

Name of the Asso.Professor: Ms. Renu Mehta

Class and Section: B.Sc. 4th Semester, section -B

Subject/ Paper: Statistical Physics

Subject Lesson Plan: 18 weeks (from January 2018 to April 2018)

Week 1

Unit 1: Statistical Physics-1

Week 1, day 1, Date 01.01.2018

1.1.1 Microscopic and Macroscopic system

1.1.2 events-mutually exclusive, dependent and independent

Week 1, day 2, Date 02.01.2018

1.1.3 Probability,

1.1.4 statistical probability, priori probability and relation between them

Week 1, day 3, Date 03.01.2018

1.1.5 Probability theorems

1.1.6 Some probabilities considerations

Week 2

Unit 1: Statistical Physics-1

Week 2, day 1, Date 08.01.2018

2.1.7 Combination possessing maximum and minimum probability

2.1.8 Tossing of 2, 3 and any number of coins

Week 2, day 2, Date 09.01.2018

2.1.9 Permutation and combination

2.1.10 Distribution of N(for N=2,3,4) distinguishable and indistinguishable particles in two

Boxes of equal size

Week 2, day 3, Date 10.01.2018

2.1.11 Micro and macro states

2.1.12 Thermodynamical probability

2.1.13 Constraints and accessible states

Week 3

Unit 1: Statistical Physics-1

Week 3, day 1, Date 15.01.2018

3.1.14 Statistical fluctuation

Week 3, day 2, Date 16.01.2018

3.1.15 General distribution of distinguishable particles in compartments of different sizes

Week 3, day 3, Date 17.01.2018

3.1.16 Condition of equilibrium between two systems in thermal contact- β parameter

Week 4

Unit 1: Statistical Physics-1

Week 4, day 1, Date 22.01.2018

Basant Panchami (Holiday)

Week 4, day 2, Date 23.01.2018

4.1.17 Entropy and probability(boltzman's relation)

Week 4, day 3, Date 24.01.2018

Chhotu Ram Jyanti(Holiday)

Week 5

Unit 1: Statistical Physics-1

Week 5, day 1, Date 29.01.2018

Inviting queries and doubts on Unit-1

Week 5, day 2, Date 30.01.2018

Test based on Unit-1

Week 5, day 3, Date 31.01.2018

Group Discussion on important Questions

Week 6

Week 6, day1, Date 05.02.2018

Unit 2: Statistical Physics-II

5.2.1 Postulates of statistical physics

5.2.2 Phase space

5.2.3 Division of phase space into cells

Week 6, day2, Date 06.02.2018

5.2.4 Three kind of statistics

5.2.5 Basic approach in three statistics

Week 6, day3, Date 07.02.2018

6.2.6 M.B. statistics applied to an ideal gas in equilibrium

Week 7

Week 7, day 1, Date 12.02.2018

6.2.7 Energy distribution law (including evaluation of α and β)

Week 7, day 2, Date 13.02.2018

Mahashivratri(Holiday)

