# 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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<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
- 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

**Hours Subtotal** 9

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

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<td>MSE 5010</td>
<td>Materials Science and Engineering Seminar for Masters Students</td>
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</tbody>
</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
- 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

**Hours Subtotal** 18

### Courses

- **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
  - MAE 5503  Mechanics of Advanced Composites for Structural Design
  - MAE 5543  Modern Materials

### Additional Courses

- **Chemical Engineering**
  - CHE 5413

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

**Mechanical and Aerospace Engineering**
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