# 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>
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**Hours Subtotal**: 15

### Electives
Select 9 hours of the following:

- 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
- MAE 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
- MAE 5503: Mechanics of Advanced Composites for Structural Design
- MAE 5543: Modern Materials
- MSE 5200: Applied Innovation I
- MAE 5503: Mechanics of Advanced Composites for Structural Design
- MSE 5583: Corrosion Engineering
- MAE 5583: Corrosion Engineering
- MSE 5693: Phase Transformations in Materials
- MAE 5693: Phase Transformations in Materials

**Hours Subtotal**: 9

## Thesis Research
6 hours of MSE 5000

**Hours Subtotal**: 6

## Total Hours
**Total Hours**: 30

## Non-Thesis Option
Total Hours: 35 Hours

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<tr>
<td>MSE 5010</td>
<td>Materials Science and Engineering Seminar for Masters Students</td>
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</table>

**Hours Subtotal**: 15

### Electives
Select 18 hours of the following:

- 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
- MAE 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
- MAE 5503: Mechanics of Advanced Composites for Structural Design
- MSE 5583: Corrosion Engineering
- MAE 5583: Corrosion Engineering
- MSE 5693: Phase Transformations in Materials
- MAE 5693: Phase Transformations in Materials

**Hours Subtotal**: 18

### Chemical Engineering

- CHE 5413

### Electrical and Computer Engineering

- ECEN 5843: Microelectronic Fabrication
- ECEN 6843: Advanced Microelectronic Fabrication

### Mechanical and Aerospace Engineering

- MAE 5133: Mechanical Behavior of Materials
<table>
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<td>Mechanical Behavior of Materials</td>
</tr>
<tr>
<td>MAE 5503</td>
<td>Mechanics of Advanced Composites for Structural Design</td>
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<tr>
<td>MAE 5543</td>
<td>Modern Materials</td>
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<table>
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<th>Hours Subtotal</th>
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<tr>
<td>Independent Study</td>
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<td>Total Hours</td>
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**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