**Name of Assistant Professor: Miss. Surbhi Gautam**

**Class and Section:…B.Sc 1st year,2nd …** Semester and Section-A

**Subject: …Physics….**

**Lesson Plan**: 18Weeks (from January 2018 to April 2018)

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| Week 1, **January 1 to January 7**  Unit 1 Moment of Inertia  Chapter1 Dynamics of rigid bodies |
| Week 1, Day 1, January 1   * 1.1 Rigid body * 1.2 Rotation of a rigid body |
| Week 1, Day 2, January 2   * 1.3 Torque acting on a rigid body * 1.4 Torque in Cartesian coordinate |
| Week 1, Day 3, January 3   * 1.5 Angular momentum * 1.6 Torque and angular momentum |
| Week 1, Day 4, January 4   * 1.7 Kinetic energy of rotation and Moment of inertia * 1.8 Physical significance of M.O.I |
| Week 1, Day 5, January 5 **Holiday** |
| Week 1, Day 6, January 6   * 1.9Work and Power in rotational motion * 1.10Relation between torque and angular acceleration * 1.11 Work done in terms of rotational kinetic energy |
| Week 2, **January 8 to January14** |
| Week 2, Day 1, January 8   * 1.12 Angular momentum and angular impulse * 1.13 Conservation of angular momentum |
| Week 2, Day 2, January 9   * 1.14 Laws of rotation * 1.15 Comparision between physical quantities |
| Week 2, Day 3, January 10   * 1.16 General theorams on moment of inertia * 1.17 Calculation of moment of inertia |
| Week 2, Day 4, January 11   * 1.18 Moment of inertia of thin uniform rod * 1.19 Moment of inertia of a Rectangular bar |
| Week 2, Day 5, January 12   * 1.20 Moment of inertia of solid uniform bar * 1.21 Moment of inertia of a thin circular ring * 1.22 Moment of inertia of a circular lamina or disc |
| Week 2, Day 6, January 13   * 1.23 Moment of inertia of an annular circular disc * 1.24 Moment of inertia of a solid cylinder |
| Week 3, **January 15 to January 21** |
| Week 3, Day 1, January 15   * Powerpoint presentation |
| Week 3, Day 2, January 16   * 1.25 Moment of inertia of a hollow cylinder * 1.26 Moment of inertia of a solid sphere |
| Week 3, Day 3, January 17   * 1.27 Moment of inertia of thin spherical shell * 1.28 Moment of inertia of a hollow sphere |
| Week 3, Day 4, January 18   * 1.29 Routh’s Rule |
| Week 3, Day 5, January 19   * 1.30 Kinetic energy of a body rolling on a horizontal plane |
| Week 3, Day 6, January 20   * 1.31 Acceleration of a body rolling down an inclined plane |
| Week 4, **January 22 to January 28** |
| Week 4, Day 1, January 22 **Holiday** |
| Week 4, Day 2, January 23   * 1.32 Moment of inertia of an irregular body * 1.33 Moment of inertia of a Flywheel * 1.34 Uses of flywheel in stationary engines |
| Week 4, Day 3, January 24   * Doing examples from Unit1 |
| Week 4, Day 4, January 25   * Revision of topics from 1.1 to 1.10 |
| Week 4, Day 5, January 26 **Holiday** |
| Week 4, Day 6, January 27   * Revision of topics from 1.11 to 1.20 |
| Week 5, **January 29 to February4** |
| Week 5, Day 1, January 29   * Revision of topics from 1.21 to 1.34 |
| Week 5, Day2, January 30   * Class test Unit1 |
| Week 5, Day 3, January 31 **Holiday** |
| Week 5, Day 4, February  UNIT 2 Properties of matter   * 2.1 Introduction * 2.2 Stress and Strain * 2.3Hooke’s law * 2.4 Stress strain graph |
