

Lesson Plan

Name of Faculty : Dr. Shyam Sunder, Assistant Professor
Discipline : B.Tech.-2nd Sem (ECE, EE & ME)
Semester : 2nd
Subject : Physics-II and Physics Laboratory-II
Lesson Plan Duration: 15 weeks (from January, 2018 to April, 2018)
Work Load (Lecture/Practical) per week (in hours): Lectures 04 hours, Practical -04 hours

Week	Theory		Practical	
	Lecture Day	Topic (Including Assignment/Test)	Practical Day	Topic
1 st	1	Basics of Solids	1	High resistance by substitution method
	2	Space lattice, Unit Cell, T-vector	1	High resistance by substitution method
	3	Miller Indices, Crystal Structures	1	High resistance by substitution method
	4	Problems and Solutions	1	High resistance by substitution method
2 nd	5	Ionic & Covalent Bonding	2	Resistance of a galvanometer
	6	Metallic, Vanderwaals & H- bonding	2	Resistance of a galvanometer
	7	Braggs Law, XRD	2	Resistance of a galvanometer
	8	Problems and Solutions	2	Resistance of a galvanometer
3 rd	9	Laue & Powder method, point defects	3	I.P. mercury using a thyratron tube
	10	Classical to Quantum mechanics, h	3	I.P. mercury using a thyratron tube
	11	De-Broglie hypothesis, V_p & V_g	3	I.P. mercury using a thyratron tube
	12	Problems and Solutions	3	I.P. mercury using a thyratron tube
4 th	13	Schrodinger eq ⁿ , Heisenberg principle	4	V-I characteristics of a p-n diode
	14	Free electron theory (Classical, Drude)	4	V-I characteristics of a p-n diode
	15	Quantum theory of free e ⁻ , Fermi level	4	V-I characteristics of a p-n diode
	16	Problems and Solutions	4	V-I characteristics of a p-n diode
5 th	17	Density of States, Fermi-Dirac function,	5	Variation of magnetic field with distance
	18	Thermionic emission Richardson's eqn.	5	Variation of magnetic field with distance
	19	Atomic magnetic Moments	5	Variation of magnetic field with distance
	20	Problems and Solutions	5	Variation of magnetic field with distance
6 th	21	Dia, para, ferro magnetism	6	Vivo-Vice-1
	22	Antiferro & ferrimagnetisms	6	Vivo-Vice-1
	23	Hysteresis, domain theory	6	Vivo-Vice-1
	24	Problems and Solutions	6	Vivo-Vice-1
7 th	1st Minor Test			

8 th	25	Dielectrics, Molecular theory	7	e/m for electrons by Helical method
	26	Polarization, displacement, susceptibility	7	e/m for electrons by Helical method
	27	Permittivity, relation between D,E &P .	7	e/m for electrons by Helical method
	28	Problems and Solutions	7	e/m for electrons by Helical method
9 th	29	Gauss law, Energy stored in dielectric	8	Band gap of semi conductor
	30	Dielectric in a.c., losses	8	Band gap of semi conductor
	31	Concept of Band theory	8	Band gap of semi conductor
	32	Problems and Solutions	8	Band gap of semi conductor
10 th	33	Origin of Energy bands,	9	Hall Co-efficient of semi-conductor
	34	Kroning Penny model,	9	Hall Co-efficient of semi-conductor
	35	E-K diagrams, Brillouin zones	9	Hall Co-efficient of semi-conductor
	36	Problems and Solutions	9	Hall Co-efficient of semi-conductor
11 th	37	Effective mass of e ⁻ , concept of holes	10	Hysteresis loss by tracing a B-H curve.
	38	Conductors, semi conductors, insulators	10	Hysteresis loss by tracing a B-H curve.
	39	Fermi energy and temperture,	10	Hysteresis loss by tracing a B-H curve.
	40	Problems and Solutions	10	Hysteresis loss by tracing a B-H curve.
12 th	41	Hall effect, Photoconductivity	11	h by using photo electric cell
	42	Introduction of Superconductivity	11	h by using photo electric cell
	43	Meissner effect, London equations	11	h by using photo electric cell
	44	Problems and Solutions	11	h by using photo electric cell
13 th	45	Curie law, Curie temp.	12	Vivo-Vice-2
	46	Type I and Type II superconductors	12	Vivo-Vice-2
	47	Electron Phonon and BCS theory	12	Vivo-Vice-2
	48	Problems and Solutions	12	Vivo-Vice-2
14 th	2nd Minor Test			
15 th	49	Nanoscale, particles, quantum dot, wire, well. Properties. Bucky ball	13	Final Submission of Record
	50	Carbon nano tube, basics of synthesis.	13	Final Submission of Record
	51	Top down approach, Ball milling	13	Final Submission of Record
	52	Problems and Solutions	13	Final Submission of Record