MATERIALS SCIENCE AND
ENGINEERING, MINOR

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Requirements

<table>
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<th>Requirement</th>
<th>Credits</th>
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<td>Requirements for the Minor</td>
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The Minor in Materials Science and Engineering requires the completion of a total of 18 credits in materials related and other supporting courses. With the approval of the student's program chair, some of these courses may also be used to satisfy the requirements for the student's major bachelor's degree. At least 9 unique credits counted toward the requirements for a student's minor must not be used to fulfill the requirements for that student's major.

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (http://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10).

1. Elective courses may be drawn from a wide variety of courses in Materials Science, Engineering, and Physics.

Completion of the minor may extend graduation date.

Transfer of credits from other institutions may be eligible to satisfy the minor requirements based on adviser review and program approval.

Graduation Requirements

To be given credit for the minor, undergraduate must:

- Maintain a GPA of 3.0 in the minor courses
- Complete 18 credits from the minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Prescribed Courses: Require a grade of C or better</td>
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<tr>
<td>MATSE 201</td>
<td>Introduction to Materials Science</td>
<td>3</td>
</tr>
<tr>
<td>MATSE 259</td>
<td>Properties and Processing of Engineering Materials</td>
<td>3</td>
</tr>
<tr>
<td>MATSE 460</td>
<td>Introductory Laboratory in Materials</td>
<td>1</td>
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<tr>
<td>MATSE 462</td>
<td>General Properties Laboratory in Materials</td>
<td>1</td>
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</table>

Additional Courses

Additional Courses: Require a grade of C or better

Select 10 credits of the following: 1

- ESC 314 Engineering Applications of Materials
- MATSE 202 Introduction to Polymer Materials
- MATSE 400 Crystal Chemistry
- MATSE 401 Thermodynamics of Materials
- MATSE 402 Materials Process Kinetics
- MATSE 410 Phase Relations in Materials Systems
- MATSE 413 Solid-State Materials
- MATSE/ESC 417 Electrical and Magnetic Properties
- MATSE 419 Computational Materials Science and Engineering
- MATSE 430 Materials Characterization
- MATSE 436 Mechanical Properties of Materials
- MATSE 471 Metallurgy Laboratory I
- MATSE 496 Independent Studies
- MATSE 497 Special Topics
- PHYS 414 Solid State Physics