| Week 5, Day 5, February 2   * 2.5 Three types of Elasticity * 2.6Young’s Modulus * 2.7 Bulk Modulus |
| Week 5, Day 6, February 3   * 2.8Modulus of rigidty * 2.9Poission’s Ratio |
| **Week 6, February 5to February 11** |
| Assignments :- Assignment 1st |
| Week 6, Day 1, February 5   * `2.10 Energy of strained bodies * 2.11 Bulk modulus relation between K,Y |
| Week 6, Day 2, February 6   * 2.12 Modulus of rigidty relations * 2.13 Relations between elastic constants |
| Week 6, Day 3, February 7   * 2.14 Limiting value of Poission ratio * 2.15 Torsion of Cylinder and twisting couple |
| Week 6, Day 4, February 8   * 2.16 Tortional vibration method for determination of modulus of rigidy * 2.17 Maxwell needle method |
| Week 6, Day 5, February 9   * 2.18 Bending of beams * 2.19 Limitations of simple theory of bending |
| Week 6, Day 6, February 10 **Holiday** |
| Week 7, **February 12 to February 18** |
| Week 7, Day 1, February 12   * 2.20 Cantiliver loaded at the free end * 2.21 Alternative method |
| Week 7, Day 2, February 13 **Holiday** |
| Week 7, Day 3, February 14   * 2.22 Transverse Vibrations of a loaded cantilever * 2.23Depression of a centrally loaded beam supported at its end * 2.24Depression of a uniformally loaded beam at its mid point |
| Week 7, Day 4, February 15   * Quiz competition |
| Week 7, Day 5, February 16   * 2.25 Stiffness of a beam * 2.26 Determination of Y by bending * 2.27 Determination of elastic constants by Searle’s method |
| Week 7, Day 6, February 17   * 2.28 Shape of Cross section after bending * 2.29 Resilience |
| Week 8 **February 19 to February25** |
| Week 8, Day 1, February 19   * Revision of topics 2.1 to 2.5 |
| Week 8, Day 2, February 20   * Revision of topics 2.6 to 2.10 |
| Week 8, Day 3, February 21   * Revision of topics 2.11 to 2.14 |
| Week 8, Day 4, February 22   * Revision of topics 2.15 to 2.20 |
| Week 8, Day 5, February 23   * Revision of topics 2.21 to 2.29 |
| Week 8, Day 6, February 24   * Discussion of conceptual questions |
| Week 9, **February26 to March4** |
| Week 9, Day 1, February 26   * Discussion of examples |
| Week 9, Day 2, February 27   * Class test of Unit 2 |
| Week 9, Day 3, February 28 **Holiday** |
| Week 9, Day 4, March 1 **Holiday** |
| Week 9, Day 5, March 2 **Holiday** |
| Week 9, Day 6, March 3 **Holiday** |
| Week 10, **March 5 to March11**  Unit 3 Kinetic theory of gases 1 |
| Week 10, Day 1, March 5   * 3.1 Introduction * 3.2 Assumptions of kinetic theory gases |
| Week 10, Day 2, March 6   * 3.3 Expression for pressure of gas * 3.4 Ideal gas equation |
| Week 10, Day 3, March 7   * 3.5 Kinetic interpretation of temperature * 3.6 Degrees of freedom |
| Week 10, Day 4, March 8   * 3.7 Law of Equipartition of energy * 3.8 Specific heat of gases |
| Week 10, Day 5, March 9   * 3.9 Variation of molar specific heat of a diatomic gas with temperature |
| Week 10, Day 6, March10   * 3.10 Expermental evidence of kinetic theory * 3.11 Brownian motion |
| Week 11, **March 12 to March 18** |
| Week 11, Day 1, March 12   * 3.12 Einstein’s theory of the translational Brownian motion |
| Week 11, Day 2, March 13   * 3.13 Deviation of real gas behaviour from that of an ideal gas |
| Week 11, Day 3, March 14   * 3.14 Results of Andrew’s experiment |
