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.

More information on the admission requirements, application process, and degree requirements can be found at: M. S. in Optics and Photonics (http://www.physics.montana.edu/grad/opticsMS.html)

Choose two key courses (one PHSX and one EELE): 6

PHSX 427 Advanced Optics
PHSX 437 Laser Applications
EELE 482 Electro-Optical Systems
EELE 484 Laser Engineering

Choose one specialty course: 3

EELE 581 Fourier Optics/Imaging Theory
EELE 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

EELE 432 Applied Electromagnetics
EELE 482 Electro-Optical Systems
EELE 484 Laser Engineering
EELE 538 Adv Top Electromagnet & Optics
EELE 581 Fourier Optics/Imaging Theory
EELE 582 Optical Design
EELE 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 516 Experimental Physics (Fall - Optics)
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
CHMY 564 Adv Quantum Chemistry
EELE/PHSX/CHMY/ 591 Special Topics 1
EELE/PHSX/CHMY/ 592 Independent Study 1
OPTI 594 Optics Seminar 2

Technical electives (choose at least 12 credits in these areas. 7 of the 12 credits must be approved optics related electives): 3

ECE, Physics, Math, Chemistry, Business, other as approved. All must be 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.
3 Optics related technical electives must be reviewed and approved by your academic advisor.
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.