Lesson Plan

Name of the Faculty: Dr. Praveen Bhatt (Theory & Practical)

Discipline: Department of Applied Sciences and Humanities

Semester: 2nd

Subject: Applied Physics-II (AS-102N)

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

Work Load (Lecture) per week (in hours): Lectures-05

Week	Theory		Practical Group I AND II	
	Lecture day	Topic (including assignment/test)	Practical day	Topic
1st	1st	Crystalline and Amorphous solids	1st	To find the value of e/m for electrons by Helical method
	2nd	Crystal Structure: lattice translation vector		
	3rd	symmetry operations	2nd	To find the value of e/m for electrons by Helical method
	4th	space lattice, basis		
	5TH	Test		
2nd	6th	Unit cell and Primitive cell	3rd	To find the ionization potential of Argon/Mercury using a thyratron tube.
	7th	Fundamental types of lattices		
	8th	two-dimensional Bravais lattices	4th	To study the variation of magnetic field with distance and to find the radius of coil by Stewart and Gee's apparatus.
	9th	three dimensional Bravais lattices		
	10TH	Test		
3rd	11th	Simple Cubic (SC)	5th	To study the variation of magnetic field with distance and to find the radius of coil by Stewart and Gee's apparatus.
	12th	Body Centred Cubic (BCC)		
	13th	Face Centred Cubic (FCC)	6th	To find the value of Planck's constant by using photoelectric cell.
	14th	Hexagonal Close Packed (HCP) structure		
	15th	Test		
4th	16th	Sodium Chloride,Cesium Chloride	7th	To study the V-I characteristics of a p-n diode.
	17th	Diamond, Cubic Zinc Sulfide		
	18th	Miller Indices	8th	To study the V-I characteristics of a p-n diode.
	19th	numericals		
	20th	Test		
5th	21ST	Bonding in Solids, Point defects in crystals	9th	To find the band gap of intrinsic semiconductor using four probe method.
	22nd	Schottky defect		
	23rd	Frenkel defect	10th	To find the band gap of intrinsic semiconductor using four probe method.
	24th	Need and origin of Quantum concept,		

		Wave-particle duality		
	25th	Test		
6th	**26th**	Phase velocity	**11th**	To find the flashing and quenching potential of Argon and to find the capacitance of unknown capacitor.
	27th	Group velocity		
	28th	Relation between phase and grpup velocity	**12th**	To study the characteristics of (Cu-Fe, Cu-Constantan) thermocouple
	29th	A1		
	30th	Test		
7th	**31st**	Uncertainty Principle and Applications	**13th**	To study the characteristics of (Cu-Fe, Cu-Constantan) thermocouple
	32nd	Schrodinger's wave equation: time-dependent		
	33rd	Schrodinger's wave equation: time-independent	**14th**	To study the characteristics of (Cu-Fe, Cu-Constantan) thermocouple
	34th	Physical Significance of wave function		
	35th	Test		
8th	**36th**	A2	**15th**	To study V-I characteristics of solar cell
	37th	Classical free electron theory: electrical conductivity in metals		
	38th	Thermal conductivity in metals	**16th**	To find the value of Hall Coefficient of semiconductor.
	39th	Wiedemann-Franz law		
	40th	Test		
9th	**41st**	success and drawbacks of free electron theory	**17th**	To find the value of Hall Coefficient of semiconductor.
	42nd	Quantum free electron theory: wave function, eigen values		
	43rd	Fermi-Dirac distribution function	**18th**	To find the value of Hall Coefficient of semiconductor.
	44th	Density of states		
	45th	Test		
10th	**46th**	Fermi energy and its importance	**19th**	Revision
	47th	Thermionic Emission (qualitative).		
	48th	A3	**20th**	Revision
	49th	Bloch theorem		
	50th	Test		
11th	**51st**	Kronig-Penney Model (qualitative	**21st**	Revision
	52nd	E versus k diagram		
	53rd	Brillouin Zones	**22nd**	Revision
	54th	Concept of effective mass of electron		
	55th	Test		
12th	**56th**	Energy levels and energy bands	**23rd**	Revision
	57th	Distinction between metals, insulators and semiconductors		
	58th	Hall effect and its applications	**24th**	Revision
	59th	A4		
	60th	Test		
13th	**61st**	Superconductivity: Introduction	**25th**	Revision
	62nd	General features of Superconductors		
	63rd	Meissner effect	**26th**	Revision

	64th	Types of superconductors		
	65th	Test		
14th	**66th**	Elements of BCS theory	**27th**	Revision
	67th	London equations, applications of superconductivity		
	68th	A5	**28th**	Revision
	69th	Nanomaterials: Introduction		
	70th	Test		
15th	**71st**	Synthesis of nanomaterials: Top-down and Bottom-up approach	**29th**	Revision
	72nd	Sol-Gel and Ball Milling methods		
	73rd	Applications of nanomaterials	**30th**	Revision
	74th	A6		
	75th	Test		

A1: Miller indices and point defects in crystal

A2: Schrodinger time dependent and time independent

A3: Fermi- Dirac distribution function

A4: Hall Effect and its applications

A5: Meissner effect, London equations

A6: Synthesis of nanomaterials.