

CHEMICAL ENGINEERING (MENG)

Master of Engineering in Chemical Engineering

Unit: Speed School of Engineering (<http://louisville.edu/speed>) (SP)

Program Webpage (<http://louisville.edu/speed/chemical>)

Academic Plan Code(s): CHE_MEN

Program Information

General Information

The Bachelor of Science in Chemical Engineering degree will provide a student with the basis to be able to complete the Master of Engineering (MEng) in Chemical Engineering degree. The Master of Engineering in Chemical Engineering degree program is accredited by the Engineering Accreditation Commission (EAC) of ABET, www.abet.org (<http://www.abet.org>).

Since the Chemical Engineering MEng is accredited as part of a five-year program with one-year of co-op experience, it is only available for students who have matriculated through the Chemical Engineering bachelor degree program at Speed School. Therefore, students who earn an undergraduate degree at a school or university other than the University of Louisville pursue the MS degree instead of the MEng degree.

Master of Engineering Program Educational Objectives

The purpose of the five-year Master of Engineering Program is to bring together the faculty, staff, and capital resources to meet the following program educational objectives:

1. Educate and train graduates with the academic background and practical experiences necessary to function as chemical engineering professionals at an advanced level in a modern, ever-changing world in accordance with the mission of the department
2. Produce graduates who demonstrate competence by being selected for employment by high level industrial, academic and government entities
3. Provide our graduates with the foundation for the development of a successful career and with the understanding that life-long learning is necessary to this development
4. Ensure that our graduates understand the broad societal, ethical and professional issues of the engineering profession

Master of Engineering Student Outcomes

In order to achieve these objectives, the Master of Engineering has the following outcomes set for its graduates. Graduates will demonstrate:

1. An ability to apply knowledge of mathematics, science and engineering to identify, formulate and solve advanced chemical engineering problems
2. An ability to design and conduct experiments demonstrating chemical engineering principles, as well as to analyze and interpret resulting data
3. An ability to design a system, component, or process relevant to chemical engineering practice to meet desired needs subject to realistic constraints such as economics, environmental compliance

- and sustainability, health and safety, manufacturability, and social, political, and ethical implications
4. An ability to function on multi-disciplinary or multi-functional teams
5. An ability to identify, formulate, and solve chemical engineering problems
6. Understanding of the professional and ethical responsibility of the practicing chemical engineer
7. An ability to communicate effectively in writing, orally, and via modern computer technology
8. The broad education necessary to understand the impact of chemical engineers and engineering solutions in a global, economic, environmental, and societal context
9. Recognition of the need for, and an ability to engage in life-long learning
10. a knowledge of contemporary issues, especially those pertinent to the practice of chemical engineering
11. an ability to use the techniques, skills, and modern engineering tools necessary for chemical engineering practice

Residency

All graduate students are expected to make steady and satisfactory progress toward the completion of degrees. A candidate for the Master of Engineering degree who does not register for credit hours must maintain active registration by paying a fee each semester for MEng residency until the degree is awarded (i.e., the candidate must maintain continuous registration, including summer terms, in Graduate Studies). Failure to pay the MEng residency fee will be cause to cancel a student's residency. Students who are not enrolled for a period of more than 12 months will be considered to have withdrawn from the program. In order to be restored to residency, the student must submit a new application, have the recommendation of the department chair, receive the approval of the Associate Dean and pay the fee for each of the semesters during which the residency was void.

Academic Performance

The J.B. Speed School of Engineering has established the following performance policies:

1. The minimum grade point average requirement for good standing is 3.00 for all academic work completed while in graduate studies.
2. Any student with a cumulative graduate GPA below 3.00 will be placed on academic warning. Students on academic warning are limited to enrollment for thirteen (13) credit hours in a fall or spring semester and seven (7) credit hours for summer terms.

Students who do not bring their cumulative graduate GPA back at or above a 3.00 in the semester immediately following Academic Warning, will be placed on Academic Probation for the next semester of enrollment. Students on probation are limited to enrollment for thirteen (13) credit hours in a fall or spring semester and seven (7) credit hours for summer terms. Any student who remains in academic probation for two consecutive terms may be considered for dismissal from the program.