Week 7, day 3 Date 14.02.2018

7.2.8 speed distribution law and velocity distribution law

7.2.9 expression for average speed

Week 8

Week 8 day1, Date 19.02.2018

7.2.10 expression for r.m.s. speed, average velocity and r.m.s. velocity

Week 8, day 2, Date 20.02.2018

7.2.11 Most probable energy and mean energy for Maxwellian distribution

Week 8, day 3, Date 21.02.2018

Inviting queries and doubts on Unit-1

Week 9

Week 9, day 1, Date 26.02.2018

Test based on Unit-2

Week 9, day2, Date 27.02.2018

Unit-3 : Quantum statistics

8.3.1 Need of quantum statistics: Bose-Einstein energy distribution law

Week 9, day 3, Date 28.02.2018

Bose -Einstein energy distribution law

Week 10

Week 10, day 1, Date 05.03.2018

9.3.2 Application of B.E. statistics to planck's radiation law

Week 10, day2, Date 06.03.2018

10.3.3 B.E. gas

Week 10, day 3, Date 07.03.2018

10.3.4 Degeneracy and B.E. Condensation

Week 11

Week 11, day 1, Date 12.03.2018

10.3.5 Femi-Dirac energy distribution law

Week 11, day 2, Date 13.03.2018

11.3.6 F.D. gas

Week 11, day 3, Date 14.03.2018

11.3.7 Degeneracy of F.D. gas

Week 12

Week 12, day 1, Date 19.03.2018

11.3.8 Fermi energy and Fermi temperature

Week 12, day 2, Date 20.03.2018

12.3.9 Fermi Dirac energy distribution law for electron gas in metals

12.3.10 Zero point energy

Week 12, day 3, Date 21.03.2018

12.3.11 Zero point pressure and average speed (at 0 K) of electron gas

Week 13

Week 13, day 1, Date 26.03.2018

12.3.12 Specific heat anomaly of metals and its solution

Week 13, day 2, Date 27.03.2018

13.3.13 M.B. distribution as a limiting case of B.E. and F.D. distributions

Week 13, day 3, Date 28.03.2018

13.3.14 Comparison of three statistics

Week 14

Week 14, day1, Date 02.04.2018

Inviting queries and doubts on Unit-3

Week 14, day 2, Date 03.04.2018

Test based on Unit-3

Week 14, day 3, Date 04.04.2018

Unit 4: Theory of Specific heat of Solid

14.4.1 Basic concept

14.4.2 Dulong and petit law

Week 15

Week 15, day 1, Date 09.04.2018

14.4.3 Derivation of Dulong and Petit law from classical physics

Week 15, day 2, Date 10.04.2018

14.4.4 Specific heat at low temperature

Week 15, day 3, Date 11.04.2018

15.4.5 Einstein theory of specific heat

15.4.6 Criticism of Einstein theory

Week 16

Week 16, day 1, Date 16.04.2018

15.4.7 Debye model of specific heat of solids

Week 16, day 2, Date 17.04.2018

16.4.9. Success and shortcomings of Debye theory

Week 16, day 3, Date 18.04.2018

Parshuram Jyanti(Holiday)

Week 17

Week 17, day 1, Date 23.04.2018

Sessional Test

Week 17, day2, Date 24.04.2018

17.4.10. Comparison of Einstein and Debye Theories

Week 17, day 3, Date 25.04.2018

Inviting queries and doubts on Unit-4

Week 18

Week 18, day 1, Date 30.04.2018

Even Semesters Examination Begins

Name of the Associate Professor: Ms. Renu Mehta

Class & Section:- B Sc - III

Subject:- SOLID STATE NANO PHYSICS

Subject Lesson Plan: 18 weeks (from January 2018 to April 2018)

Week 1
Chapter/Unit_1_: CRYSTAL STRUCTURE
Week 1, Day 4, 04/01/2018 CRYSTALLINE & GLASSY FORMS
Week 1, Day 5, 05/01/2018 LIQUID CRYSTAL, CRYSTAL STRUCTURE
Week 1, Day 6, 06/01/2018 PERIODICITY, LATTICE, BASIS
Week 2
Chapter/Unit_1_: CRYSTAL STRUCTURE
Week 2, Day 4, 11/01/2018 TRANSLATION VECTORS, AXES
Week 2, Day 5, 12/01/2018 UNIT CELL, PRIMITIVE CELL
Week 2, Day 6, 13/01/2018 WINGER SEITZ PRIMITIVE CELL
Week 3
Chapter /Unit 1_: CRYSTAL STRUCTURE
Week 3, Day 4, 18/01/2018 SYMMETRY OPERATIONS FOR A TWO DIM CRYSTAL
Week 3, Day 5, 19/01/2018 BRAVAIS LATTICE IN TWO- THREE DIMENSIONS
Week 3, Day 6, 20/01/2018 CRYSTAL PLANES, MILLER INDICES
Week 4
Chapter/Unit_1_: CRYSTAL STRUCTURE
Week 4, Day 4, 25/01/2018 INTERPLANER SPACING
Week 4, Day 6, 27/01/2018 CRYSTAL STRUCTURES OF ZINC SULPHIDE
Week 5
Chapter/Unit_1_: CRYSTAL STRUCTURE
Week 5, Day 4, 01/02/2018 SODIUM CLORIDE
Week 5, Day 5, 02/02/2018 DIAMOND
Week 5, Day 6, 03/02/2018 X-RAY DIFFRACTION
Week 6
Chapter/Unit_2_:
Week 6, Day 4, 08/02/2018 BRAGG LAW
Week 6, Day 5, 09/02/2018

