

**520.413 Introduction to Photonics
Spring 2004**

- 2003-05 Catalog: This course is an introduction-level course for students interested in opto-electronics. It covers the basics behind the optical devices used in communication, information storage, and display. The course begins with the in-depth review of principles of geometrical optics and imaging including the cameras, microscopes, and telescopes. The physical optical phenomena of interference, diffraction and polarization of light are then studied, as well as the theory of the light propagation in optical waveguides. Based on this background various devices for modulation, switching, scanning, and demultiplexing of light are then described.
(3 credit hours)
- Prerequisite(s): 520.219 Fields, Matter and Waves or equivalent or 520.407
- Textbook: Saleh and Teich, Fundamentals of Photonics.
- Course Objectives: To familiarize the students with operating principles of optical devices and methods of their design, fabrication and system integration
- Topics Covered:
1. Reflection and Refraction of Light
 2. Geometrical Optics –telescopes, microscopes, scanners
 3. Polarization Optics
 4. Waveguides and Fibers
 5. Interference and Diffraction of light
 6. Devices for optical communications and information processing
- Class Schedule:
- Instructor: Jacob Khurgin