MECHANICAL ENGINEERING (MENG)

Master of Engineering in Mechanical Engineering (ME MEN)
Unit: Speed School of Engineering (http://engineering.louisville.edu) (SP)
Department: Mechanical Engineering (https://engineering.louisville.edu/academics/departments/mechanical)
Academic Plan Code(s): ME __MEN

Program Information

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

Since the Mechanical 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 Mechanical 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. Succeed as practicing mechanical engineers in government, industry, academia, and other economic sectors.
2. Use their knowledge and skills in mathematics, science, engineering, and other disciplines to identify, define, and solve problems, and to anticipate the global, societal, and environmental impact of their solutions.
3. Understand the importance of professional licensure, and act upon that understanding by pursuing registration.
4. Comply with professional ethics codes, practice sustainable engineering, undertake professional development, and engage in lifelong technical learning.
5. Display skills in teamwork, communication, critical thinking, and leadership.
6. Demonstrate an engineering knowledge base of greater depth and breadth than that expected of baccalaureate-only graduates, helping them understand and influence contemporary technological issues as engineering innovators and managers.

Master of Engineering Student Outcomes
In order to achieve these objectives, the Master of Engineering has developed an outcomes set for its graduates.

Graduates will demonstrate:

1. The ability to apply knowledge of mathematics, science, and engineering to the solution of problems encountered in mechanical engineering practice
2. An ability to design and conduct experiments assessing phenomena encountered during mechanical engineering practice, along with the ability to analyze and interpret the resulting data
3. An ability to design mechanical engineering systems, components, or processes that meet specified requirements
4. An ability to function on multidisciplinary teams in both leadership roles and as an individual contributor
5. The ability to identify and describe mechanical engineering problems, formulate constraints, devise and assess alternative approaches, and implement an optimal solution that satisfies specified performance, cost, time, and safety requirements
6. A solid understanding of professional and ethical responsibility in the field of mechanical engineering, as well as a record of adherence to those standards during academic coursework and cooperative education internships.
7. The ability to communicate effectively in writing, during interpersonal discussions, and through formal multimedia presentations, along with the ability to use these skills within the context of mechanical engineering practice.
8. An understanding of the impact of mechanical engineering solutions in a global and societal context.
9. An understanding of the need for, and an ability to engage in lifelong learning.
10. A knowledge of contemporary issues, along with a knowledge of how such issues influence technology evolution and implementation.
11. An ability to use the techniques, skills, and tools necessary for the practice of mechanical engineering.
12. An ability to apply masters-level knowledge in a specialized area related to mechanical engineering.

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
three(13)credit hours in a fall or spring semester and seven(7)credit hours for summer terms. Any student who remains in academicprobation for two consecutive terms may be considered for dismissalfrom the program.

3. Students receiving graduate assistantships (teaching, research orservice) shall be provided adequate training and shall be requiredto understand and adhere to University policies related to theseareas. The performance of teaching, research and service duties bysuch students shall be periodically evaluated. Students with teachingassistantships shall be evaluated annually.

4. Students who fail to meet performance goals or who do not meetother requirements as outlined in the admission letter, programrequirements or the university catalog may be subject to academicdismissal from their programs.

5. A maximum of eight(8)hours of graduate level courses taken as anundergraduate may be used to satisfy MEng degree requirements;theses courses cannot have been used to also satisfy BS degreerequirements.

Degree Requirements
The following degree requirements are mandatory of all master ofengineering candidates:

1. The program of study must be completed with a 3.00 GPA or betterfor all graduate courses used to satisfy degree requirements.Additionally, the program of study must be completed with a 3.00 GPAor better for all academic work attempted in graduate studies.

2. Master’s degree students must take at least 24 credit hours ofcoursework at the University of Louisville to satisfy the residencyrequirement for the master’s degree. A maximum of six(6)credit hours of graduate credit may be transferred from accreditedinstitutions.

3. Students following the thesis option must follow the Procedures andStandards for Master of Engineering Theses.

4. The total requirements must be completed within six years afteradmission into graduate studies. The time limit imposed by the rulemaybe extended in individual cases upon recommendation of thedepartment chair and approval of the associate dean for academicand student affairs.

5. The MEng degree cannot be conferred prior to the BS degree.

Admission Standards
Since the Mechanical Engineering MEng is accredited as part of a fiveyear program with one-year of co-op experience, it is only available forstudents who have matriculated through the Mechanical Engineeringbachelor degree program at Speed School.

The application form is available online (https://engineering.louisville.edu/meng-graduate-application-form).

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

1. Submission of a completed MEng application for the field ofspecialization in which the student is earning a bachelor degree fromthe J.B. Speed School of Engineering. Students can be admitted to theMEng program with fewer than thirteen(13) credit hours of BS deggerequirements remaining and no later than two years post conferral oftheir baccalaureate degree;

2. Recommendation by the faculty and chair of the student’s departmentfor admission or readmission to graduate studies;

3. Cumulative baccalaureate grade point average of 2.75. However, thosestudents with cumulative baccalaureate grade-point averages from 2.50to 2.75 may be admitted upon petition and approval of the chair andfaculty of the department.

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

Program Requirements
The Master of Engineering in Mechanical Engineering degree requires thefollowing over and above the Bachelor of Science in MechanicalEngineering Degree.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
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<tbody>
<tr>
<td>ME Electives 1,2</td>
<td>Technical Electives 1,3</td>
<td>18</td>
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<tr>
<td>Technical Electives 1,3</td>
<td>Select one of the following:</td>
<td>6</td>
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<tr>
<td>Thesis Option:</td>
<td>ME 697 Master of Engineering Thesis in Mechanical Engineering 4</td>
<td>6</td>
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<tr>
<td>Non-Thesis Option:</td>
<td>ME 645 Mechanical Engineering Structured Research Project</td>
<td>30</td>
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<tr>
<td>ME Elective 1,2</td>
<td>Minimum Total Hours</td>
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</tr>
<tr>
<td>Minimum Total Hours</td>
<td>30</td>
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</tbody>
</table>

The Master of Engineering degree must be completed with a 3.00 GPAor better for all graduate courses used to satisfy degree requirements.Additionally, the Master of Engineering degree must be completed with a3.00 GPA or better for all academic work attempted in graduate studies.

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

1. Electives must be chosen so that at least one-half of the total creditscounted toward the degree, exclusive of thesis, are 600-level
2. ME Electives must be approved by the department.
3. Technical Electives can be ME or non-ME courses. TechnicalElectives must be approved by the student’s research advisor or theME Director of Graduate Studies.
4. For the thesis option, a student is required to select both an approvedMEng thesis topic and the director and members of the thesiscommittee during the first term of Graduate Studies. The thesisdirector must give approval for enrollment in ME 697.