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 and Biomedical Engineering Department.

Program Requirements

All M.S. degree candidates are required to establish an Advising and Examining Committee (AEC). The student's advisor, in conjunction with the student's 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

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<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<td>A minimum GPA of 3.0 is required in all courses</td>
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**Course Requirements**

A maximum of 6 credit hours can be taken at the 400 level

A grade of C- or higher must be earned in all required courses

Plan of Study

- CHE 531 Mathematical Methods in Chemical Engineering 3
- CHE 615 Transport Phenomena 3
- CHE 620 Thermodynamics 3
- CHE 625 Chemical Reaction Engineering 3

Graduate Seminar

- CHE 786 Professional Development Seminar for Chemical and Biomedical Engineering 0

Electives (Select courses from the following based on degree path):

- Any BIOM, BMEG, CE, CHE, CHEM, CPE, CS, EE, EMTG, FIN, IENG, IH&S, MAE, MATH, MINE, PNGE, PHYS, SAFM, SENG, or STAT courses 400-795, as approved by the student's AEC

Complete 1 of the following options:

**Thesis Option - 9 hours**

- CHE 697 Research (6 hours)
- Complete 3 additional hours of coursework in CHE (any CHE course 400-795 as approved by the student's AEC)
- Final Oral or Written Examination

**Problem Report Option - 9 hours**

- CHE 697 Research (3 hours)
- Complete 6 additional hours of coursework in CHE (any CHE course 400-795 as approved by the student's AEC)
- Formal written report or professional report/paper
- Final Oral or Written Examination

**Coursework Options - 9 hours**

- Complete 9 additional hours of coursework in CHE (any CHE course 400-795 as approved by the student's AEC)

Total Hours

30

* Students who do not hold a baccalaureate degree in chemical engineering may be required to take a set of undergraduate chemical engineering courses above and beyond the minimum coursework requirements.

** Full-time Students are required to take a Seminar course each semester

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 completing a thesis or problem report 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.

**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.