EXPERIMENTAL XRAY DIFFRACTION METHODS
Week 7
Chapter/Unit 2_:
Week 7, Day 4, 15/02/2018
K-SPACE
Week 7, Day 5, 16/02/2018
RECIPROCAL LATTICE
Week 7, Day 6, 17/02/2018
ITS PHYSICAL SIGNIFICANCE
Week 8
Chapter/Unit 2_:
Week 8, Day 4, 22/02/2018
RECIPROCAL LATTICE VECTORS
Week 8, Day 5, 23/02/2018
RECIPROCAL LATTICE TO SIMPLE CUBIC LATTICE
Week 8, Day 6, 24/02/2018
BCC
Week 9
Chapter /Unit __:
Week 9, Day 6, 03/03/2018
FCC
Week 10
Chapter/Unit 3__:
Week 10, Day 4, 08/03/2018
Historical Introduction Survey of Super Conductivity
Week 10, Day 5, 09/03/2018
Super Conducting System
Week 10, Day 6, 10/03/2018
High TC, Superconductors
Week 11
Chapter/Unit __:
Week 11, Day 4, 15/03/2018
Isotope Effects, Critical Magnetic Field
Week 11, Day 5, 16/03/2018
Meissner Effect
Week 11, Day 6, 17/03/2018
London Theory
Week 12
Chapter/Unit __:
Week 12, Day 4, 22/03/2018
Peppard Equation, Classification of Super Conductors
Week 12, Day 6, 24/03/2018
Sessional Test
Week 13
Chapter/Unit __:
Week 13, Day 5, 30/03/2018
BCS Theory
Week 13, Day 6, 31/03/2018
Flux Quantization, Josphesn Effect
Week 14
Chapter/Unit __:
Week 14, Day 4, 05/04/2018
Practical Application of Super conductivity and their limitations
Week 14, Day 5, 06/04/2018

Power Applications of Super conductors
Week 14, Day 6, 07/04/2018
Definition Length Scale
Week 15
Chapter/Unit 4:
Week 15, Day 4, 12/04/2018
Importance of Nano scale and Technology
Week 15, Day 5, 13/04/2018
History of Nano Technology
Week 16
Chapter/Unit __:
Week 16, Day 4, 19/04/2018
Benefits and challenges in Molecular Manufacturing
Week 16, Day 5, 20/04/2018
Molecular Assembler Concepts
Week 16, Day 6, 21/04/2018
Understanding Advanced Capabilities
Week 17
Chapter /Unit __:
Week 17, Day 4, 26/04/2018
Vision and Objectives of Nano Technology
Week 17, Day 5, 27/04/2018
Nano Technology in Different Fields , Automobile Electronics
Week 17, Day 6, 28/04/2018
Nano biotechnology and materials and Medicines

Name of Associate Professor: *MS. Meenu Sharma*

Class & Section:- *B. Sc. 2ND YEAR*

Subject:- *WAVE AND OPTICS*

Subject Lesson Plan: 18 weeks (from January 2018 to April 2018)

Week 1
Chapter/Unit_1_:
Week 1, DAY 4, 04/01/2018 POLARISATION BY REFLECTION, REFRACTION & SCATTERING
Week 1, DAY 5, 05/01/2018 MALUS LAW
Week 1, DAY 6, 06/01/2018 DOUBLE REFRACTION
Week 2
Chapter/Unit 1:
Week 2, DAY 4, 11/01/2018 HUYGEN WAVE THEORY OF DOUBLE REFRACTION
Week 2, DAY 5, 12/01/2018 ANALYSIS OF POLARISED LIGHT
Week 2, DAY 6, 13/01/2018 NICOL PRISM
Week 3
Chapter /Unit _1_:
Week 3, DAY 4, 18/01/2018 QUARTER & HALF WAVE PLATES
Week 3, DAY 5, 19/01/2018 PRODUCTION & DETECTION OF PLANE POLARISED LIGHT
Week 3, DAY 6, 20/01/2018 CIRCULARLY & ELLIPTICALLY POLARISED LIGHT
Week 4
Chapter/Unit _1_:
Week 4, DAY 4, 25/01/2018 OPTICAL ACTIVITY
Week 4, DAY 6, 27/01/2018 FRESNEL THEORY
Week 5
Chapter/Unit _1_:
Week 5, DAY 4, 01/02/2018 SPECIFIC ROTATION
Week 5, DAY 5, 02/02/2018 HALF SHADE & BIQUARTZ POLARIMETERS
Week 5, DAY 6, 03/02/2018 UNIT TEST
Week 6
Chapter/Unit _2_:
Week 6, DAY 4, 08/02/2018 FOURIER THEOREM & SERIES,

