

MASTER OF SCIENCE IN BIOMEDICAL ENGINEERING (MSBME)

The comprehensive Master of Science in Biomedical Engineering enhances the knowledge of professionals for advanced and emerging topics in the field. This program covers a wide area of advanced biomedical engineering, life sciences, medical, and engineering applications topics. The MSBME curriculum is structured to prepare graduate students in fields such as biomechanics, tissue engineering, bioMEMS, bioinstrumentation, and medical imaging.

The MSBME, which totals 30 credit hours, is designed to provide Lawrence Tech's signature combination of theory and practice. Eligibility for the program is not limited to graduates with a bachelor's degree in biomedical engineering; interested students from other engineering and science backgrounds are also eligible to enroll in this program. Applicants may choose between two options to complete a Master's Design Project or a Master's Research Thesis. Early in the program, students can select a BME faculty member to serve as their adviser and to work with to determine the scope of their Project or Thesis work. Pending the approval of the MSBME Graduate Admissions Committee, working professionals pursuing the Project option can choose a topic in conjunction with their job or company.

MSBME ADMISSION REQUIREMENTS

Admission to the MSBME program as a regular graduate student requires the demonstration of high potential for success based on the following:

1. Submission of the Online Application for Graduate Admission
2. Official transcripts of all college work *, **
3. Resume
4. A minimum of one Letter of Recommendation (employers and professors are preferred);
5. Statement of Purpose (Optional, 1 page)

** Applicants must have earned a baccalaureate degree from an accredited U.S. institution –or– a non-U.S. degree equivalent to a four-year U.S. baccalaureate degree from a college or university of government recognized standing*

*** A Bachelor of Science degree in engineering or technical related field and plan to complete specified undergraduate curriculum courses (minimum GPA of 3.0)*

Students with a GPA lower than 3.0 or with baccalaureate degree in a field other than engineering may be admitted on a provisional basis. These students must satisfy prerequisite requirements as determined by the MSBME Graduate Admissions Committee before they can be granted official graduate status. They will be evaluated for official graduate student status upon completion of six semester hours of graduate coursework, achieving a minimum grade of 3.0 in each course. All coursework must be completed within five years after the program is started.

MSBME TRANSFER POLICY

For applicants transferring from other graduate programs into the MSBME program, no more than six graduate semester credit hours may be transferred, and these must be from an accredited institution. Any exceptions to this policy must be approved by the MSBME Graduate Admissions Committee. A minimum grade of 3.0 must have been achieved in all transfer

courses. Credit for courses taken in a graduate program other than biomedical engineering will be reviewed to determine whether they may be substituted within the MSBME program at Lawrence Tech. A request for transfer courses to be considered must be made in writing at the time of application and must be accompanied by transcripts, course descriptions, and syllabi for each proposed transfer course.

MSBME DEGREE REQUIREMENTS

The MSBME program offers students two degree options:

Option I: Research Thesis

Core Courses (5 courses)	15/16 credits
Electives (2-3 courses)	6-9 credits
Research Thesis	6–9 credits
Total Credit Hours	30/31 credits

Option II: Design Project

Core Courses (5 courses)	15/16 credits
Electives (3-4 courses)	9-12 credits
Design Project	3–6 credits
Total Credit Hours	30/31 credits

Core Courses (15/16 Credits)

Choose **ONE** of the following advanced mathematics courses (**3/4 credits**):

<i>Course Number</i>	<i>Subject</i>	<i>Cr. Hrs</i>
EME 5253	Engineering Analysis 1	3
EEE 5114	Engineering Analysis	4
EME 6283	Engineering Analysis 2	3

Choose **THREE** of the following biomedical engineering courses (**9 credits**):

BME 5203	Biocompatibility	3
BME 5213	Advanced Biomaterials	3
BME 5303	Engineering Applications in Orthopedics	3
BME 5313	Cell Mechanobiology	3
BME 5403	Biosignals and Systems	3
BME 5703	Quantitative Physiology	3
BME 5093	Special Topics in Biomedical Engineering	3

Select **ONE advanced laboratory course from your advisor (3 credits)**:

BME 6503	Advanced Experimental Methods	3
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Elective Courses (6-12 Credits)

Choose from biomedical engineering courses (level 5000 or above) or choose courses from another department (level 5000 or above) with MSBME Graduate Admissions Committee approval. Students may also choose level 4000 courses under special circumstances with

MSBME Graduate Admissions Committee approval, and the total of level 4000 course credits cannot exceed six credits.

Additional Requirements

- Selection of Project Advisor or Thesis Committee
- Attend a minimum of four Professional Educational Experiences related to the topics of Ethics, Statistics, Regulatory Issues, and Industry/Academic Meetings
- BME 6803 Master's Design Project (3–6 credits) –**or**– BME 6903 Master's Research Thesis (6–9 credits)
- Oral Defense of Project –**or**– Thesis
- Written Final Report of Project –**or**– Thesis