding process behavior and requirements to achieve sound welded joint while weldingdifferent similar and dissimilar engineering material
C05	Understand the plastic, glass and ceramic Processing

Course Name: Machine Drawing and Solid Modeling	
Code: BEME305P	
At the end of the course student will be able to :	
C01	Interpret and describe basic elements of standard machine drawing like lines,dimensions, tolerances, symbols etc.
C02	Create 2-D detailing, sectional views of machine elements from given isometric view.
C03	Understand and apply concepts of GD&T for creating part and assembly drawing.

Course Name: Skill Development- (Basics of ComputerAided Drafting)	
Code: BTME307P	
At the end of the course student will be able to :	
C01	Students will learn <ul style="list-style-type: none">- how to create simple parts, assemblies and drawings.- how to use different feature-based tools to build, review and modify a model.- how to create and analyze assemblies and how to produce a drawing with differentviews.- learn how to dimension the drawing and annotate the views.



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B. Tech. Fourth Semester (CBCS)

Course Name: Machining Processes	
Code: BEME401T	
At the end of the course student will be able to :	
C01	Understand fundamentals of metal cutting
C02	Understand basic construction and operations of lathe shaping, planning
C03	Understand basics of milling and milling cutters. slotting
C04	To know about the surface finishing processes.
C05	Understand the basic of drilling, boring, reaming and broaching.

Course Name: Machining Processes	
Code: BEME401P	
At the end of the course student will be able to :	
C01	Understand basic cutting tools.
C02	Working of lathe and turning operation
C03	Shaping and planning operation
C04	Milling and drilling operation
C05	Grinding and surface finishing

Course Name: Fluid Mechanics & Hydraulic Machines	
Code: BEME402T	
At the end of the course student will be able to :	
C01	Classify and explain fluid their properties, fluid in rest condition, types of flow & flow measuring devices and mathematical application of equations on hydraulic components.
C02	Explain behavior of fluid in motion condition and application of Bernoullie's equation to fluid flow measuring devices.
C03	Apply dimensional analysis to design hydraulic machines and different losses of fluid flow through pipes.
C04	(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
C05	Explain the working principle & design of Centrifugal and reciprocating pump & practical application of similitude & model testing.



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Course Name: FLUID MECHANICS &HYDRAULIC MACHINES	
Code: BEME402P	
At the end of the course student will be able to :	
C01	Explain what is Stability condition of floating bodies, Law of conservation of Energy.
C02	Apply Frictional losses and Hydraulic co-efficient in the pipe flow.
C03	Estimate the Performance characteristics of Pelton Turbine
C04	Estimate the Performance characteristics of Francis Turbine & Kaplan Turbine.
C05	Estimate the Performance characteristics of Centrifugal Pump & Reciprocating Pump.

Course Name: Material Science& Engineering	
Code: BEME403T	
At the end of the course student will be able to :	
C01	Student will be capable to distinguish microstructure and analyze the effect of Crystalline
C02	Student will be able to study the commercial steels.
C03	Student will be able to analyze and implement suitable heat treatment processes.
C04	Student will be able to analyze the Cast Iron.
C05	Student will be able to perceive the basics of powder Metallurgy for powder metallurgical

Course Name: MECHANICS OF MATERIAL	
Code: BEME404T	
At the end of the course student will be able to :	
C01	Demonstrate fundamental knowledge about various types of loading and stresses induced
C02	Draw the SFD and BMD for different types of loads and support conditions.
C03	Estimate the strain energy in mechanical elements. And analyse the deflection in beams.
C04	Can design shaft for various loading conditions.
C05	Understand theory of failure and effective designing of column and struct.



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Course Name: Material TestingLab	
Code: BEME404T	
At the end of the course student will be able to :	
C01	Analyze the Microstructure and investigate various properties of ferrous and Nonferrous Materials . Analyse the stress strain behaviour of materials
C02	Analyse the effect of tensile, shearing force and can utilized the gained while tackling real lifeengineering problems for different types of Materials
C03	Understand Microstructures and their Applications for various uses
C04	Measure torsional strength, hardness of material
C05	Incorporate the various important concepts learnt while designing components

Course Name: Professional Ethics	
Code: BEME405T	
At the end of the course student will be able to:	
C01	Understand basic purpose of profession, professional ethics and various moral and social issues
C02	Analyze various moral issues and theories of moral development
C03	Realize their roles of applying ethical principles at various professional levels
C04	Identify their responsibilities for safety and risk benefit analysis.
C05	Understand their roles in dealing various global issues