

Bhoj Reddy Engineering College for Women: Hyderabad
 Department of Basic Sciences
 Lesson plan of faculty member for the academic year 2017–18

Class: I B Tech
 Subject: Engineering Physics

Branch - Section: IT-A

Semester: II
 Lectures per week: 4

Lecture Number	Topics to be covered	Date (s)
UNIT-I Principles of Quantum Mechanics		
1	Waves and particles	19 December 2017
2	de-Broglie hypothesis, matter waves	20 December 2017
3	Davisson and Germer experiment	21 December 2017
4	Problems, Heisenberg's uncertainty principle	22 December 2017
5	Consequences of Heisenberg's uncertainty principle, problems	27 December 2017
6	Schrodinger time independent wave equation	28 December 2017
7	Physical significance of wave function	29 December 2017
8	Particle in 1-D potential box	02 January 2018
9	Electron in periodic potential, Kronig-Penny model (qualitative treatment)	03 January 2018
10	E-K curve	04 January 2018
11	origin of energy band formation in solids	05 January 2018
UNIT-II Semiconductor Physics		
12	Introduction to semiconductors	09 January 2018
13	Fermi level in intrinsic semiconductors	10 January 2018
14	Fermi level in extrinsic semiconductors	11 January 2018
15	Calculation of carrier concentration in intrinsic semiconductors	12 January 2018
16	Calculation of carrier concentration in extrinsic semiconductors P-Type	16 January 2018
17	Calculation of carrier concentration in extrinsic semiconductors N-Type	17 January 2018
18	Direct and indirect band gap semiconductors	18 January 2018
19	Formation of PN junction, open circuit PN junction	19 January 2018
20	Energy level diagram of PN junction diode	23 January 2018
21	Solar cell: I-V characteristics and applications	24 January 2018
UNIT – III Dielectric Properties		
22	Electric dipole, dipole moment	25 January 2018
23	dielectric constant, polarizability	30 January 2018
24	Electric susceptibility, displacement vector	31 January 2018
25	Electronic, ionic and orientation polarizations	01 February 2018
26	Calculation of electronic polarizability	02 February 2018
27	Revision	06 February 2018
28	Calculation of ionic polarizability, orientation polarizability	14 February 2018
29	Internal field	15 February 2018
30	Clausius-Mossotti relation	16 February 2018
31	Piezoelectricity	20 February 2018
32	Pyroelectricity and ferroelectricity-BaTiO ₃ structure	21 February 2018

UNIT – IV Magnetic Properties & Superconductivity		
33	Permeability, field intensity, magnetic field induction	22 February 2018
34	magnetization, magnetic susceptibility	23 February 2018
35	Problems	27 February 2018
36	Origin of magnetic moment	28 February 2018
37	Bohr magneton	02 March 2018
38	Classification of dia, para and ferro magnetic materials on the basis of magnetic moment	06 March 2018
39	Hysteresis curve, Hysteresis curve based on domain theory	07 March 2018
40	soft and hard magnetic materials, Properties of antiferro and ferri magnetic materials	08 March 2018
41	Superconductivity: Superconductivity phenomenon	09 March 2018
42	Meissner effect, applications of Superconductivity	13 March 2018
UNIT – V Introduction to Nanoscience		
43	Origin of nanoscience, nanoscale	14 March 2018
44	surface to volume ratio, Quantum confinement	15 March 2018
45	dominance of electromagnetic forces	16 March 2018
46	Random molecular motion	20 March 2018
47	Bottomup fabrication: Sol-gel, CVD	21 March 2018
48	PVD techniques	22 March 2018
49	Top-down fabrication: ball mill method	23 March 2018
50	Characterization by XRD, SEM	27 March 2018
51	TEM	28 March 2018
52	Revision	29 March 2018
53	Revision	03 April 2018

Text book:

1. Solid State Physics, A. J. Dekkar, Macmillan publishers Ind. Ltd.,
2. Solid State Physics, Chales 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: Vijayalaxmi G