| Week 11, Day 4, March 15   * 3.15 Vanderwall’s equation of state for real gas |
| Week 11, Day 5, March 16   * 3.16 Vander Wall’s Isotherms |
| Week 11, Day 6, March 17   * 3.17 Limitations and defects of vander waal’s equation |
| Week 12, **March 19 to March25** |
| Week 12, Day 1, March 19   * Group discussion |
| Week 12, Day 2, March 20   * 3.18 Explanation of deviation by vander wall’s equation |
| Week 12, Day 3, March 21   * Revision of topics 3.1 to 3.4 |
| Week 12, Day 4, March 22   * Revision of topics 3.5 to 3.8 |
| Week 12, Day 5, March 23   * Revision of topics 3.9 to 3. 12 |
| Week 12, Day 6, March 24   * Revision of topics 3.13 to 3.15 |
| Week 13, **March26to April** |
| Assignments :Assignment 2nd |
| Week 13, Day 1, March 26   * Revision of topics 3.16 to 3.18 |
| Week 13, Day 2, March 27   * Discussion of conceptual questions |
| Week 13, Day 3, March 28   * Discussion of problems |
| Week 13, Day 4, March 29 **Holiday** |
| Week 13, Day 5, March 30   * Doing examples |
| Week 13, Day 6, March 31   * Class test of Unit 3 |
| Week 14, **April 2 to April 8**  Unit 4 Kinetic theory of gaes 2 |
| Week 14, Day 1, April 2   * 4.1Introduction * 4.2 Some useful standard definite integrals |
| Week 14, Day 2, April 3   * 4.3 Phase Space |
| Week 14, Day 3, April 4   * 4.4 Division of Phase space into cells |
| Week 14, Day 4, April 5   * 4.5 Microstates and Macrostates |
| * 4.6 Postulates of statistical mechanics |
| Week 14, Day 6, April 7   * Chart /Poster making Competition and exhibition |
| Week 15, **April 9 to April15** |
| Week15 , Day 1, April 9   * 4.7 Deduction of Maxwell Boltzman velocity Distribution law |
| Week 15, Day 2, April 10   * 4.8 Deduction of Maxwell boltzman speed distribution law * 4.9 Determination of constant B |
| Week 15, Day 3, April 11   * 4.10 Discussion of Maxwell Speed distribution law |
| Week 15, Day 4, April 12   * 4.11 Most probable speed |
| Week 15, Day 5, April 13   * 4.12 Expressions for average or mean speed and root mean square speed * 4.13 Relation between all above * 4.14Maxwellian energy wise distribution * 4.15 Experimental verification of Maxwell ‘s law of speed distribution |
| Week 15, Day 6, April 14 **Holiday** |
| Week 16, **April 16 to April22** |
| Week 16, Day 1, April 16   * 4.16 Zartman’s and ko’s method * 4.17 Mean free path * 4.18 Expression for mean free path * 4.19Probability for particle to travel a distance without collision |
| Week 16, Day 2, April 17   * 4.20Transport phenomenon * 4.21 Viscosity * 4.22 Thermal conduction in gases * 4.23 Diffusion of gases |
| Week 16, Day 3, April 18 **Holiday** |
| Week 16, Day 4, April 19   * Discussion of conceptual questions |
| Week 16, Day 5, April 20   * Class test of Unit 4 |
| Week 16, Day 6, April 21   * Revision of Unit 1 |
| Week17 **April 23 to April28** |
| Week17 , Day 1, April 23   * Revision of Unit 2 |
| Week 17, Day 2, April 24   * Revision of Unit 3 |
| Week 17, Day 3, April 25   * Revision of Unit 4 |
| Week 17, Day 4, April 26   * Discussion of Previous year question paper |
| Week 17, Day 5, April 27   * Discussion of previous year question paper |
| Week 17, Day 6, April 28   * Class test of full syllabus |
| Week 18 **April 30 to May 6** |
| Week18 , Day 1, April 30 **Holiday** |