

GANGA TECHNICAL CAMPUS

DEPARTMENT OF APPLIED SCIENCES AND HUMANITIES

LESSON PLAN

NAME: Ms Sweta Chauhan

COURSE: B.Tech

SEMESTER: Second

SUBJECT: ENGINEERING PHYSICS-II(PHY-102F)

LESSON PLAN DURATION: 15 weeks (January to April 2017)

LECTURE: 3 Tutorial: 1 Practical: 2

WEEK	THEORY		PRACTICAL	
	LECTURE DAY	TOPIC	PRACTICAL DAY	TOPIC
1	1	Crystal Structure.(Introduction),Space lattice, unit cell and translation vector	1	Carey - Foster's bridge
	2	unit cell and translation vector		
	3	simple crystal structure		
	T	Problems		
2	1	Laue's treatment to Bragg's law,	2	Substitution method.
	2	powder method,		
	3	Point defects in solids – Schottky and Frenkel defects		
	T	Problems		
3	1	Bonding in solids- Ionic and covalent bonds.	3	solar cell and to find the fill factor
	2	Revision / class test		
	3	Quantum Physics(introduction)		
	T	Problems		
4	1	Difficulties with Classical physics	4	ionisation potential of Argon/Mercury
	2	Introduction to quantum mechanics-simple concepts		
	3	Black Body radiations Discovery of Planck's constant,		
	T	Problems		
5	1	phase velocity and group velocity.	5	variation of magnetic field with distance .
	2	Schrodinger wave equations-time dependent and time independent,		
	3	Expectation value, Ehrenfest Theorem,		
	T	Problems		
6	1	particle in a one-dimensional box.	6	find the radius of coil by Stewart and Gee's appa
	2	phase velocity and group velocity.		
	3	Derivation of phase and group velocity		
	T	Problems		
7	1	Features of nanosystems,Nano-Science.	7	Planck's constant by using a photo electric cell.

	2	concept of quantum size effect, quantum dots		
	3	Applications of nanoscience		
	T	Revision		
8	1	Free Electron Theory.Elements of classical free electron theory and its limits	8	Hall Co-efficient of semi-conductor
	2	Drude's theory of conduction ,		
	3	quantum theory of free electrons		
	T	Problems		
9	1	Fermi-Dirac distribution function	9	V-I characteristics of a p-n diode.
	2	Thermionic emission,		
	3	Richardson's equation.		
	T	Revision/class test		
10	1	Band Theory Of Solids.	10	band gap of intrinsic semi-conductor using four p
	2	Origin of energy bands,		
	3	Kronig-Penny model (qualitative),		
	T	Problems		
11	1	E-K diagrams, Brillouin Zones,	11	co-efficient of self-inductance by using a Rayleigh
	2	concept of effective mass and holes.		
	3	Classification of solids into metals, semiconductors and insulators		
	T	Problems		
12	1	Fermi energy and its variation with temperature.	12	Revision of all experiments
	2	Hall Effect and its applications.		
	3	Photoconductivity & Photovoltaics Photoconductivity in insulating crystal		
	T	Problems		
13	1	variation with illumination, effect of traps,	13	VIVA
	2	application of photoconductivity, photovoltaics cells,		
	3	solar cell and its characteristics.		
	T	Revision / class test		
14	1	Magnetic Properties Of Solids(Introduction)	14	INTERNAL PRACTICAL
	2	Atomic magnetic moments		
	3	orbital diamagnetism		
	T	Problems		
15	1	Classical theory of paramagnetism	15	ASSESSMENT
	2	ferromagnetism,		
	3	molecular fields and domain hypothesis.		
	T	Revision / class test		