Shri Govind Guru University

GODHRA

Syllabus of Multidisciplinary Course

B. Sc. Semester - I

PHYSICS

(Theory & Practical)

(Based on NEP-2020)

Effective from August, 2023

B. Sc. - Semester – I (PHYSICS)
BS23MD1PH1
MDC (Theory):Ray Optics(Credit-2)

Unit-1: Lenses

4.1 Introduction

4.2 Lenses

4.3 Terminology

4.4 Conjugate Points, Planes and Distances

4.5 Image Tracing

4.6 Location of the Image

4.8 Thin Lens

4.9 Lens Equation

4.10 Lens Maker's Equation

4.11 Newton's Lens Equation

4.12 Magnification

4.16 Power

4.17 Equivalent Focal Length of Two Thin Lenses (All sub section)

Unit-2: Lens Aberrations

9.1 Introduction

9.2 Aberrations

9.5 Spherical Aberration

9.6 COMA

9.7 Astigmatism

9.9 Distortion

9.10 Chromatic Aberration

9.13 Achromatic Lenses (Both conditions)

9.14 Oil-Immersion Objective of High Power Microscope

9.19 Gradient-Index Lenses

Unit-3: Optical Instruments

10.1 Introduction

10.2 The Eye

10.5 The Simple Magnifier

10.6 Field of View

10.8 Objective and Eyepiece

10.9 Kellner's Eyepiece

10.10 Huygen's Eyepiece

10.11 Ramsden Eyepiece

10.12 Comparison of Ramsden Eyepiece with Huygens Eyepiece

10.13 Gauss Eyepiece

10.14 Compound Microscope

10.15 Telescopes (10.15.1)

10.16 Reflecting Telescope (10.16.1 & 10.16.2)

Text Book: A Text Book of OPTICS by Dr. N. Subrahmanyam, Brijlal and Dr. M. N. Avadhanulu (S. Chand & Company Ltd. Publishers)

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B. Sc. - Semester – I (PHYSICS)

MULTIDISCIPLINARY COURSE (Practical): Ray Optics(Credit-2)

Minimum 5 practical must be performed

1. To determine the focal length of a convex lens.
2. To determine the focal length of the combined lens.
3. To determine the refractive index of a liquid using convex lens and a plane mirror.
4. To determine the radius of curvature of the convex surface of a lens using Newton's rings.
5. To draw the calibration curve (D-λ curve) of a spectrometer with a given prism.
6. To study the dependence of the refractive index of the material of a prism on the wavelength of light and hence to determine the dispersive power of the material of the prism.
7. To determine the resolving power of Telescope.

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