

PHYSICS: OPTICS AND PHOTONICS, MS

Requirements for Students Matriculating in or before Academic Year 2019-2020. Learn more about Graduate College Academic Regulation 7.0 (<http://catalog.okstate.edu/graduate-college>).

Thesis Option

Total Hours: 30 Hours

Code	Title	Hours
Required Courses		
PHYS 5453	Methods of Theoretical Physics	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 Hours

Code	Title	Hours
Required Courses		
PHYS 5453	Methods of Theoretical Physics	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

General Graduate College Requirements

- A minimum Grade-Point-Average of 3.00 is required
- A minimum Grade of "C" is required in all degree applicable courses
- No courses utilizing the Pass-No Pass grading system are permitted
- GRAD 5082 or GRAD 5092 may not be used to meet degree requirements

Additional Graduate College Masters Degree Requirements

Plan I (coursework with thesis)

- A minimum of 30 credit hours
 - A minimum of 24 coursework credit hours comprised of:
 - 6 research or creative component credit hours
 - 21 in-residence credit hours (maximum of 9 transfer hours with "B" or better)
 - 21 credit hours at 5000- or 6000-level

Plan II (coursework without thesis)

- A minimum of 32 credit hours
 - A maximum of 3 credit hours of research or creative component
 - A minimum of 23 in-residence credit hours (maximum of 9 transfer credit hours with "B" or better)
 - A minimum of 21 credit hours at the 5000- or 6000-level