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

**Class and Section:…B.Sc 2nd year,4th…** 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**  Chapter Polarization |
| Week 1, Day 1, January 1   * 1.1 Introduction of light waves * 1.2 Plane Polarized light |
| Week 1, Day 2, January 2   * 1.3 Ordinary or Unpolarized light is unpolarized * 1.4 Representation of unpolarized and polarized light |
| Week 1, Day 3, January 3   * 1.5 Methods for Production of Polarized light |
| Week 1, Day 4, January 4   * 1.6 Law of Malus * 1.7 Double refraction * 1.8 Calcite crystal |
| Week 1, Day 5, January 5 **Holiday** |
| Week 1, Day 6, January 6   * 1.9 Types of crystals * 1.10 Polarization by Double Refraction * 1.11 Nicol Prism |
| Week 2, **January 8 to January14** |
| Week 2, Day 1, January 8   * 1.12 Negative and positive crystals * 1.13 Huygen’s theory of double refraction |
| Week 2, Day 2, January 9   * 1.14 Principal Refractive indices * 1.15 Elliptically and Circularly polarized lights * 1.16 Retardation plates |
| Week 2, Day 3, January 10   * 1.17 Production of elliptically and circularly polarized light * 1.18 Detection of plane,circularly and elliptically polarized light * 1.19 General distinction between different types of light |
| Week 2, Day 4, January 11   * Class test from covered topics |
| Week 2, Day 5, January 12   * 2.1 Optical rotation * 2.2 Equivalence of a rectilinear vibration to two opposite circular motions |
| Week 2, Day 6, January 13   * 2.3 Fresnel’s theory of optical rotation |
| Week 3, **January 15 to January 21** |
| Week 3, Day 1, January 15   * Powerpoint presentation |
| Week 3, Day 2, January 16   * 2.4 Experimental verifications of fresnel’s theory |
| Week 3, Day 3, January 17   * 2.5 specific Rotation |
| Week 3, Day 4, January 18   * 2.6(a) Laurent’s Half Shade Polarimeter |
| Week 3, Day 5, January 19   * 2.6 (b) Biquartz Polarimeter |
| Week 3, Day 6, January 20   * 2.7 Relative Merits of half shade and biquartz |
| Week 4, **January 22 to January 28** |
| Week 4, Day 1, January 22 **Holiday** |
| Week 4, Day 2, January 23   * Discussion of conceptual questions |
| Week 4, Day 3, January 24   * Doing examples from Unit1 |
| Week 4, Day 4, January 25   * Revision of topics from 1.1 to 1.9 |
| Week 4, Day 5, January 26 **Holiday** |
| Week 4, Day 6, January 27   * Revision of topics from 1.10 to 1.19 |
| Week 5, **January 29 to February4** |
| Week 5, Day 1, January 29   * Revision of topics from 2.1 to 2.7 |
| Week 5, Day2, January 30   * Class test Unit1 |
| Week 5, Day 3, January 31 **Holiday** |
| Week 5, Day 4, February 1  Unit 2 Fourier Analysis  Chapter :- Fourier’s series and its applications   * 3.1 Introduction * 3.2Fourier theorem and Fourier series |
| Week 5, Day 5, February 2   * 3.3 Limitations of Fourier theorem * 3.4 Importance of Fourier theorem |
| Week 5, Day 6, February 3   * 3.5 Fourier series of function f(x) * 3.6 Even and odd functions |
| **Week 6, February 5to February 11** |
| Assignments :- Assignment 1st |
| Week 6, Day 1, February 5   * 3.7 Fourier series for the interval –Half range series |
| Week 6, Day 2, February 6   * 3.8 Fourier series for the interval 0,2pie * 3.9 Functions of period 2L |
| Week 6, Day 3, February 7   * 3.10 Coplex form of Fourier series |
| Week 6, Day 4, February 8   * 3.11 Illustrative examples of Fourier series |
| Week 6, Day 5, February 9   * 3.12 integration of fourier series * 3.13 Parseval’s Identity for Fourier series |
| Week 6, Day 6, February 10 **Holiday** |
| Week 7, **February 12 to February 18** |
| Week 7, Day 1, February 12   * 3.14 Fourier integrals |
| Week 7, Day 2, February 13 **Holiday** |
| Week 7, Day 3, February 14   * Different forms of Fourier integral |
| Week 7, Day 4, February 15   * Quiz competition |
| Week 7, Day 5, February 16   * Example : 1,2 |
| Week 7, Day 6, February 17   * Example : 3,4 |
| Week 8 **February 19 to February25** |
| Week 8, Day 1, February 19   * Class test of Unit 2 from covered topics |
| Week 8, Day 2, February 20   * Example : 5,6 |
| Week 8, Day 3, February 21   * Example : 7,8 |
