

**PRIYADARSHINI COLLEGE OF ENGINEERING, NAGPUR**  
**Department of First Year**  
**Course Outcomes**

**Semester: I**

BSE1-1T

**Mathematics-I**

By the end of the course, the students will be able to

CO1	Analyze real world scenarios to recognize when derivatives or integrals are appropriate, formulate problems about the scenarios, creatively model these scenarios (using technology, if appropriate) in order to solve the problems using multiple approaches, judge if the results are reasonable, and then interpret and clearly communicate the results.
CO2	Appreciate ODE and system of ODEs concepts that are encountered in the real world, understand and be able to communicate the underlying mathematics involved to help another person gain insight into the situation.
CO3	Apply knowledge of mathematics, physics and modern computing tools to scientific and engineering problems.
CO4	Develop an ability to identify, formulate and/or solve real world problems.
CO5	Understand the impact of scientific and engineering solutions in a global and societal context.

BSE1-2T

**Applied Physics**

By the end of the course, the students will be able to

CO	Course Outcomes: At the end of the course, the students will be able to -
CO 1	Apply concepts in interference and diffraction to solve relevant numerical problems and to relate to relevant engineering applications.
CO 2	Learn the basic concepts of dual nature of matter and wave packet and apply them to analyze various relevant phenomenon and to solve related numerical problem.
CO 3	Recall the basic concepts of crystal structure and apply them in solving numerical problems based on them in relating to applications for determination of crystal structure.
CO 4	Relate the basic idea of total internal reflection to the propagation of light in an optical fiber and make use of the fiber concepts to solve numerical problems and relate to applications in engineering.
CO 5	Find how to extend the basic concepts of motion of charged particles in electric magnetic fields to solve numerical problems and to relate to applications to electron optic device and CRO.

BSE1-3T

### **Energy and Environment**

By the end of the course, the students will be able to

CO1	Demonstrate the knowledge of solid and gaseous fuels in their calorific value determination
CO2	Recognize the type of liquid fuels and their uses in IC engines.
CO3	Apply the knowledge of alternative sources of energy with emphasis on solid waste as source of energy
CO4	Analyze the impacts of Industrial pollution and its control.
CO5	Develop innovative ideas for use of advanced materials in sustainable development.

BSE1-4T

### **Communication Skills**

By the end of the course, the students will be able to

CO1	Identify barriers of communication.
CO2	Demonstrate public speaking skills and handle group situations professionally.
CO3	Comprehend passages and compose paragraphs.
CO4	Construct error-free and meaningful sentences in English

BSE1-5T

### **Engineering Graphics**

By the end of the course, the students will be able to

CO1	The basic knowledge of Engineering Graphics such as instruments, lines, dimensioning techniques, scales, sheet layout. Construct the various engineering curves using drawing instruments and basics of orthographic projection through drawing the projection of point and line.
CO2	Draw projection of different types of plane (2D) and Solids (3D) and will be able to draw different views of plane and solids.
CO3	Get the concept of sectioning and development of lateral surfaces of solid and will be able to represent it.
CO4	Apply the visualization skill to draw a simple isometric projection/view from given orthographic view precisely using drawing equipment.

BSE1-6T

### **Basics of Civil & Mechanical Engineering**

By the end of the course, the students will be able to

CO1	Identify the various areas available to pursue & specialize within the field
CO2	Explain the vast interface in Civil Engineering and Explore the various possibilities of the career in this field.
CO3	Learn many monuments, heritage structures, nationally important structures
CO4	Discuss several manufacturing processes and identify the suitable process, Explain various types and mechanism and its application

CO5	Describe and compare the conversion of energy from renewable and non renewable energy sources
CO6	Illustrate various basic parts and transmission system of a road vehicle and List down the types of road vehicles and their specifications.

## Semester: II

### BSE2-1T

#### Mathematics-II

By the end of the course, the students will be able to

CO1	Analyze real world scenarios to recognize when integrals are appropriate, formulate problems about the scenarios, creatively model these scenarios (using technology, if appropriate) in order to solve the problems using multiple approaches, judge if the results are reasonable, and then interpret and clearly communicate the results.
CO2	Define and understand the geometry of vector differential operators and line and surface integrals.
CO3	Explain and apply principles of study design and data collection.
Co4	Develop an ability to identify, formulate and/or solve real world problems.
CO5	Learn the impact of scientific and engineering solutions in a global and societal context.

### BSE2-2T

#### Advanced Engineering Materials

By the end of the course, the students will be able to

CO	Course Outcomes: At the end of the course, the students will be able to -
CO 1	Learn the concept of formation of energy bands and to classify solids on its basis.
CO 2	Identify and explain different types of diodes, transistors and its applications
CO 3	Learn the concepts of magnetism and superconductivity, classify and analyze various types of magnetic and superconducting materials.
CO 4	Learn and explain quantum transitions and apply it to working of lasers.
CO 5	Learn the concept of nano materials and compare its properties with those of bulk materials.

### BSE2-3T

#### Applied Chemistry

CO1	Enhance the fundamental knowledge of molecular approach of the formation of molecules and complexes
CO2	Know the complex chemical processes and provide solution useful in engineering concepts.
CO3	Know the basic principles of spectroscopic techniques useful for the analytical instruments.

CO4	Apply the principles of green chemistry in designing alternative reaction methodologies for the sustainable development.
CO5	Identify water as an engineering material through studying its various parameters.

By the end of the course, the students will be able to

BSE2-4T

### **Computational Skills**

By the end of the course, the students will be able to

CO1	Explain the different components of a computer system, fundamental concepts of problem solving and programming methodology.
CO2	Learn and implement the concepts of conditional Loops, Arrays, basic Searching and Sorting Algorithms using 'C' Programming language.
CO3	Explain and demonstrate the use of different concepts of Functions and Recursion in 'C' programming.
CO4	Apply the concept of Structures and Pointers to implement and illustrate their use in 'C' programming.

BSE2-6T

### **Basics of Electrical Engineering**

By the end of the course, the students will be able to

CO1	Students are able to examine and implement the basic concepts of AC and DC Electric circuit and its behaviour to analyze the fundamental principles of Ohm's law, KVL and KCL, Star Delta transformation.
CO2	Students are able to analyze the basic elementary concepts of, magnetic circuit, definition, phenomena of magnetic hysteresis, B-H curve and hysteresis loop
CO3	Students able to apply the basic elementary concepts of AC circuit, AC fundamental, definitions, Single phase AC circuit, RC and RLC circuit, Three phase AC circuit, Star and Delta connections.
CO4	To determine the types of Single phase transformers, and calculate losses, efficiency and regulations

BSE2-7T

### **Engineering Mechanics**

By the end of the course, the students will be able to

CO1	Learn the effect of force on body.
CO2	Analyse the effect of system of forces on even body with concepts of equilibrium and Free body diagram.
CO3	Determine centroid/C.G. and moments of inertia of various geometrical shapes.
CO4	Apply the virtual work principle on problem of connected bodies.
CO5	Illustrate the problem of connected bodies by work, energy, D Alemberts principle

CO6	Illustrate the problem of connected bodies by impact, impulse.

BSE2-8T

**Indian Culture & Constitution**

By the end of the course, the students will be able to

CO1	Describe Indian culture and civilization and their role in the development of society.
CO2	Summarize Industrial work-culture.
CO3	Demonstrate towards professional ethics.
CO4	Interpret Indian Constitution and governance of the country.
CO5	Analyze the structure and system of work organizations.