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

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 5453</td>
<td>Methods of Theoretical Physics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 5613</td>
<td>Quantum Mechanics I</td>
<td>3</td>
</tr>
<tr>
<td>Select 9 hours of Photonics core courses from the following with advisor approval:</td>
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<tr>
<td>PHYS 5123</td>
<td>Geometrical Optics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 5163</td>
<td>Lasers</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 5303</td>
<td>Physical Optics</td>
<td>3</td>
</tr>
<tr>
<td>ECEN 4843</td>
<td>Design of Lasers and Systems</td>
<td>3</td>
</tr>
<tr>
<td>ECEN 5833</td>
<td>Fiber-Optic Communication Systems</td>
<td>3</td>
</tr>
<tr>
<td>Hours Subtotal</td>
<td></td>
<td>15</td>
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</tbody>
</table>

Electives

Select 9 hours from the two groups of electives with a minimum 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.

**Group I**
- PHYS 4813 Electromagnetic Radiation
- PHYS 5313 Electromagnetic Theory
- PHYS 6713 Advanced Electromagnetic Radiation
- ECEN 5613 Electromagnetic Theory

**Group II**
- 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.

| Hours Subtotal | 6 |

Report

Students must complete a two-credit hour report.

| Hours Subtotal | 2 |

Total Hours

| Total Hours | 30 |

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