Course Title	Course Code	Number of Study Hours			Year	Level	Prerequesits
		Theoritical	Laboratory	Credit			
Geometrical Optics	211PHYS	2	2	3	2nd	4th	---

(1) Brief Course Description

This course provides the basic principal of geometrical optics covering reflection/refraction , plane surfaces, prisms, spherical surfaces, lenses, and mirrors for use in optical systems. Special topics include optical instruments; like human eyes, telescopes, microscopes. The laboratory explores optics through some experiments in refraction, prism, converging and diverging lenses, convex and concave mirrors and some optical instruments.

(2) Course Objectives

This course is designed to provide students with:

- The concept of light
- The foundations of Geometrical optical
- The principal of elementary optical systems
- The concept of image in optical instruments
- The laboratory work and hands-on activities in geometrical optics.

(3) Course Contents

Theoretical Part:

- Nature of Light
- Refelctionm Refraction and dispersion of light
- Total and Internal reflection of light
- Fiber optics and their applications
- Prisms, resolution of light
- Refraction through spherical systems
- Thin lenses, Mirrors, Vision, human eye, and Optical instruments (Camera, Light microscope and Telescope)

Expeimental Part:

- Color Addition
- Snell's Law
- Refractive Index and Critical angle of Glass
- Convex mirror
- Concave mirror
- The focal Length for a convex (converging) lens
- The Focal Length for a Concave Lens
- The equivalent focal length of two convex lenses
- The refractive index of prism using the spectrometer
- Measuring a glasses prescription

(4) Assessment Criteria

- Periodic Exams: 20%
- Oral, Student Activity and Essay: 10%
- Laboratory Work: 20%
- Final Exam: 50%

(5) Course Teaching Strategies

- Lectures, Reports and Essay Assignments, Homework, and Web-based Assignments

(6) Text Book

- Fundamental of optics; F. A. Jenkins and H. S. White, McGraw-Hill Priml Custom Publishing, 2001.

(7) Reference Books

- Modern Optics; Robert D. Guenther, John Wiley &Sons. Inc., 1990.
- Optics (4th Edition)Hecht, Eugene. 2001.