

# MASTER OF SCIENCE: MECHANICAL ENGINEERING

## Student Learning Outcomes

Students graduating from this program will:

- Formulate solutions to complex engineering problems
- Employ advanced mathematical skills
- Demonstrate enhanced written, graphical, and/or oral technical communication skills

## Admission Requirements

A baccalaureate degree in civil or mechanical engineering or related disciplines with a grade point average (GPA) of at least 3.0 in the last 60 hours of undergraduate engineering coursework is required. Pre-program requirements may be specified in case the Bachelor's degree is in a discipline different to which the candidate is applying.

The following documents are required for admission consideration:

- Application for admission
- Official transcripts of all college coursework
- TOEFL or IELTS scores are required for international students without prior U.S. degrees. The minimum required score is 79 (TOEFL) or 6.0 (IELTS). *English language proficiency requirements may be waived for applicants with a baccalaureate degree from an ABET-accredited program.*
- Official results of the Graduate Record Exam (GRE) are waived at this time. Students may submit test scores if it will strengthen their application for admission.

In addition, two letters of recommendation from professors at previous institutions or mentors at work are highly encouraged.

CONDITIONAL admission may be granted when the minimum GPA and GRE requirements are not met; however, other indicators promise applicant's success in the program. To be fully admitted as a "Regular Master's Degree Seeking" student, the candidate must obtain a grade of "B" or better in the first nine-hours of coursework; submit a satisfactory GRE score or an FE certificate, as specified above, within the first semester of their program; and complete any other conditions.

## Program Requirements

The mechanical engineering program offers graduate students an opportunity to get a state-of-the-art education in dynamic, challenging and professionally significant specialty areas. With written approval from the faculty advisor, master's students are allowed to take credits in other fields to encourage them to broaden their education beyond the mechanical engineering field. There are three degree options for earning a master's in mechanical engineering: coursework only, project or thesis options. For further information call (816) 235-5550 or e-mail [sce@umkc.edu](mailto:sce@umkc.edu).

- Master of Science with *coursework only* option requires the completion of a minimum of 30 credit hours of approved graduate coursework (300-level or higher). The graduate coursework must include at least 18 credit hours of 5500/5600-level courses.
- Master of Science with *thesis* option requires the completion of a minimum of 30 credit hours of approved graduate coursework (300-level or higher). The graduate coursework must include at least 24 credit hours of approved graduate coursework (300-level or higher) and six credit hours of thesis work (MEC-ENGR 5599). At least 18 credit hours must be at the 5500/5600-level. The candidate must submit a thesis prepared per the graduate school guidelines and orally defend the thesis work in front of a three-member thesis examining committee.
- Master of Science with *entrepreneurship* option requires the completion of a minimum of 30 credit hours, which includes 24 credit hours of approved graduate coursework (300-level or higher) and six credit hours of entrepreneurship coursework. Entrepreneurship coursework must include ENT5502 Introduction to Entrepreneurship plus one additional approved entrepreneurship elective. At least 18 credit hours must be at the 5500/5600-level.

A minimum of three credit hours of advanced mathematics from an approved course list is required for the M.S. degree in Mechanical Engineering. Exceptions are available by petition to the Mechanical Engineering Degree Program Committee.

Other specifications for students pursuing the project or thesis option:

1. The student must request to schedule a project or thesis defense in the first half of the semester in which the student plans to defend.
2. The written part of the project/thesis must be completed and given to all the committee members at least ten days prior to the defense date.
3. The defense date and an abstract must be advertised to the SSE faculty and students at least one week prior to the scheduled defense date.

## Graduate Academic Regulations

- With permission of the student's graduate advisor, up to six credit hours of transfer graduate coursework may be transferred from other non-University of Missouri institutions.
- With permission of the student's graduate advisor, up to 14 credit hours of transfer graduate coursework may be transferred from other University of Missouri institutions.
- However, at least 16 credit hours of graduate coursework must be taken at UMKC.

A graduate student must maintain a cumulative GPA of 3.0 for all graduate coursework taken during the course of graduate studies. Should the cumulative GPA fall below 3.0, the student will be placed on probation. A student on probation must bring the cumulative GPA to a 3.0 by the end of the next semester or face possible dismissal. Students should apply for graduation when they register for their final semester of coursework. All students must complete the UMKC Application for Graduation and the Departmental Program of Study form. Students selecting the *thesis* option must file a Master's Thesis Final Evaluation form and have their thesis approved by the UMKC School of Graduate Studies.

## Mechanical Engineering Specialty Areas

UMKC's Mechanical Engineering Program has faculty members who are active in research with funding from numerous local and national industries and government agencies.

Research and study are available in the following specialty areas:

- Biomechanics
- Materials and Manufacturing
- Thermal & Fluid Sciences
- Robotics & Controls

For more information, visit our School of Science and Engineering (<http://sce.umkc.edu>) website.