

PHYSICS: OPTICS AND PHOTONICS, MS

Requirements for Students Matriculating in or before Academic Year 2023-2024. Learn more about Graduate College Academic Regulation 7.0 (<http://catalog.okstate.edu/graduate-college/#70>).

Thesis Option

Total Hours: 30

Code	Title	Hours
Required Courses		
PHYS 5453	Mathematical Methods for Physicists	3
PHYS 5613	Quantum Mechanics I	3
Select 9 hours of Photonics core courses from the following with advisor approval:		9
PHYS 5123	Geometrical Optics	
PHYS 5163	Lasers	
PHYS 5303	Physical Optics	
ECEN 4843	Design of Lasers and Systems	
ECEN 5833	Fiber-Optic Communication Systems	
Hours Subtotal		15
Electives		
Select 9 hours from the two groups of electives with a minim of one course and a maximum of two from Group I. Courses at the graduate level from other departments may be substituted for electives in Group II with Physics Department permission, but alternate courses must have a strong connection to optics and photonics.		9
<i>Group I</i>		
PHYS 4813	Electromagnetic Radiation	
PHYS 5313	Electromagnetic Theory	
PHYS 6713	Advanced Electromagnetic Radiation	
ECEN 5613	Electromagnetic Theory	
<i>Group II</i>		
PHYS 5133	Laser Spectroscopy	
PHYS 5663	Solid State Physics I	
PHYS 6313	Quantum Mechanics II	
PHYS 6413	Nonlinear Optics	
PHYS 6423	Quantum Optics	
ECEN 4823	Design of Optical Systems	
ECEN 5843	Microelectronic Fabrication	
ECEN 5853	Ultrafast Optoelectronics	
ECEN 5793	Digital Image Processing	
Hours Subtotal		9
Thesis/Research		
Select 6 hours (or more) of supervised research with submission of an approved thesis.		
PHYS 5000	Master's Thesis Research or Report (Or equivalent)	6
Hours Subtotal		6
Total Hours		30

Non-Thesis Option

Total Hours: 32

Code	Title	Hours
Required Courses		
PHYS 5453	Mathematical Methods for Physicists	3
PHYS 5613	Quantum Mechanics I	3
Select 9 hours of Photonics core courses from the following with advisor approval:		9
PHYS 5123	Geometrical Optics	
PHYS 5163	Lasers	
PHYS 5303	Physical Optics	
ECEN 4843	Design of Lasers and Systems	
ECEN 5833	Fiber-Optic Communication Systems	
Hours Subtotal		15
Electives		
Select 9 hours from the two groups of electives with a minim of one course and a maximum of two from Group I. Courses at the graduate level from other departments may be substituted for electives in Group II with Physics Department permission, but alternate courses must have a strong connection to optics and photonics.		9
<i>Group I</i>		
PHYS 4813	Electromagnetic Radiation	
PHYS 5313	Electromagnetic Theory	
PHYS 6713	Advanced Electromagnetic Radiation	
ECEN 5613	Electromagnetic Theory	
<i>Group II</i>		
PHYS 5133	Laser Spectroscopy	
PHYS 5663	Solid State Physics I	
PHYS 6313	Quantum Mechanics II	
PHYS 6413	Nonlinear Optics	
PHYS 6423	Quantum Optics	
ECEN 4823	Design of Optical Systems	
ECEN 5843	Microelectronic Fabrication	
ECEN 5853	Ultrafast Optoelectronics	
ECEN 5793	Digital Image Processing	
Hours Subtotal		9
Additional Electives		
Select 6 hours of advanced courses at the graduate level.		6
Hours Subtotal		6
Report		
Students must complete a two-credit hour report.		2
Hours Subtotal		2
Total Hours		32

Graduate College Master's Program Requirements

Learn more about Graduate College 2023-2024 Master's Degree Program Requirements (<http://catalog.okstate.edu/graduate-college/>). Check the General Graduate College academic regulations for minimal GPA, language proficiency and other general requirements.