

BSP201T					University Physics-II					
Teaching Scheme					Examination Scheme					
L	T	P	C	Hrs/Week	Theory			Practical		Total Marks
					MS	ES	IA	LW	LE/Viva	
3	0	0	3	3	25	50	25	--	--	100

COURSE OBJECTIVES

- To develop the basic understanding of electricity and magnetism.
- To provide fundamental knowledge of basic thermodynamics.
- To understand the concepts of elementary optics and its applications.
- To understand the origin of quantum physics

UNIT 1 Concepts of Electricity and Magnetism**12
Hrs.**

Coulomb's law, Electric field, Gauss's law, potential; capacitors, dielectric, dc circuits, RC-RL-LC circuits, electric fields in matter, polarization.

Sources of magnetism, magnetic force on a moving charge, Biot-Savart law, Ampere's law, induced emf, torque on a current loop in B field, magnetic dipoles in atoms and molecules, gyro magnetic ratio.

**10
Hrs.****UNIT 2 Basic Thermodynamics**

Continuum and macroscopic approach, thermodynamic systems (closed and open), thermodynamic properties and equilibrium, state of a system, concepts of heat and work, different modes of work, zeroth law of thermodynamics, First Law of Thermodynamics, Concept of energy and various forms of energy, internal energy, enthalpy, first law applied to elementary processes.

8 Hrs.**UNIT 3 Elementary Optics**

Reflection, Refraction, Image formation by mirrors & thin lenses, Optical instruments: Digital camera, Microscope, Telescope, Magnification, Interference, Thin films, Diffraction, Some applications of optics in various fields.

**10
Hrs.****UNIT 4 Elements of Modern Physics**

Failure of Classical Mechanics, Introduction to Quantum Mechanics, Plank's Hypothesis, De Broglie's Dual Nature Principle, Introduction to special theory of relativity: twin paradox, time dilation, length contraction.

Max. <40> Hrs.**COURSE OUTCOMES**

On completion of the course, student will be able to

CO1 - Acquire knowledge about basic concepts of electricity and magnetism.

CO2 - Understand and apply the concepts of basic thermodynamics.

CO3 - Understand the concepts of elementary optics and apply in various optical instruments

CO4 - Apply the concepts in electromagnetism, thermodynamics and optics to solve numerical problem

CO5 - Differentiate between classical and quantum physics.

CO6 - Develop the understanding to deal with higher level courses in physics

TEXT/REFERENCE BOOKS

1. Electromagnetism by B B Laud 2nd Edition, Wiley eastern limited.
2. Electricity and Magnetism with Electronics by K. K. Tiwari (S. Chand & Company Ltd. 2007)
3. Heat and Thermodynamics by Brij lal and N Subramaniyam ,(S Chand & Co.Ltd, New Delhi).
4. Optics by Brij lal and N Subramaniyam ,(S Chand & Co.Ltd, New Delhi).
5. Concepts of modern Physics by Arthur Beiser, TMH.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN**Max. Marks: 100**

Part A/Question: 3 Questions from each unit, each carrying 3 marks

Part B/Question: 2 Questions from each unit, each carrying 8 marks

Exam Duration: 3 Hrs

36 Marks

64 Marks

