**OPTI 300- Practical Optics**

**Course Description:**

This interdisciplinary course introduces the fundamentals of optics to various engineering, math, and science students with little or no prior background in optics. Students will understand how optics is an enabling technology for their own disciplines and apply basic optics concepts to their professions. Prerequisite: PHYS 241. [Coming soon.]

**Textbooks:**


**Grading Policy:**

- Homework 30%
- In-Class Participation & Quizzes 10%
- Midterm Exams 30%
- Final Exam 30%

Grades will depend on the class score statistics. Nominally, the following range will be used to assign grades:

100-90=A | 89-80=B | 79-70=C | 69-60=D | 59-0=E

- All homework assignments are to be handed in during class on the date due. Late homework (turned in within one week from due date) will be marked off by 50%.
- All homework, exams, etc., must include your name and course number (OPTI 300) and must be done on one side of an 8½ x 11 sheet of paper.
- A deduction of 5 points will be taken from a student’s homework if his/her cellular phone rings during class.

**Schedule**

- Approximately 8 homework assignments.
- Approximately 10 in-class quizzes.
- Three mid-term exams and a final exam (One 8.5 x 11” crib sheet and a calculator are allowed).

**Methodology**

- Lectures and chalk talk
- Demo current, hot trends
- Powerpoint slides
- Example problems

Outline

- The eye as a geometrical optical device
- Color vision
- Color characteristics / understanding components
- Light sources: incandescent, fluorescent, solid state lighting
- Natural sources vs artificial sources of light
- Radiation transfer without media (vacuum)
- Light meters / Detection systems
- Optical sensors for various applications
- Imaging sensors / camera lenses / machine vision
- Lasers: what determines the color / wavelength
- Fiber optics
- Opto-mechanical alignment
- Visual vs optical instruments
- Displays, 3-D, color, directionality