Bhoj Reddy Engineering College for Women: Hyderabad

Department of Basic Sciences

Lesson plan of faculty member for the academic year 2016–17

Class:I.B.Tech Branch - Section: EEE Semester –II

Subject: Engineering Physics Lectures per week: 4

Lecture Number	Topics to be covered	Date (s)
UNIT-I Principles of Quantum Mechanics		
1	Waves and particles	03 January 2017
2	De-Broglie hypothesis	03 January 2017
3	Matter waves	05 January 2017
4	Davisson and Germer experiment	07 January 2017
5	Heisenberg uncertainty principle	10 January 2017
6	Schrodinger time independent wave equation	10 January 2017
7	Physical significance of wave function	12 January 2017
8	Particle in 1-D potential box	17 January 2017
9	Electron in periodic potential	17 January 2017
10	Kronig-Penny model (qualitative treatment)	19 January 2017
11	E-K curve	21 January 2017
12	Origin of energy band formation in solids	24 January 2017
13	Problems	24 January 2017
14	Problems	28 January 2017
UNIT-II Semiconductor Physics		
15	Fermi level in intrinsic and extrinsic semiconductors	31 January 2017
16	Calculation of carrier concentration in intrinsic semiconductors	31 January 2017
17	Calculation of carrier concentration in extrinsic semiconductors	02 February 2017
18	Direct and indirect band gap semiconductors	04 February 2017
19	Formation of PN junction	07 February 2017
20	Open circuit PN junction	07 February 2017
	energy diagram of PN junction diode	09 February 2017
21	Solar cell: I-V characteristics and applications	11 February 2017
22	Problems	14 February 2017
UNIT – III Dielectric Properties		
23	Electric dipole, dipole moment, dielectric constant	14 February 2017
24	Polarizability	16 February 2017
25	Electric susceptibility	18 February 2017
26	Displacement vector	21 February 2017
27	Electronic polarization-calculation of polarizability	21 February 2017
28	Ionic polarization-calculation of polarizability	23 February 2017
29	Orientation polarizations-calculation of polarizability	25 February 2017
30	Internal field	28 February 2017
31	Clausius-Mossotti relation, Piezoelectricity	28 February 2017
32	Pyroelectricity and ferroelectricity-$BaTiO_3$ structure	02 March 2017
33	Problems	04 March 2017
UNIT – IV Magnetic Properties & Superconductivity		
34	Permeability	09 March 2017
35	Field intensity	11 March 2017
36	Magnetic field induction	14 March 2017
37	Magnetization	14 March 2017

40	Bohr magneton	21 March 2017
41	Classification of dia, para and ferro magnetic materials on the basis of magnetic moment	21 March 2017
42	Hysteresis curve based on domain theory	23 March 2017
43	Soft and hard magnetic materials	25 March 2017
44	Properties of antiferro and ferri magnetic materials	28 March 2017
45	Superconductivity: Superconductivity phenomenon	28 March 2017
46	Meissner effect	30 March 2017
47	Applications of superconductivity	01 April 2017
48	Problems	04 April 2017
49	Problems	04 April 2017
UNIT – V Introduction to nanoscience.		
50	Origin of nanoscience	06 April 2017
51	Nanoscale	08 April 2017
52	Surface to volume ratio	11 April 2017
53	Quantum confinement	11 April 2017
54	Dominance of electromagnetic forces	13 April 2017
55	Random molecular motion	15 April 2017
56	Bottomup fabrication: Sol-gel	18 April 2017
57	CVD technique	18 April 2017
58	PVD technique	20 April 2017
59	Top-down fabrication: ball mill method	22 April 2017
60	Characterization by XRD	25 April 2017
61	Characterization by SEM	25 April 2017
62	Characterization by TEM	27 April 2017
63	Problems	29 April 2017
64	Problems	02 May 2017
65	Problems	02 May 2017
66	Problems	04 May 2017
67	Revision for II-mid	06 May 2017
68	Revision for II-mid	09 May 2017
69	Revision for II-mid	09 May 2017

Text book:

1. Solid State Physics, A. J. Dekkar, Macmillan publishers Ind. Ltd.,

2. Solid State Physics, Char les Kittel, Wiley student edition.

3. Fundamentals of Physics, Alan Giambattisa, BM Richardson and Robert C Richardson, Tata McGraw hill Publishers

Name and signature of the faculty: Bhagya Lakshmi R

Name and signature of Head of the Department: Padma K