MASTER OF SCIENCE (MS) DEGREE IN THE FIELD OF MATERIALS SCIENCE AND NANOENGINEERING

Program Learning Outcomes for the MS Degree in the field of Materials Science and NanoEngineering

Upon completing the MS degree in the field of Materials Science and NanoEngineering, students will be able to:

1. Demonstrate an advanced command of Materials Science and NanoEngineering field work.
2. Conduct independent research that demonstrates advanced mastery of a subfield within Materials Science or NanoEngineering.
3. Communicate scientific ideas effectively in writing and when speaking.

Requirements for the MS Degree in the field of Materials Science and NanoEngineering

The MS degree is a thesis master’s degree. For general university requirements, please see Thesis Master’s Degrees (ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-thesis-masters-degrees). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees). Students pursuing the MS degree program in Materials Science and NanoEngineering must complete:

- A minimum of 30 credit hours of study, of which at least 18 credit hours must be completed through coursework.

Full-time students seeking the MS degree are expected to complete all the requirements for the degree within 2 calendar years into the program. Continuation in the program beyond this time limit will require special approval of the department.

The programs leading to the MS and PhD degrees are open to students who have demonstrated outstanding performance in their undergraduate studies. The granting of a graduate research degree presupposes academic work of superior quality and a demonstrated ability to do original research.

For general university requirements, see Graduate Degrees (ga.rice.edu/graduate-students/academic-opportunities/degrees). Course requirements for the research degrees vary depending on the extent of individual undergraduate preparation as well as each student's performance in graduate courses and on qualifying examinations. For both the MS and PhD degrees, students must present a thesis that comprises an original contribution to knowledge and defend it in a public oral examination.

Students are expected to earn letter grades of at least B- (2.67 grade points) in all courses taken, and maintain a minimum GPA of 3.00 to graduate. If a student's GPA is below 3.00, the student will be placed on departmental probation. The student may be dismissed from the program if his/her GPA falls below 3.00 for two semesters. Final decision will be made by the Graduate Committee in consultation with the Department Chair.

Each graduate student is expected to render research and/or instructional assistance to the department not to exceed 10 hours per week. Graduate student work assignments will be made by the advisor at the beginning of each semester.

All PhD students must attend at least 75% of the MSNE seminars per semester, and MS students must attend at least 50% of the MSNE seminars per semester. For details, please see the degree requirements on the MSNE website (http://msne.rice.edu/Content.aspx?id=2147483743).

Graduate students pursuing a thesis degree program will be subject to a preliminary evaluation of their candidacy for the highest degree program they intend to pursue. The evaluation will be conducted by the end of the second semester of enrollment in the graduate program in the MSNE department.

Each candidate for the MS degree must complete a thesis demonstrating ability in research of a fundamental nature (analytical or experimental). It is expected that the research will be of sufficient importance and quality that positive results would lead to publication. Upon completion of the thesis, each candidate for the MS degree must pass a final public oral examination. The examination will be conducted by a committee consisting of at least three members. Two, including the advisor, must be MSNE faculty members, and one must be a faculty member from another department.

Candidates for the MS degree are required to provide teaching assistance to the department as a teaching assistant or grader for at least 2 semesters, but no more than 3 semesters.

For details, please see the degree requirements on the MSNE website (http://msne.rice.edu/Content.aspx?id=2147483743).

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MS Degree in the field of Materials Science and NanoEngineering</td>
<td>30</td>
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Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MSNE 502</td>
<td>MECH PROPERTIES OF MATERIALS</td>
<td>3</td>
</tr>
<tr>
<td>MSNE 503</td>
<td>THERMODYNAMICS IN MATERIALS SCIENCE</td>
<td>3</td>
</tr>
<tr>
<td>MSNE 506</td>
<td>PHYSICAL PROPERTIES OF SOLIDS</td>
<td>3</td>
</tr>
<tr>
<td>MSNE 535 / PHYS 535</td>
<td>CRYSTALLOGRAPHY &amp; DIFFRACTION</td>
<td>3</td>
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Elective Requirements

