

CHEMICAL ENGINEERING, M.S.

Learning Outcomes

1. Graduates of the MS program will acquire and demonstrate advanced expertise in the core subject areas of chemical engineering, which are chemical process analysis, thermodynamics, fluid flow analysis and mass transfer.
2. Graduates of the MS program will acquire advanced working knowledge of various areas of chemical science and technology in allied fields, including other engineering disciplines, business, the sciences, and/or mathematics.
3. Graduates of the MS program will acquire the ability to identify pertinent research problems, to formulate and execute a research plan, to generate and analyze original research results, and to communicate those results through oral presentations and written publications submitted to refereed archival journals.

Admissions

Requirements for admission to graduate degree programs in chemical engineering (M.E., M.S., Ph.D.) conform to the general regulations of The Graduate School, as well as more stringent departmental requirements as described below. In general, the admissions process is highly competitive. Admissions decisions are based on the quality of the applicant's previous university-level academic work (as reflected by grade point average), letters of recommendation, and other evidence of past accomplishments.

Students holding B.S. degrees may apply for direct admission to the doctoral program; it is not necessary to complete a master's degree first. Applicants with degrees (B.S. or higher) in other engineering disciplines or chemistry may be admitted with additional remedial course requirements in chemical engineering at the undergraduate level. The required remedial courses will typically include the prerequisites to required graduate courses and may include additional undergraduate courses in chemical engineering, mathematics, and chemistry. The detailed specification of course requirements and substitutions of courses from other universities will be considered on a case-by-case basis.

International applicants must also submit TOEFL, IELTS Intl. Academic Course Type 2 exam scores, or equivalent. All applicants should submit a statement of purpose (or similar essay) that describes the applicant's background, research interests, and whether or not financial aid is required. Students admitted to the Ph.D. degree program usually receive financial aid. However, the department does not normally provide financial aid to students in the M.E. or M.S. degree programs.

Degree Requirements (30 Hours)

Core Courses (12 Hours)

Course	Title	Credits
ECHE 700	Chemical Process Analysis	3
ECHE 710	Advanced Chemical Engineering Thermodynamics	3
ECHE 720	Advanced Fluid Flow Analysis	3
ECHE 722	Advanced Mass Transfer	3
Total Credit Hours		12

Four Additional Lecture Courses (12 Hours)

Two of the additional four courses (6 hours) must be from chemical engineering, and the other two (6 hours) may be from chemistry, engineering, or mathematics. The student's research advisor specifies these courses after discussion with the student. Independent study (ECHE 797) cannot be used in place of lecture courses for the M.S. degree.

Thesis Preparation (6 Hours)

Course	Title	Credits
ECHE 799	Thesis Preparation	6
Total Credit Hours		6

Additional Requirements

Each M.S. student must select a research advisor during the first semester after admission. In addition, an advisory committee of no less than three members will be selected. The committee, which must include the department chair, conducts the comprehensive examination and reviews the student's thesis. Prior to graduation, each M.S. student must submit at least one paper for publication in a peer-reviewed technical journal. For the comprehensive examination, the M.S. student's research results are presented orally before an audience that includes the advisory committee. Other requirements pertaining to the final submission of the thesis conform to the general regulations of The Graduate School.

Note: No foreign language is required for any graduate degree in chemical engineering. Additional requirements follow.