| Week 8, Day 4, February 22   * Example :9,10,11 |
| Week 8, Day 5, February 23   * Discussion of conceptual questions |
| Week 8, Day 6, February 24   * Revision of topics 3.1 to 3.7 |
| Week 9, **February26 to March4** |
| Week 9, Day 1, February 26   * Revision of topics 3.8 to 3.15 |
| 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 Fourier Transforms and Geometrical Optics-1 |
| Chapter 4 Fourier Transform |
| Week 10, Day 1, March 5   * 4.1 Fourier Transforms * 4.2 Fourier sine Transforms |
| Week 10, Day 2, March 6   * 4.3 Fourier cosine Transforms * 4.4 Properties or theorems of Fourier Transforms * 4.5Parseval’s Identity four fourier integrals |
| Week 10, Day 3, March 7   * 4.6 Applications of Fourier Transform * Example:1,2,3 |
| Week 10, Day 4, March 8   * Example:4to 9 |
| Week 10, Day 5, March 9  Chapter 5 Matrix methods in Paraxial Optics   * 5.1 Introduction * 5.2Matrices |
| Week 10, Day 6, March10   * 5.3 Multiplication ruleof twomatrices * 5.4Matrix Formation |
| Week 11, **March 12 to March 18** |
| Week 11, Day 1, March 12   * 5.5 Refraction * 5.6 Sign Conventions |
| Week 11, Day 2, March 13   * 5.7Coordinates of aParaxial Ray * 5.8 Effect of Translation and Translation Matrix |
| Week 11, Day 3, March 14   * 5.9 Effect of Refraction and Refraction Matrix * 5.10 System Matrix |
| Week 11, Day 4, March 15   * 5.11 Position of the image plane and magnification by a spherical surface * 5.12 Position of the image plane and magnification of the optical system |
| Week 11, Day 5, March 16   * 5.13 System Matrix for a Thick lens Derivation of Lens formula for thick and thin lens |
| Week 11, Day 6, March 17   * 5.14 Unit Planes |
| Week 12, **March 19 to March25** |
| Week 12, Day 1, March 19   * Group discussion |
| Week 12, Day 2, March 20   * 5.15 Nodal planes |
| Week 12, Day 3, March 21   * Class test of Unit 3 from covered topics |
| Week 12, Day 4, March 22   * 5.16 Derivation of lens Equation |
| Week 12, Day 5, March 23   * 5.17 System of Thin lens |
| Week 12, Day 6, March 24   * Example :1,2,3,4 |
| Week 13, **March26to April** |
| Assignments :Assignment 2nd |
| Week 13, Day 1, March 26   * Example:5,6,7 |
| Week 13, Day 2, March 27   * Discussion of conceptual questions |
| Week 13, Day 3, March 28   * Revision of Chapter 4 |
| Week 13, Day 4, March 29 **Holiday** |
| Week 13, Day 5, March 30   * Revision of Chapter 5 |
| Week 13, Day 6, March 31   * Class test of Unit 3 |
| Week 14, **April 2 to April 8**  Unit 4 Geometrical Optics 2 and Fiber Optics  Chapter 6 Aberrations |
| Week 14, Day 1, April 2   * 6.1 Introduction * 6.2Chromatic aberration * 6.3 Achromatic Doublet |
| Week 14, Day 2, April 3   * 6.4Achromatic combination of thin lenses in contact * 6.5 Achromatic combination of two coaxial lenses at a finite distance apart |
| Week 14, Day 3, April 4   * 6.6 An Achromatic Doublet with minimum spherical aberration * 6.7.1Spherical aberration * 6.7.2 Spherical aberration of plane refracting surface |
| Week 14, Day 4, April 5   * 6.7.3 Method of reducing spherical aberration * 6.7.4 Coma * 6.7.5 Aplanatic Surface * 6.7.6Astigmatism |
| Week 14, Day 5, April 6   * 6.7.7 Curvature of the field * 6.7.8 Distortion |
| Week 14, Day 6, April 7   * Chart /Poster making Competition ans exhibition |
| Week 15, **April 9 to April15**  Chapter 7 Fiber Optics |
| Week15 , Day 1, April 9   * 7.1 Historical background of Optical fiber * 7.2 The Optical Fiber |
| Week 15, Day 2, April 10   * 7.3 Critical angle of propagation * 7.4 Fractional refractive index change |
| Week 15, Day 3, April 11   * 7.5 Numerical Aperature * 7.6 Modes of propagation |
| Week 15, Day 4, April 12   * 7.7 Types of optical fiber * 7.8 Normalized frequency |
| Week 15, Day 5, April 13   * 7.9Pulse Dispersion * 7.10 Attenuation |
| Week 15, Day 6, April 14 **Holiday** |
| Week 16, **April 16 to April22** |
| Week 16, Day 1, April 16   * 7.11 Applications * 7.12Fiber Optic communication systems |
| Week 16, Day 2, April 17   * 7.13 Advantages of Optical Fibers |
| 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** |