# 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>
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</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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</table>

**Hours Subtotal**: 15

### Electives
Select 9 hours of the following:

- **Materials Science and Engineering**
  - 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
    or EEE 5200 Special Topics in Entrepreneurship
  - MSE 5223 Additive Manufacturing: Materials, Methods and Applications
  - MSE 5583 Corrosion Engineering
    or MAE 5583 Corrosion Engineering
  - MSE 5693 Phase Transformations in Materials
    or MAE 5693 Phase Transformations in Materials

- **Chemical Engineering**
  - CHE 5413

- **Electrical and Computer Engineering**
  - ECEN 5843 Microelectronic Fabrication
  - ECEN 6843 Advanced Microelectronic Fabrication

### Total Hours: 30

## Non-Thesis Option
### Total Hours: 35 Hours

<table>
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<tr>
<td>MSE 5013</td>
<td>Advanced Thermodynamics of Materials</td>
<td>3</td>
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<td>Diffusion and Kinetics</td>
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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:

- **Materials Science and Engineering**
  - 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
    or 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
    or EEE 5200 Special Topics in Entrepreneurship
  - MSE 5223 Additive Manufacturing: Materials, Methods and Applications
  - MSE 5583 Corrosion Engineering
    or MAE 5583 Corrosion Engineering
  - MSE 5693 Phase Transformations in Materials
    or MAE 5693 Phase Transformations in Materials

- **Chemical Engineering**
  - CHE 5413

- **Electrical and Computer Engineering**
  - ECEN 5843 Microelectronic Fabrication
  - ECEN 6843 Advanced Microelectronic Fabrication

### Total Hours: 35
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>MAE 5133</td>
<td>Mechanical Behavior of Materials</td>
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<tr>
<td>MAE 5503</td>
<td>Mechanics of Advanced Composites for Structural Design</td>
<td>2</td>
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<tr>
<td>MAE 5543</td>
<td>Modern Materials</td>
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</table>

**Total Hours** 35

**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