

**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)
<b>UNIT-I Principles of Quantum Mechanics</b>		
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
<b>UNIT-II Semiconductor Physics</b>		
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
<b>UNIT – III Dielectric Properties</b>		
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 <sub>3</sub> structure	21 February 2018

<b>UNIT – IV Magnetic Properties &amp; Superconductivity</b>		
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
<b>UNIT – V Introduction to Nanoscience</b>		
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

**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-B

Semester: II

Lectures per week: 4

Lecture Number	Topics to be covered	Date (s)
<b>UNIT-I Principles of Quantum Mechanics</b>		
1	Waves and particles	19 December 2017
2	de-Broglie hypothesis, matter waves	21 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	28 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)	04 January 2018
10	E-K curve	04 January 2018
11	origin of energy band formation in solids	05 January 2018
<b>UNIT-II Semiconductor Physics</b>		
12	Introduction to semiconductors	09 January 2018
13	Fermi level in intrinsic semiconductors	11 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	18 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	25 January 2018
22	Revision	25 January 2018
<b>UNIT – III Dielectric Properties</b>		
23	Electric dipole, dipole moment, dielectric constant, polarizability	30 January 2018
24	Electric susceptibility, displacement vector, electronic, ionic and orientation polarizations	01 February 2018
25	Calculation of electronic polarizability,	01 February 2018
26	Problems	02 February 2018
27	Revision	06 February 2018
28	Calculation of ionic polarizability , orientation polarizability	15 February 2018
29	Internal field	15 February 2018
30	Clausius-Mossotti relation	16 February 2018
31	Piezoelectricity	20 February 2018
32	Pyroelectricity	22 February 2018
33	Ferroelectricity-BaTiO <sub>3</sub> structure	22 February 2018

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

# 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

Branch - Section: IT-A

Semester: II

Subject: Engineering Physics Lab

Lab per week: 1

Practice Number	Topics to be covered	Date (s)
1	Explanation	19 December 2017
2	Explanation	02 January 2017
3	Practice Experiments	09 January 2018
4	Practice Experiments	16 January 2018
5	Practice Experiments	23 January 2018
6	Practice Experiments	30 January 2018
7	Practice Experiments	06 February 2018
8	Practice Experiments	20 February 2018
9	Practice Experiments	27 February 2018
10	Practice Experiments	06 March 2018
11	Practice Experiments	13 March 2018
12	Practice Experiments	20 March 2018
13	Practice Experiments	27 March 2018
14	Practice Experiments	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

# 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

Branch - Section: IT-B

Semester: II

Subject: Engineering Physics Lab

Lab per week: 1

Practice Number	Topics to be covered	Date (s)
1	Explanation	23 December 2017
2	Explanation	30 December 2017
3	Practice Experiments	06 January 2018
4	Practice Experiments	13 January 2018
5	Practice Experiments	20 January 2018
6	Practice Experiments	27 January 2018
7	Practice Experiments	03 February 2018
8	Practice Experiments	10 February 2018
9	Practice Experiments	17 February 2018
10	Practice Experiments	24 February 2018
11	Practice Experiments	03 March 2018
12	Practice Experiments	10 March 2018
13	Practice Experiments	17 March 2018
14	Practice Experiments	24 March 2018
15	Practice Experiments	31 March 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