

Semester Lecture Plan

Name of the college: Government College of Arts, Science & Commerce, Sanquelim-Goa						
Name of Faculty: Mahendra R. Pednekar			Subject: Physics Major			
Paper code: PHY 206		Program/Course: S.Y. B.Sc.		Division:		
Academic year: 2026 - 2027		Semester: III		Total Lectures: 45		
Course Objectives: This course provides a comprehensive overview of the learning outcomes for a course covering circuit analysis, inductance, DC and AC circuits, and the magnetic forces on moving charges and conductors. They serve as a guide for structuring lectures, laboratory work, and assessments in the course.						
Course Learning Outcome: The students will be able to 1. Understand the basic principles of electric circuits. 2. Understand the behaviour and characteristics of inductors and analyze the role of inductance in electrical circuits. 3. Analyze the response of DC and AC circuits. 4. Understand the Lorentz force acting on a moving charged particle in a magnetic field. 5. Apply the right-hand rule to determine the direction of the force experienced by a current-carrying conductor in a magnetic field. 6. Understand the torque experienced by a current loop in a magnetic field.						
Month	Lectures From: To:		No. of lectures allotted	Topic, Subtopic to be covered	ICT Tools	Reference books

June	21/6/26	27/6/26	03	Circuit Analysis Steady current, concept of constant current source and constant voltage source, Maxwells cyclic current method for circuit analysis, Thevenin's theorem Practical : LCR series		
June/July	29/6/26	4/7/26	03	Nortons theorem, Superposition theorem, Practical : LCR Parallel		
July	6/7/26	11/7/26	03	Maximum power transfer theorem. Inductance 10 Self-inductance, Self-inductance of two parallel wires carrying equal current in opposite directions, Practical : TheveninTheorem		
July	13/7/26	18/7/26	03	Self-inductance of co-axial cables, Mutual inductance, Coefficient of coupling. Response of circuits containing L, C and R to DC 5 Growth and decay of current in L-R circuit, Practical : LR circuit		
July	20/7/26	25/7/26	03	charging and discharging of capacitor in C-R circuit and in a series LCR circuit.		

July/August	27/7/26	1/8/26	03	Practical : Repeat 1		
August	3/8/26	8/8/26	03	A.C. circuits Content 5 8 A.C. applied to L-R and C-R circuits, Inductive and Capacitive reactance, Impedance and Admittance, the j operator,		
				Practical : CR charging discharging		
August	10/8/26	15/8/26	03	AC applied to L-C-R circuits, Series and Parallel resonance. AC applied to mutually coupled L-R circuits,		
				Practical : CR circuit		
August	17/8/26	22/8/26	03	Transformers. Force on a Moving Charge Magnetic induction B and magnetic intensity H,		
				Practical : Repeat 2		
September	24/8/26	29/8/26	03	Lorentz force law, Work done by a magnetic field on a moving charge, Force on a moving charge, Magnetic flux.		
				Practical : Magnetic sensor		

				Force on conductor carrying current 5 Force on a conductor carrying current in uniform magnetic field, rectangular current loop in external magnetic field,		
September	31/8/26	5/9/26	03	Practical : resistance of galvanometer		
September	7/9/26	12/9/26	03	Dead beat galvanometer, Theory of Ballistic galvanometer. Torque on current loop 6 Torque on a current loop, Magnetic moment of a current loop,		
				Practical : Magnetic field lines		
September	21/9/25	26/9/25	03	Equivalence of current coil to a bar magnet, Magnetic moment of atomic dipole, Angular momentum and gyromagnetic ratio.		
				Practical : Revision		
Sept/october	28/9/26	3/10/25	03	Revision		
				Practical Examination		
October	6/10/26	14/10/26	05	Problem solving	.	