MATERIALS SCIENCE AND ENGINEERING, 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>MSE 5013</td>
<td>Advanced Thermodynamics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>MSE 5023</td>
<td>Diffusion and Kinetics</td>
<td>3</td>
</tr>
<tr>
<td>MSE 5033</td>
<td>Composite Materials</td>
<td>3</td>
</tr>
<tr>
<td>MSE 5043</td>
<td>Advanced Materials Characterization</td>
<td>3</td>
</tr>
<tr>
<td>MSE 5083</td>
<td>Advanced Ceramics Processing</td>
<td>3</td>
</tr>
<tr>
<td>MSE 5010</td>
<td>Materials Science and Engineering Seminar for Masters Students</td>
<td>0</td>
</tr>
</tbody>
</table>

Hours Subtotal 15

Electives
Select 9 hours of the following: 9

- MSE 5053 Smart Materials
- MSE 5063 Biomedical Materials
- MSE 5073 Tissue Engineering
- MSE 5093 Fundamentals of Materials Science
- MSE 5103 Electrical and Optical Properties of Ceramics
- MSE 5113 Diffraction in Materials
- MSE 5123 Advanced Composites Manufacturing: Materials, Methods and Applications
- MSE 5133 Solid Oxide Fuel Cells
- MSE 5143 Batteries and Supercapacitors for Energy Storage
- MSE 5153 Crystal Physics and Materials Properties
- MSE 5200 Applied Innovation I
- MSE 5223 Additive Manufacturing: Materials, Methods and Applications
- MSE 5583 Corrosion Engineering
- MSE 5693 Phase Transformations in Materials

Electives
Select 18 hours of the following: 18

- MSE 5113 Diffraction in Materials
- MSE 5123 Advanced Composites Manufacturing: Materials, Methods and Applications
- MSE 5133 Solid Oxide Fuel Cells
- MSE 5143 Batteries and Supercapacitors for Energy Storage
- MSE 5153 Crystal Physics and Materials Properties
- MSE 5200 Applied Innovation I
- MSE 5223 Additive Manufacturing: Materials, Methods and Applications
- MSE 5583 Corrosion Engineering
- MSE 5693 Phase Transformations in Materials

Non-Thesis Option
Total Hours: 35 Hours

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSE 5013</td>
<td>Advanced Thermodynamics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>MSE 5023</td>
<td>Diffusion and Kinetics</td>
<td>3</td>
</tr>
<tr>
<td>MSE 5033</td>
<td>Composite Materials</td>
<td>3</td>
</tr>
<tr>
<td>MSE 5043</td>
<td>Advanced Materials Characterization</td>
<td>3</td>
</tr>
<tr>
<td>MSE 5083</td>
<td>Advanced Ceramics Processing</td>
<td>3</td>
</tr>
<tr>
<td>MSE 5010</td>
<td>Materials Science and Engineering Seminar for Masters Students</td>
<td>0</td>
</tr>
</tbody>
</table>

Hours Subtotal 15

Electives
Select 18 hours of the following: 18

- MSE 5053 Smart Materials
- MSE 5063 Biomedical Materials
- MSE 5073 Tissue Engineering
- MSE 5093 Fundamentals of Materials Science
- MSE 5103 Electrical and Optical Properties of Ceramics
- MSE 5113 Diffraction in Materials
- MSE 5123 Advanced Composites Manufacturing: Materials, Methods and Applications
- MSE 5133 Solid Oxide Fuel Cells
- MSE 5143 Batteries and Supercapacitors for Energy Storage
- MSE 5153 Crystal Physics and Materials Properties
- MSE 5200 Applied Innovation I
- MSE 5223 Additive Manufacturing: Materials, Methods and Applications
- MSE 5583 Corrosion Engineering
- MSE 5693 Phase Transformations in Materials

Electives
Select 18 hours of the following: 18

- MSE 5053 Smart Materials
- MSE 5063 Biomedical Materials
- MSE 5073 Tissue Engineering
- MSE 5093 Fundamentals of Materials Science
- MSE 5103 Electrical and Optical Properties of Ceramics
- MSE 5113 Diffraction in Materials
- MSE 5123 Advanced Composites Manufacturing: Materials, Methods and Applications
- MSE 5133 Solid Oxide Fuel Cells
- MSE 5143 Batteries and Supercapacitors for Energy Storage
- MSE 5153 Crystal Physics and Materials Properties
- MSE 5200 Applied Innovation I
- MSE 5223 Additive Manufacturing: Materials, Methods and Applications
- MSE 5583 Corrosion Engineering
- MSE 5693 Phase Transformations in Materials

Electives
Select 18 hours of the following: 18

- MSE 5053 Smart Materials
- MSE 5063 Biomedical Materials
- MSE 5073 Tissue Engineering
- MSE 5093 Fundamentals of Materials Science
- MSE 5103 Electrical and Optical Properties of Ceramics
- MSE 5113 Diffraction in Materials
- MSE 5123 Advanced Composites Manufacturing: Materials, Methods and Applications
- MSE 5133 Solid Oxide Fuel Cells
- MSE 5143 Batteries and Supercapacitors for Energy Storage
- MSE 5153 Crystal Physics and Materials Properties
- MSE 5200 Applied Innovation I
- MSE 5223 Additive Manufacturing: Materials, Methods and Applications
- MSE 5583 Corrosion Engineering
- MSE 5693 Phase Transformations in Materials
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAE 5133</td>
<td>Mechanical Behavior of Materials</td>
<td></td>
<td>18</td>
</tr>
<tr>
<td>MAE 5503</td>
<td>Mechanics of Advanced Composites for Structural Design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAE 5543</td>
<td>Modern Materials</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Independent Study</th>
<th>2 hours required</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hours Subtotal</strong></td>
<td></td>
<td><strong>35</strong></td>
</tr>
</tbody>
</table>

**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