



BHARATI VIDYAPEETH'S

COLLEGE OF ENGINEERING

Lavale, Pune-412115

Department of Mechanical Engineering

Secon Year Engineernig Course Outcome

(SE 2015 Course)

SEMESTER-I

207002: Engineering Mathematics III

Course Outcomes:

At the end of this course, students will be able to:

- 1) Solve higher order linear differential equations and apply to modeling and analyzing mass spring systems.
- 2) Apply Laplace transform and Fourier transform techniques to solve differential equations involved in Vibration theory, Heat transfer and related engineering applications.
- 3) Apply statistical methods like correlation, regression analysis in analyzing, interpreting experimental data and probability theory in testing and quality control.
- 4) Perform vector differentiation and integration, analyze the vector fields and apply to fluid flow problems.
- 5) Solve various partial differential equations such as wave equation, one and two dimensional heat flow equations.

202041: Manufacturing Process- I

Course Outcomes:

On completion of the course, learner will be able to–

- Understand and analyze foundry practices like pattern making, mold making, Core making and Inspection of defects.
- Understand and analyze Hot and Cold Working, Rolling, Forging, Extrusion and Drawing Processes.
- Understand different plastic molding processes, Extrusion of Plastic and Thermoforming
- Understand different Welding and joining processes and its defects
- Understand, Design and Analyze different sheet metal working processes
- Understand the constructional details and Working of Centre Lathe

202042: Computer Aided Machine Drawing

Course Outcomes:

On completion of the course, learner will be able to–

- Understand the importance of CAD in the light of allied technologies such as CAM, CAE, FEA, CFD, PLM.
- Understand the significance of parametric technology and its application in 2D sketching.

- Understand the significance of parametric feature-based modeling and its application in 3D machine components modeling.
- Ability to create 3D assemblies that represent static or dynamic Mechanical Systems.
- Ability to ensure manufacturability and proper assembly of components and assemblies.
- Ability to communicate between Design and Manufacturing using 2D drawings.

2043: Thermodynamics

Course Outcomes:

- On completion of the course, learner will be able to–
- Apply various laws of thermodynamics to various processes and real systems.
- Apply the concept of Entropy, Calculate heat, work and other important thermodynamic properties for various ideal gas processes.
- Estimate performance of various Thermodynamic gas power cycles and gas refrigeration cycle and availability in each case.
- Estimate the condition of steam and performance of vapour power cycle and vapour compression cycle.
- Estimate Stoichiometric air required for combustion, performance of steam generators and natural draught requirements in boiler plants.
- Use Psychrometric charts and estimate various essential properties related to Psychrometry and processes

202044: Material Science

Course Outcomes:

On completion of the course, learner will be able to–

- Understand the basic concepts and properties of Material.
- Understand about material fundamental and processing.
- Select proper metal, alloys, nonmetal and powder metallurgical component for specific requirement
- Detect the defects in crystal and its effect on crystal properties.
- Evaluate the different properties of material by studying different test
- Recognize how metals can be strengthened by cold-working and hot working

202051: Strength of Materials

Course Outcomes:

Student should be able to

- Apply knowledge of mathematics, science for engineering applications
- Design and conduct experiments, as well as to analyze and interpret data
- Design a component to meet desired needs within realistic constraints of health and safety
- Identify, formulate, and solve engineering problems
- Practice professional and ethical responsibility

- Use the techniques, skills, and modern engineering tools necessary for engineering practice

202054: Value Education

Course Outcomes:

On completion of the course, learner will be able to–

- Understood human values, their significance and role in life.
- Promote self-reflection and critical inquiry that foster critical thinking of one's value and the values of others.
- Practice respect for human rights and democratic principles.
- Familiarized with various living and non-living organisms and their interaction with environment.
- Understood the basics regarding the leadership and to become a conscious professional.

202054 A: Innovations in Engineering Field/ Agriculture

Course Outcomes:

On completion of the course, learner will be able to -

- Understand what is thinking, its tools and process and its application to innovation
- Practice application of innovation in engineering
- Understand important terms like national productivity, sustainable development and inclusive growth
- Throw a light on developing technologies in agriculture
- Learn Interdisciplinary Engineering applications in Agriculture

202054 B : Road Safety

Course Outcomes:

On completion of the course, learner will be able to–

- Generate awareness about number of people dying every year in road accidents, traffic rules and characteristics of accident.
- Gain information and knowledge about people responsible for accidents and their duties
- Understand the importance of multidisciplinary approach to planning for traffic safety and rehabilitation
- Acquire a certificate of coordination/ participation in compulsory events based on the topic under study

SEMESTER-II

202045: Fluid Mechanics

Course Outcomes:

On completion of the course, learner will be able to–

- Use of various properties in solving the problems in fluids
- Use of Bernoulli's equation for solutions in fluids
- Determination of forces drag and lift on immersed bodies

202047: Soft Skills

Course Outcomes:

On completion of the course, learner will be able to–

- Improved communication, interaction and presentation of ideas.
- Right attitudinal and behavioral change
- Developed right-attitudinal and behavioral change

202048: Theory of Machines – I

Course Outcomes:

On completion of the course, learner will be able to–

- Identify mechanisms in real life applications.
- Perform kinematic analysis of simple mechanisms.
- Perform static and dynamic force analysis of slider crank mechanism.
- Determine moment of inertia of rigid bodies experimentally.
- Analyze velocity and acceleration of mechanisms by vector and graphical methods

202048: Engineering Metallurgy

Course Outcomes:

On completion of the course, learner will be able to–

- Describe how metals and alloys formed and how the properties change due to microstructure
- Apply core concepts in Engineering Metallurgy to solve engineering problems.
- Conduct experiments, as well as to analyze and interpret data
- Select materials for design and construction.
- Possess the skills and techniques necessary for modern materials engineering practice
- Recognize how metals can be strengthened by alloying, cold-working, and heat treatment

202050: Applied Thermodynamics

Course Outcomes:

On completion of the course, learner will be able to–

- Classify various types of Engines, Compare Air standard, Fuel Air and Actual cycles

- and make out various losses in real cycles.
- Understand Theory of Carburetion, Modern Carburetor, Stages of Combustion in S. I. Engines and Theory of Detonation, Pre-ignition and factors affecting detonation.
 - Understand Fuel Supply system, Types of Injectors and Injection Pumps, Stages of Combustion in CI Engines, Theory of Detonation in CI Engines and Comparison of SI and CI Combustion and Knocking and Factors affecting, Criteria for good combustion chamber and types.
 - Carry out Testing of I. C. Engines and analyze its performance.
 - Describe construction and working of various I. C. Engine systems (Cooling, Lubrication, Ignition, Governing, and Starting) also various harmful gases emitted from exhaust and different devices to control pollution and emission norms for pollution control.
 - Describe construction, working of various types of reciprocating and rotary compressors with performance calculations of positive displacement compressors.

203152: Electrical and Electronics Engineering

Course Outcomes:

Student should be able to

1. Develop the capability to identify and select suitable DC motor / induction motor / specialpurpose motor and its speed control method for given industrial application.
2. Program Arduino IDE using conditional statements
3. Interfacing sensors with Arduino IDE

203153 : Machine Shop – I (Not Defined By SPPU)

Course Outcomes:

On completion of the course, the learner will be able to–

- 1 Ability to manufacture gear on milling machine.
- 2 Understand surface grinding operations.
- 3 Perform sheet metal component.
- 4 Ability to perform plastic moulding component.