Physics 323 – Optics (4)
Course Outline

PHYS 323 Optics (4)
Geometrical optics, lens systems, aberrations, physical optics and polarization. 3 lectures, 1 laboratory. Prerequisite: PHYS 133, MATH 241. Recommended: PHYS 322.

Learning Objectives and Criteria:
- Upon completion of the course the student is expected to have the following skills:understand the principles of geometrical optics
- apply geometrical optics to optical instruments
- mathematically describe optical waves
- perform superpositions of two or more waves in the context of interference and diffraction
- mathematically and graphically describe polarization of light
- have a familiarity with fields of research and/or industrial applications of physical optics
- assemble, align, troubleshoot, and optimize experimental optical equipment beyond an introductory level
- understand and be able to use detection equipment such as CCD cameras and power meters
- understand and be able to use computer software programs for data collection and analysis
- clearly present, discuss, analyze, and explain data and results in written form

Text and References:
Pedrotti et al , *Introduction to Optics, 3rd edition*, Pearson Prentice Hall

Content and Method:
Method: Physics 323 is offered in a traditional lecture and lab format.

Content: Physics 323 will adhere to the following topics:

- Geometrical Optics
- Lens systems
- aberrations
- physical optics
- polarization

Laboratory Experiments:
- Reflection and refraction
- Simple lenses
- Optical systems
- Interference and diffraction phenomena and their applications
- Polarization

Methods of Assessment:

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The student's course grade is determined principally by performance on mid-term examination(s), the final examination, and laboratory work. Additional assessment may be by homework assignments and term papers.