M.S. in Optics Plan B

The M.S. Degree in Optics and Photonics is an interdisciplinary, cooperative program managed by the Optics Program Committee on behalf of the three participating departments: Physics, Electrical and Computer Engineering, and Chemistry and Biochemistry. Students apply directly to the Optics and Photonics Graduate Program and are admitted through one of the participating departments, selected based on advisor affiliation and student interest.

The Optics and Photonics degree is distinct from the other graduate degrees offered by the participating departments because it requires interdisciplinary coursework involving at least two of the departments. The interdisciplinary program of study allows students to emphasize optics theory and applications in more depth than is possible through degrees in the traditional disciplines. Each optics student will be mentored by a graduate advisor from the faculty of one of the three participating departments, and a graduate supervisory committee made up of faculty from at least two of the three departments in the cooperative program.

The Plan B program emphasizes coursework, but also includes preparation of a required Professional Paper. The paper, prepared under the guidance of the student's advisor, covers a focused aspect of research, design, or engineering education. The Professional Paper is generally not as comprehensive as the research Thesis required for the M.S. Degree Plan A, but it is desirable that the Plan B Professional Paper be of sufficient quality and scope to serve as the basis for a conference paper or presentation.

Choose two key courses (one PHSX and one EELE): 6
- PHSX 427 Advanced Optics
- PHSX 437 Laser Applications
- ELE 482 Electro-Optical Systems
- ELE 484 Laser Engineering

Choose one specialty course: 3
- ELE 581 Fourier Optics/Imaging Theory
- ELE 582 Optical Design
- PHSX 531 Nonlinear Optics/Laser Spectroscopy
- CHMY 527 Analytic Optical Spectroscopy
- CHMY 560 Symmetry, Orbitals, and Spectroscopy

Optics electives (choose at least 6 credits): 6
- ELE 432 Applied Electromagnetics
- ELE 482 Electro-Optical Systems
- ELE 484 Laser Engineering
- ELE 538 Adv Top Electromagnet & Optics
- ELE 581 Fourier Optics/Imaging Theory
- ELE 582 Optical Design
- ELE 583 Remote Sensing Systems
- PHSX 427 Advanced Optics
- PHSX 437 Laser Applications
- PHSX 507 Quantum Mechanics II
- PHSX 515 Advanced Topics In Physics 1
- PHSX 520 Electromagnetic Theory II
- PHSX 531 Nonlinear Optics/Laser Spectroscopy
- CHMY 421 Advanced Instrument Analysis
- CHMY 527 Analytic Optical Spectroscopy
- CHMY 557 Quantum Mechanics
- CHMY 560 Symmetry, Orbitals, and Spectroscopy

Technical electives (choose at least 12 credits): 12
- ECE, Physics, Math, Chemistry, Business, etc. (400-level or above)

Professional Paper (OPTI 575) 3

Total Credits 30

Note: At least 20 credits must be at the 500 level.

1 A maximum of three (3) credits total among these courses is allowed if the subject is directly related to optics, upon the approval by the academic advisor and research advisor/instructor.

2 A maximum of two (2) credits total of optics seminar is allowed.
Font Notice

This document should contain certain fonts with restrictive licenses. For this draft, substitutions were made using less legally restrictive fonts. Specifically:

Times was used instead of Adobe Garamond Pro.

The editor may contact Leepfrog for a draft with the correct fonts in place.