FUNDAMENTALS OF PHYSICS

Course Outcomes (CO):

CO	CO Statement	Cognitive Level*	Knowledge Category#	Evaluation Tools used
CO1	Understand the concepts of Newton's Laws of Motion	U	C	Instructor-created exams / Quiz
CO2	Apply Newton's Laws of Motion to solve different mechanical systems	Ap	P	Instructor-created exams / Home Assignments
CO3	Apply work-energy theorem to solve different mechanical systems	Ap	P	Instructor-created exams / Home Assignments
CO4	Analyse conservative systems and solve them using the conservation of mechanical energy.	An	P	Instructor-created exams / Home Assignments
CO5	Demonstrate critical thinking and problem-solving skills by applying the concepts and techniques learned to solve an extended set of real-world problems.	Ap	P	Seminar Presentation / Group Tutorial Work
CO6	Demonstrate skills to set up and perform experiments to test Newton's Laws of Motion and related concepts.	Ap	P	Practical Assignment / Observation of Practical Skills / Viva Voce

* - Remember (R), Understand (U), Apply (Ap), Analyse (An), Evaluate (E), Create (C)
# - Factual Knowledge(F), Conceptual Knowledge (C), Procedural Knowledge (P), Metacognitive Knowledge (M)

ELECTRONICS I

CO	CO Statement	Cognitive Level*	Knowledge Category#	Evaluation Tools used
CO1	Define the basic concepts of semiconductor physics, including energy bands, charge carriers, and doping.	Remember	Definitions and basic concepts	Quizzes
CO2	Explain the operating principles of semiconductor diodes, including forward and reverse bias conditions.	Understand	Laws and theories of semiconductor physics	Problem sets, concept maps
CO3	Analyse the applications of semiconductor diodes in rectification, clipping, and clamping circuits.	Analyse	Semiconductor device applications	Research papers, case studies
CO4	Explain the principles of operation of bipolar junction transistors (BJTs) and field-effect transistors (FETs), including their modes of operation and characteristics.	Understand	Laws and theories of semiconductor physics	Problem sets, concept maps
CO5	Apply transistor models to analyse amplifier circuits.	Apply	Application of principles	Laboratory experiments, simulations
CO6	Define the basic concepts of digital electronics, including binary number systems, hexadecimal number systems	Remember	Definitions and basic concepts	Quizzes
* - Remember (R), Understand (U), Apply (Ap), Analyse (An), Evaluate (E), Create (C) # - Factual Knowledge(F) Conceptual Knowledge (C) Procedural Knowledge (P) Metacognitive Knowledge (M)				