

Lesson Plan

(Theory and Practical)

Name: Dr. Randhir Singh

Discipline: Common for all branches

Semester: 2nd

Subject: Applied Physics-II

Code: 170023

Duration: 15 weeks (January 2018 to April 2018)

Work load (per week): Lectures-04 and Practicals-02

Week	Theory		Practical	
	Lect. day	Topic	Practical period	Topic
1st	1 st	Wave motion: Introduction to periodic motion	1 st	Introduction to Lab
	2 nd	Transverse and longitudinal wave motion with examples		
	3 rd	Displacement, amplitude, time period, frequency, wavelength	2 nd	To find the time period of a simple pendulum
	4 th	Wave velocity, relationship among wave velocity, frequency and wave length		
2 nd	1 st	Simple Harmonic Motion: definition and examples, Cantilever: definition and formula of time period	1 st	To determine and verify the time period of Cantilever
	2 nd	Free, forced and resonant vibrations		
	3 rd	Acoustics of buildings – reverberation, reverberation time, Methods to control reverberation time	2 nd	-do-
	4 th	Echo, noise, coefficient of absorption of sound		
3rd	1 st	Ultrasonics (production methods)	1 st	Revision & Checking of practical note books
	2 nd	Applications to cold welding, drilling and SONAR		
	3 rd	checking of class work	2 nd	-do-
	4 th	Revision		

4th	1 st	Optics: Reflection, refraction of light and refractive index	1 st	To study law of reflection using mirrors
	2 nd	Lens formula, power of lens and related numerical problems		
	3 rd	Total internal reflection (TIR), critical angle and conditions for total internal reflection	2 nd	-do-
	4 th	Applications of TIR and problem solving		
5th	1 st	Microscope and Telescope (definition), uses	1 st	To identify different components like resistance, capacitor and diode
	2 nd	checking of class work		
	3 rd	1 st Assignment and class test	2 nd	-do-
	4 th	Electrostatics: Coulomb's law and unit charge		
6th	1 st	Electric field and Electric lines of force (definition and properties)	1 st	Revision & Checking of practical note books
	2 nd	Electric Flux and Electric Intensity		
	3 rd	Electric potential (definition and formula), Electric field intensity due to a point charge	2 nd	-do-
	4 th	Gauss' law (Statement and derivation)		
7th	1 st	Capacitor and Capacitance (with formula and units)	1 st	To study colour coding scheme of resistances
	2 nd	Series and parallel combination of capacitors		
	3 rd	Numerical problems	2 nd	-do-
	4 th	Revision of 1 st and 2 nd units		
8th	1 st	Current Electricity: Electric current and its units	1 st	To verify ohm's laws by plotting a graph between voltage and current
	2 nd	Direct and alternating current		
	3 rd	Class test	2 nd	-do-

	4 th	Ohm's law and resistance , Specific resistance (definition and units)		
9th	1 st	Conductance, Series and parallel combination of resistances	1 st	Revision & Checking of practical note books
	2 nd	Heating effect of current and Superconductivity (definition only)		
	3 rd	Electric power, Electric energy and its units	2 nd	-do-
	4 th	Kirchhoff's laws (statement and formula)		
10th	1 st	checking of class work	1 st	To verify laws of resistances in series combination
	2 nd	Numerical problems and doubts session		
	3 rd	Revision of 3 rd and 4 th units	2 nd	To verify laws of resistance in parallel combination
	4 th	2 nd assignment and class test		
11th	1 st	Electromagnetism: Introduction to magnetism	1 st	To find resistance of galvanometer by half deflection method
	2 nd	Types of magnetic materials, Dia, para and ferromagnetic materials with examples		
	3 rd	Magnetic field and magnetic intensity	2 nd	-do-
	4 th	Magnetic lines of force, magnetic flux and their units		
12th	1 st	Electromagnetic induction (definition)	1 st	Revision & Checking of practical note books
	2 nd	Revision of 5 th unit		
	3 rd	Semiconductor physics: Energy bands and types of materials (insulator, semi conductor, conductor)	2 nd	-do-
	4 th	Intrinsic and extrinsic semiconductors		
13th	1 st	p-n junction diode and its V-I characteristics	1 st	Revision of experiments 1,2,3 and viva voce
	2 nd	Diode as half wave rectifier and full wave rectifier		
	3 rd	Semiconductor transistor: pnp and npn (Introduction only)	2 nd	-do-
	4 th	Problem solving		
14th	1 st	3 rd assignment and class test	1 st	Revision of experiments 4,5,6 and viva voce
	2 nd	Modern Physics: Lasers: full		

		form, characteristics, Applications of lasers		
	3 rd	Fibre optics: Introduction to optical fibers(definition and parts) and Applications	2 nd	-do-
	4 th	Introduction to nanotechnology (definition of nanomaterials with examples)		
15th	1 st	Applications of nanotechnology	1 st	Revision of experiments 7,8,9 and viva voce
	2 nd	checking of class work		
	3 rd	Revision of 6 th and 7 th units	2 nd	-do-
	4 th	Problem solving		