Select 2 courses from MSNE departmental course offerings at the 500-level or above

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MSNE 500</td>
<td>MATERIALS SCIENCE SEMINAR</td>
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</table>

Non-Coursework

1. Students are expected to earn letter grades of at least B- (2.67 grade points) in all courses taken, and maintain a minimum GPA of 3.00 to graduate. If a student’s GPA is below 3.00, the student will be placed on departmental probation. The student may be dismissed from the program if his/her GPA falls below 3.00 for two semesters. Final decision will be made by the Graduate Committee in consultation with the Department Chair.

2. Each graduate student is expected to render research and/or instructional assistance to the department not to exceed 10 hours per week. Graduate student work assignments will be made by the advisor at the beginning of each semester.

3. All PhD students must attend at least 75% of the MSNE seminars per semester, and MS students must attend at least 50% of the MSNE seminars per semester. For details, please see the degree requirements on the MSNE website (http://msne.rice.edu/Content.aspx?id=2147483743).

4. Graduate students pursuing a thesis degree program will be subject to a preliminary evaluation of their candidacy for the highest degree program they intend to pursue. The evaluation will be conducted by the end of the second semester of enrollment in the graduate program in the MSNE department.

5. Each candidate for the MS degree must complete a thesis demonstrating ability in research of a fundamental nature (analytical or experimental). It is expected that the research will be of sufficient importance and quality that positive results would lead to publication. Upon completion of the thesis, each candidate for the MS degree must pass a final public oral examination. The examination will be conducted by a committee consisting of at least three members. Two, including the advisor, must be MSNE faculty members, and one must be a faculty member from another department.

6. Candidates for the MS degree are required to provide teaching assistance to the department as a teaching assistant or grader for at least 2 semesters, but no more than 3 semesters.

7. For details, please see the degree requirements on the MSNE website (http://msne.rice.edu/Content.aspx?id=2147483743).
Master of Science (MS) Degree in the field of Materials Science and NanoEngineering

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MSNE 501</td>
<td>GRADUATE STUDENT SEMINAR</td>
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</tr>
<tr>
<td>MSNE 800</td>
<td>RESEARCH AND THESIS</td>
<td>9</td>
</tr>
<tr>
<td>Additional Requirements as Defined by Department</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
<td>30</td>
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</table>

Footnotes and Additional Information
1. Students may complete courses that satisfy the Electives requirement from other departmental course offerings upon approval from their advisors or one member of the Departmental Graduate Committee.
2. Credit received for MSNE 500, MSNE 501, and MSNE 800 will not be counted toward coursework, but will count toward the total credit hours required for the degree.
3. Students must attend at least 6 of the 13 MSNE seminars per semester for the duration of their study.
4. Students must attend at least 6 of the 13 MSNE 501 seminars per semester for the duration of their study.
5. Students must register for a minimum of 9 credit hours per semester and must be required to receive an "S" grade. "U" grades are discussed further in the MSNE Graduate Student Handbook in the section Grades.

Policies for the MS Degree in the field of Materials Science and NanoEngineering

Department of Materials Science and NanoEngineering Graduate Program Handbook

For more detailed information regarding the MS degree program policies, please see Materials Science and NanoEngineering department's Graduate Handbook, which can be found here: [http://gradhandbooks.rice.edu/2018_19/Material_Science_Nano_Engineering_Graduate_Handbook.pdf](http://gradhandbooks.rice.edu/2018_19/Material_Science_Nano_Engineering_Graduate_Handbook.pdf)

Additional Information
For additional information, please see the Materials Science and NanoEngineering website: [https://msne.rice.edu/](https://msne.rice.edu/)

Opportunities for the MS Degree in the field of Materials Science and NanoEngineering

Additional Information
For additional information, please see the Materials Science and NanoEngineering website: [https://msne.rice.edu/](https://msne.rice.edu/)