Week 6, DAY 5, 09/02/2018 EVALUATION OF FOURIER CONSTANTS
Week 7 Chapter/Unit _2_:
Week 7, DAY 4, 15/02/2018 IMPORTANCE & LIMITATIONS OF FOURIER THEOREM
Week 7, DAY 5, 16/02/2018 EVEN AND ODD FUNCTIONS
Week 7, DAY 6, 17/02/2018 FOURIER SERIES OF FUNCTIONS F(X) BETWEEN 0 TO PI & - L TO L
Week 8 Chapter/Unit _2_:
Week 8, DAY 4, 22/02/2018 COMPLEX FORM OF FOURIER SERIES
Week 8, DAY 5, 23/02/2018 APPLICATIONS OF FOURIER THEOREM
Week 8, DAY 6, 24/02/2018 TRIANGULAR & RECTANGULAR WAVES
Week 9 Week 9, DAY 6, 03/03/2018 Unit Test
Week 10 Chapter/Unit _2,3_:
Week 10, DAY 4, 08/03/2018 HALF AND FULL WAVE RECTIFIER OUTPUT PARSEVEL IDENTITY
Week 10, DAY 5, 09/03/2018 FOURIER INTEGRALS FOURIER TRANSFORM & ITS PROPERTIES
Week 10, DAY 6, 10/03/2018 APPLICATIONS OF FOURIER TRANSFORMS
Week 11 Chapter/Unit _3_:
Week 11, DAY 4, 15/03/2018 EVALUATION OF INTEGRALS
Week 11, DAY 5, 16/03/2018 SOLUTION OF ORDINARY DIFFERENTIAL EQUATIONS
Week 11, DAY 6, 17/03/2018 FUNCTIONS F(X)= e-X²/2
Week 12 Chapter/Unit _3_:
Week 12, DAY 4, 22/03/2018 MATRIX METHODS IN PARAXIAL OPTICS

Week 12, DAY 6, 24/03/2018 EFFECTS OF TRANSLATION & REFRACTION DERIVATION OF THIN LENS & THICK LENS FORMULAE
Week 13 Chapter/Unit _3_:
Week 13, DAY 5, 30/03/2018 UNIT & NODAL PLANES
Week 13, DAY 6, 31/03/2018 SYSTEM OF THIN LENSES
Week 14 Chapter/Unit _4_:
Week 14, DAY 4, 05/04/2018 CHROMATIC ABERRATION
Week 14, DAY 5, 06/04/2018 SPHERICAL ABERRATION
Week 14, DAY 6, 07/04/2018 SESSIONAL TEST
Week 15 Chapter/Unit _4_:
Week 15, DAY 4, 12/04/2018 COMA ABERRATION
Week 15, DAY 5, 13/04/2018 DISTORTION ABERRATION OPTICAL FIBER, CRITICAL ANGLE OF PROPAGATION
Week 16 Chapter/Unit _4_:
Week 16, DAY 4, 19/04/2018 MODE OF PROPAGATION ACCEPTANCE ANGLE
Week 16, DAY 5, 20/04/2018 FRACTIONAL REFRACTIVE INDEX CHANGE,
Week 16, DAY 6, 21/04/2018 NUMERICAL APERATURE
Week 17 Chapter /Unit _4_:

Week 17, DAY 4, 26/04/2018
TYPES OF OPTICAL FIBERS

Week 17, DAY 5, 27/04/2018
PULSE DISPERSION ATTENUATION

Week 17, DAY 6, 28/04/2018
APPLICATIONS, FIBER OPTIC COMMUNICATION, ADVANTAGES

Name of the Asso.Professor: Ms. Meenu Sharma

Class and Section: B.Sc. 2nd Semester

Subject/ Paper: Physics/ Properties of matter and Kinetic theory of gases.

Subject Lesson Plan: 18 weeks (from January 2018 to April 2018)

