Chemical Engineering, M.S.Ch.E.

Curriculum in Master of Science in Chemical Engineering

A candidate for the M.S. degree in chemical engineering must comply with the rules and regulations as outlined in the WVU Graduate Catalog and the specific requirements of the Statler College and the Chemical Engineering Department.

Program Requirements

All M.S. degree candidates are required to perform research and follow a planned program of study. The student’s research advisor, in conjunction with the student’s Advising and Examining Committee (AEC) will be responsible for determining the plan of study appropriate to the student’s needs. The underlying principle of the planned program is to provide the students with the necessary support to complete their degree and prepare them for their career.

Curriculum Requirements

A minimum GPA of 3.0 is required in all courses

<table>
<thead>
<tr>
<th>Course Requirements</th>
<th>Credit</th>
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<tbody>
<tr>
<td>A minimum of 60% of courses must be from 500 level or above</td>
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<tr>
<td>A grade of C or higher must be earned in all required courses</td>
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<tr>
<td>CHE 615 Transport Phenomena</td>
<td>3</td>
</tr>
<tr>
<td>CHE 620 Thermodynamics</td>
<td>3</td>
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<tr>
<td>CHE 625 Chemical Reaction Engineering</td>
<td>3</td>
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<tr>
<td>Full-time Students are required to take a Seminar course each semester</td>
<td>4-10</td>
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<tr>
<td>CHE 796 Graduate Seminar</td>
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Select courses from the following based on degree path: 15

- Any BIOM, CE, CHEM, CPE, CS, EE, IENG, IH&S, MAE, MATH, MINE, PHGE, PHYS, SAFM, SENG, or STAT courses 400-799

Complete 1 of the following options: 6-9

**Thesis Option - 6 hours**

- CHE 697 Research (6 hours)
- Written Proposal/Oral Presentation
- Oral Defense
- Thesis
- Final Oral or Written Examination

**Problem Report Option - 9 hours**

- Complete 6 additional hours of coursework
- CHE 697 Research (3 hours)
- Written Proposal/Oral Presentation
- Oral Defense
- Formal written report or professional report/paper
- Final Oral or Written Examination

Total Hours 34-43

* Students who do not hold a baccalaureate degree in chemical engineering are required to take a set of undergraduate chemical engineering courses above and beyond the minimum coursework requirements. For students without a B.S.Ch.E., the junior level courses may include: CHE 310, CHE 311, CHE 312, CHE 315, CHE 320, and CHE 325. M.S.E. students take only CHE 315, CHE 320, and CHE 325.

EXAMINATION

M.S. students following the thesis or problem report option must prepare a written research proposal and oral presentation. The proposal must be approved by the student's AEC at least one semester prior to the final oral examination. This oral defense is administered by the student’s AEC and must be completed by the end of the second semester after the student begins his/her research.

All students, regardless of option, are required to pass a final oral or written examination, administered by their AEC, covering the thesis or problem report and/or related course material.
Suggested Plan of Study

The plan below illustrates the Thesis Option. For students with a B.S.Ch.E., twenty-four months are typically required to complete the M.S.Ch.E. degree work. For students without a B.S.Ch.E., the time to complete the M.S.Ch.E. is typically thirty-six months, while the time to complete the M.S.E. is typically thirty months.

It is important for students to take courses in the order specified as much as possible; all prerequisites and concurrent requirements must be observed. A typical M.S.Ch.E degree program that completes degree requirements in two years is as follows.

<table>
<thead>
<tr>
<th>First Year</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Fall</td>
<td></td>
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<tr>
<td>CHE 796</td>
<td>1</td>
<td>1</td>
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<tr>
<td>CHE 615</td>
<td>3</td>
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<tr>
<td>CHE 620</td>
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<tr>
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<td>Total</td>
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<table>
<thead>
<tr>
<th>Second Year</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
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<td>Fall</td>
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<tr>
<td>CHE 796</td>
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<tr>
<td>CHE 697</td>
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<td>6</td>
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<tr>
<td>Additional Course</td>
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<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
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Total credit hours: 40

Major Learning Outcomes

CHEMICAL ENGINEERING

Upon graduation, Chemical Engineering students will have:

- Understanding of advanced principles of chemical engineering, which include reaction engineering, transport phenomena, and thermodynamics.
- Expert-level understanding of the background and theory/principles of their research topics.
- Ability to plan research projects, to perform the tasks, and to draw conclusions based on sound scientific and engineering principles.
- Ability to write technical articles for publication in refereed journals and to make oral and poster presentations at technical meetings.
- Demonstrated initiative in research planning and management, including safety and environmental issues.
- Been technically prepared for a lifetime of continuing education.
- Understanding of professional and ethical responsibilities.