

**VTI, ROHTAK**  
**Lesson Plan**

Name of Faculty : Satish Jain  
Discipline : Mechanical Engg.  
Semester : 2nd  
Subject : Applied Physics-II

Lesson Plan Duration : 15 Weeks (From Jan 2018 to April 2018)

Work Load (Lecture/ Practical) per week : Lecture – 04, Practical –02 per group

<b>APPLIED PHYSICS – II (170023)</b>					
Week	Theory			Practical	
	Lecture Day	Topic ( Including Assignment / Test )	Practical Day	Topic	
1	1	Introduction about syllabus, study schemes etc.	1	Introduction and Familiarization with Lab apparatus	
	2	Wave motion, transverse and longitudinal wave motion with examples			
	3	Terms used in wave motion like displacement, amplitude, time period, frequency, wavelength, wave velocity,			
	4	Relationship among wave velocity, frequency and wave length			
2	5	Simple Harmonic Motion (SHM): definition, examples	2	To find the time period of a simple pendulum	
	6	Cantilever (definition, formula of time period (without derivation), problems			
	7	Free, forced and resonant vibrations with examples			
	8	Acoustics of buildings – Noise, musical sound, coefficient of absorption of sound, echo			
3	9	reverberation, reverberation time, Sabine's formulae for reverberation time	3	To determine and verify the time period of Cantilever	
	10	methods to control reverberation time, problems			
	11	Ultrasonics: Introduction and their engineering applications (cold welding, drilling, SONAR)			
	12	Problem solving and Assignment.			
4	13	Reflection and refraction with laws,	4	Checking of files and Viva Voce	
	14	Refractive index, Total internal reflection and its applications, Critical angle and conditions for total internal reflection			
	15	Lens formula (no derivation), power of lens (related numerical			
	16	Microscope, Telescope (definition), Uses of microscope and telescope.			
5	17	Revision and Problem discussion	5	To verify laws of reflection of light using mirror.	
	18	<b>Sessional Test 1</b>			
	19	Coulombs law, unit charge,			
	20	Electric field, Electric lines of force (definition and properties),			
6	21	Electric Intensity, Electric field intensity due to a point charge.	6	To verify ohm's laws by plotting a graph between voltage and current.	
	22	Electric flux, Electric potential (definition, formula).			
	23	Gauss law (Statement and derivation)			
	24	Capacitor and Capacitance (with formula and units), principle of a			
7	25	Series and parallel combination of capacitors	7	Checking of files and Viva Voce	
	26	Simple numerical problems on combination of capacitors			
	27	Revision and Problem discussion, Assignment			
	28	Electric Current and its Unit, Direct and alternating current,			
8	29	Resistance and Specific Resistance (definition and units), Conductance	8	To verify laws of resistances in series combination.	
	30	Ohm's law (statement and formula), superconductivity (definition).			
	31	Series and Parallel combination of Resistances.			
	32	Heating effect of current, Electric power, Electric energy and its units			

**APPLIED PHYSICS – II (170023)**

Week	Theory		Practical	
	Lecture Day	Topic ( Including Assignment / Test )	Practical Day	Topic
9	33	Simple numerical problems on combination of resistances	9	To verify laws of resistance in parallel combination.
	34	Kirchhoff's laws(statement and formula)		
	35	Revision and Problem discussion		
	36	Revision and Problem discussion		
10	37	<b>Sessional Test 2</b>	10	To find resistance of galvanometer by half deflection method
	38	Introduction to magnetism, Types of magnetic materials. Dia, para and ferromagnetic materials with examples.		
	39	Magnetic field,magnetic intensity,		
	40	Magnetic lines of force, magnetic flux and their units		
11	41	Electromagnetic induction	11	Checking of files and Viva Voce
	42	Revision		
	43	Problem solving and Assignment		
	44	Energy Levels, Energy bands,		
12	45	Types of materials (conductor, semiconductor, insulator), Energy band diagrams of conductor, semiconductor and insulator.	12	To identify different components like resistance, capacitor, diode.
	46	Intrinsic and extrinsic semiconductors, p-type and n-type		
	47	PN junction diode, depletion region, forward and reverse biasing		
	48	V-I characteristics PN junction Diode		
13	49	Diode as rectifier: half wave and Full wave rectifier (centre tap only)	13	To study colour coding scheme of resistance.
	50	Semiconductor transistor; pnp and npn transistors		
	51	Revision		
	52	Problem solving and Assignment		
14	53	Lasers: full form, characteristics,	14	Checking of files and Viva Voce
	54	Engineering and medical applications of lasers.		
	55	Fibre optics: Introduction to optical fibers (definition , parts), Applications of optical fibers in different fields.		
	56	Introduction to nanotechnology (definition of nanomaterials with examples) and its applications.		
15	57	Revision and Problem solving	15	Revision of Practicals
	58	Revision and discussion of previous years Question Papers.		
	59	<b>Sessional Test 3</b>		
	60	Revision and discussion of previous years Question Papers.		