Week 1

Unit 1: Moment of Inertia

Week 1, day 1, Date 01.01.2018

1.1.1 Rotation of rigid body

1.1.2 Moment of inertia

Week 1, day 2, Date 02.01.2018

1.1.3 Torque

1.1.4 Angular momentum

Week 1, day 3, Date 03.01.2018

1.1.5 Kinetic energy of rotation

Week 2

Unit 1: Moment of Inertia

Week 2, day 1, Date 08.01.2018

2.1.6 Theorem of parallel and perpendicular axis with proof

Week 2, day 2, Date 09.01.2018

2.1.7 Moment of inertia of solid sphere and hollow sphere

Week 2, day 3, Date 10.01.2018

2.1.8 MoI of spherical shell

Week 3

Unit 1: Moment of Inertia

Week 3, day 1, Date 15.01.2018

3.1.9 MoI of solid and hollow cylinder

Week 3, day 2, Date 16.01.2018

3.1.10 MoI of solid bar of rectangular cross section and fly wheel

Week 3, day 3, Date 17.01.2018

3.1.11 MoI of irregular body

Week 4

Unit 1: Moment of Inertia

Week 4, day 1, Date 22.01.2018

Basant Panchmi Holiday

Week 4, day 2, Date 23.01.2018

4.1.12 Acceleration of a body rolling down on an inclined plane

Week 4, day 3, Date 24.01.2018

Chhotu Ram Jayanti Holiday

Week 5

Unit 1: Moment of Inertia

Week 5, day 1, Date 29.01.2018

Inviting queries and doubts on Unit-1

Week 5, day 2, Date 30.01.2018

Test based on Unit-1

Week 5, day 3, Date 31.01.2018

Unit 2: Elasticity

5.2.1 Elasticity, Stress and Strain

Week 6

Unit 2: Elasticity

Week 6, day 1, Date 05.02.2018

6.2.2 Hooke's law, Elasticity constants and their relations.

Week 6, day 2, Date 06.02.2018

6.2.3 Poisson's ratio.

Week 6, day 3, Date 07.02.2018

6.2.4 Torsion of cylinder and twisting couple.

Week 7

Unit 2: Elasticity

Week 7, day 1, Date 12.02.2018

7.2.5 Determination of coeff of modulus of rigidity for the material of wire by Maxwell's needle.

Week 7, day 2, Date 13.02.2018

Mahashivratri Holiday

Week 7, day 3, Date 14.02.2018

7.2.6 Bending of beam (bending moment and its magnitude)

Week 8

Unit 2: Elasticity

Week 8, day 1, Date 19.02.2018

8.2.7 Centilever and centrally loaded beam

Week 8, day 2, Date 20.02.2018

8.2.8 Determination of elastic constants for the material of beam by Searle's method

Week 8, day 3, Date 21.02.2018

8.2.8 Continued.

Week 9

Week 9, day 1, Date 26.02.2018

Inviting queries and doubts on Unit-2

Week 9, day 2, Date 27.02.2018

Test based on Unit-2

Week 9, day 3, Date 28.02.2018

Vacation

Week 10

Unit 3: Kinetic Theory of Gases-I

Week 10, day 1, Date 05.03.2018

10.3.1 Assumption of Kinetic theory of gases

Week 10, day 2, Date 06.03.2018

10.3.2 Pressure of an Ideal gas with derivation

Week 10, day 3, Date 07.03.2018

10.3.3 Kinetic interpretation of temperature

Week 11

Unit 3: Kinetic Theory of Gases-I

Week 11, day 1, Date 12.03.2018

11.3.4 Ideal gas equation

Week 11, day 2, Date 13.03.2018

11.3.5 Degree of freedom

Week 11, day 3, Date 14.03.2018

11.3.6 Law of equipartition of energy

Week 12

Unit 3: Kinetic Theory of Gases-I

Week 12, day 1, Date 19.03.2018

12.3.7 Equipartition law's application for specific heat of gases

Week 12, day 2, Date 20.03.2018

12.3.8 Real gases

Week 12, day 3, Date 24.03.2018

12.3.9 Vander wall's equation and constants

Week 13

Unit 3: Kinetic Theory of Gases-I

Week 13, day 1, Date 26.03.2018

13.3.10 Brownian motion(Qualitative)

Week 13, day 2, Date 27.03.2018

Inviting queries and doubts on Unit-3

Week 13, day 3, Date 28.03.2018

Test based on Unit-3

Week 14

Unit 4: Kinetic theory of gases II

Week 14, day 1, Date 02.04.2018

14.4.1 Maxwell's distribution of speed with derivation

Week 14, day 2, Date 03.04.2018

14.4.2 Maxwell's distribution of velocity with derivation

Week 14, day 3, Date 04.04.2018

14.4.3 Experimnetal verification of Maxwell's law of speed distribution

Week 15

Unit 4: Kinetic theory of gases II

Week 15, day 1, Date 09.04.2018

15.4.4. Most probable speed

15.4.5 Average and R.M.S. speed

Week 15, day 2, Date 10.04.2018

15.4.6. Mean free path and its expression

Week 15, day 3, Date 11.04.2018

16.4.7 Transport of energy and momentum

Week 16

Unit 4: Kinetic theory of gases II

Week 16, day 1, Date 16.04.2018

16.4.8 Diffusion of Gases

Week 16, day 2, Date 17.04.2018

Inviting queries and doubts on Unit-4

Week 16, day 3, Date 18.04.2018

Parshuram Jayanti Holiday

Week 17

Week 17, day 1, Date 23.04.2018

Inviting doubts for all four units

Week 17, day 2, Date 24.04.2018

Session test

Week 17, day 3, Date 25.04.2018

Revision and inviting doubts

Week 18

Week 18, day 1, Date 30.04.2018

Even Semesters Examination Begins