3. Students receiving graduate assistantships (teaching, research or service) shall be provided adequate training and shall be required to understand and adhere to University policies related to these areas. The performance of teaching, research and service duties by such students shall be periodically evaluated. Students with teaching assistantships shall be evaluated annually.

- Students who fail to meet performance goals or who do not meet other requirements as outlined in the admission letter, program requirements or the university catalog may be subject to academic dismissal from their programs.
- A maximum of eight (8) hours of graduate level courses taken as an undergraduate may be used to satisfy MEng degree requirements; these courses cannot have been used to also satisfy BS degree requirements.

Degree Requirements

The following degree requirements are mandatory of all master of engineering candidates:

- The program of study must be completed with a 3.00 GPA or better for all graduate courses used to satisfy degree requirements. Additionally, the program of study must be completed with a 3.00 GPA or better for all academic work attempted in graduate studies.
- Master's degree students must take at least 24 credit hours of coursework at the University of Louisville to satisfy the residency requirement for the master's degree. A maximum of six (6) credit hours of graduate credit may be transferred from accredited institutions.
- Students following the thesis option must follow the Procedures and Standards for Master of Engineering Theses (<http://louisville.edu/speed/academics/policies/mEngThesisGuidelines>).
- The total requirements must be completed within six years after admission into graduate studies. The time limit imposed by the rule may be extended in individual cases upon recommendation of the department chair and approval of the associate dean for academic and student affairs.
- The MEng degree cannot be conferred prior to the BS degree.

Admission Standards

Since the Chemical Engineering MEng is accredited as part of a five-year program with one-year of co-op experience, it is only available for students who have matriculated through the Chemical Engineering bachelor degree program at Speed School.

The application form is available online (<http://louisville.edu/speed/academics/forms/MEngGraduateStudiesApplication>).

The requirements for admission or readmission to a master of engineering program are:

- Submission of a completed MEng application for the field of specialization in which the student is earning a bachelor degree from the J.B. Speed School of Engineering. Students can be admitted to the MEng program with fewer than thirteen (13) credit hours of BS degree requirements remaining and no later than two years post-conferral of their baccalaureate degree;
- Recommendation by the faculty and chair of the student's department for admission or readmission to graduate studies;
- Cumulative baccalaureate grade point average of 2.75. However, those students with cumulative baccalaureate grade-point averages from 2.50 to 2.75 may be admitted upon petition and approval of the chair and faculty of the department.

A student becomes a candidate for the master of engineering degree upon admission to graduate studies and initial registration as a graduate student.

Program Requirements

The Master of Engineering in Chemical Engineering degree requires the following over and above the Bachelor of Science in Chemical Engineering Degree.

Code	Title	Hours
CHE 595	Master of Engineering Seminar in Chemical Engineering	1
CHE 610	Advanced Thermodynamics	3
CHE 620	Transport Phenomena I	3
CHE 641	Advanced Reactor Design	3
CHE 686	Chemical Engineering Analysis	3
Technical Electives ^{1,2}		12
Select one of the following:		6
Thesis Alternative:		
CHE 697	Master of Engineering Thesis in Chemical Engineering ³	
Non-thesis Alternative:		
CHE 698	Engineering Project Fundamentals I	
CHE 699	Engineering Project Fundamentals II	
Minimum Total Hours		31

The Master of Engineering (MEng) degree must be completed with a 3.00 GPA or better for all graduate courses used to satisfy degree requirements. Additionally, the Master of Engineering degree must be completed with a 3.00 GPA or better for all academic work attempted in Graduate Studies.

A maximum of eight (8) credit hours of graduate-level courses taken as an undergraduate may be used to satisfy MEng degree requirements; these courses cannot have been used to also satisfy BS degree requirements.

- Electives must be chosen so that at least one-half of the total credits counted toward the degree, exclusive of thesis, are 600 level.
- Technical Electives can be CHE or non-CHE courses. Non-CHE courses must be approved by the student's research or academic advisor.
- For the thesis alternative, a student is required to select both an approved MEng thesis topic and the director and members of the thesis committee during the first term of Graduate Studies. The thesis director must give approval for enrollment in CHE 697