

ME-EM - BME Accelerated MS Guidelines and Requirements

The Departments of Mechanical Engineering – Engineering Mechanics (ME-EM) and Biomedical Engineering (BME) offer a joint accelerated MS program, allowing undergraduate students from BME to pursue the accelerated ME-EM MS.

The Department of Mechanical Engineering – Engineering Mechanics offers the Accelerated MS degree with the thesis, report, and coursework only options. These are the curriculum guidelines for the Accelerated MS degrees in Mechanical Engineering (MSME) and the MS in Engineering Mechanics (MSEM) within the ME-EM Department. These curriculum guidelines apply to the BME whether awarded via the Senior Design path or the Enterprise path. In addition to the guidelines below, students must fulfill the general MS requirements set by the Graduate School of Michigan Technological University. Additional information is available at www.mtu.edu/gradschool/administration/academics/forms-deadlines/masters. Students who join an accelerated MS program are considered to be graduate students upon completion of the BME. All graduate students must adhere to the continuous enrollment policy (see www.mtu.edu/gradschool/administration/academics/policies-procedures/registration along with the other Graduate School and University policies.

The Accelerated MS allows outstanding undergraduate students to pursue an accelerated MS degree by applying up to six non-research course credits earned as a senior-level student toward the Thesis, Report, or Coursework MS degree. These credits are subject to the specific requirements of each individual degree, particularly as it relates to the maximum number of 4000-level credits allowed. Combined curriculum flow sheets are also attached for reference.

Admission Requirements (BME Undergraduates to ME-EM Accelerated MS)

1. BME undergraduate students from Michigan Tech with a cumulative graduating GPA of 3.25 or higher are eligible to enter the ME-EM Accelerated MS program. Students must be accepted into the ME-EM Accelerated MS program prior to the awarding of the BME.
2. Students already enrolled in a graduate program may not retroactively enroll in the Accelerated MS program.
3. General GRE exam results are not required.
4. The standard Graduate School and ME-EM admissions process applies.
5. Students must apply for admission to the Graduate School and ME-EM in the interval from the second semester of junior-level status up until they complete the BME.

Program Requirements

1. The MS degree requires 30 credits of approved course work and research depending on the option pursued.
2. Students whose cumulative graduate GPA drops below 3.00 will not be permitted to continue in the ME-EM Accelerated MS program. They may instead revert to the traditional MS. These traditional programs do not allow for the double-counting of credits toward both the BS and the MS.
3. A cumulative GPA of 3.0 or higher is required for graduation.
4. Each student must have an academic/research advisor who is a member of the ME-EM graduate faculty. The Director of Graduate Studies serves as the advisor to coursework only MS students.
5. The MS must be completed within 5 years from admission to the Michigan Tech Graduate School and the Accelerated MS program.
6. Under Senior Rule, a student may take up to 1/3 of the non-research credits toward the MS degree while an undergraduate. Senior rule credits are independent of double-counted credits but must conform to the requirements of each degree.
7. All courses applied to the Accelerated MS must have a grade of B or higher.

Typical Program of Study

The ME-EM Accelerated MS allows thesis, report, or coursework options. The double-counted credits applied toward the MS must conform to the ME-EM MS requirements.

MS Mechanical Engineering

Thesis Option Requirements (no courses below 4000-level, grade of B or higher)

| | |
|------------------------------------|-------------------------------------|
| Total credits | 30 |
| Minimum coursework credits | 20 |
| Research credits | 6-10 (none as undergraduate) |
| Minimum 5000 or 6000 level credits | 12 |
| Math credits | 3 |
| Seminar credits (MEEM 6000) | 2 (or 1 seminar and 1 co-op credit) |

Report Option Requirements (no courses below 4000-level, grade of B or higher)

| | |
|------------------------------------|-------------------------------------|
| Total credits | 30 |
| Minimum coursework credits | 24 |
| Research credits | 2-6 (none as undergraduate) |
| Minimum 5000 or 6000 level credits | 12 |
| Maximum of 4000 level credits | 12 |
| Math credits | 3 |
| Seminar credits (MEEM 6000) | 2 (or 1 seminar and 1 co-op credit) |

Coursework Option Requirements (no courses below 4000-level, grade of B or higher)

| | |
|------------------------------------|-------------------------------------|
| Total credits | 30 |
| Minimum coursework credits | 30 |
| Research credits | None allowed |
| Minimum 5000 or 6000 level credits | 18 |
| Math credits | 3 |
| Seminar credits (MEEM 6000) | 2 (or 1 seminar and 1 co-op credit) |
| Minimum ME-EM credits | 15 |

MS Engineering Mechanics

Thesis Option Requirements (no courses below 4000-level, grade of B or higher)

| | |
|------------------------------------|--------------------------------------|
| Total credits | 30 |
| Minimum coursework credits | 20 |
| Research credits | 6-10 (none as undergraduate) |
| Minimum 5000 or 6000 level credits | 12 |
| Math credits | 6 |
| Engineering Mechanics credits | 9 (included in total course credits) |
| Seminar credits (MEEM 6000) | 2 (or 1 seminar and 1 co-op credit) |

Report Option Requirements (no courses below 4000-level, grade of B or higher)

| | |
|------------------------------------|--------------------------------------|
| Total credits | 30 |
| Minimum coursework credits | 24 |
| Research credits | 2-6 (none as undergraduate) |
| Minimum 5000 or 6000 level credits | 12 |
| Maximum of 4000 level credits | 12 |
| Math credits | 6 |
| Engineering Mechanics credits | 9 (included in total course credits) |
| Seminar credits (MEEM 6000) | 2 (or 1 seminar and 1 co-op credit) |

Coursework Option Requirements (no courses below 4000-level, grade of B or higher)

| | |
|------------------------------------|--------------------------------------|
| Total credits | 30 |
| Minimum coursework credits | 30 |
| Research credits | None allowed |
| Minimum 5000 or 6000 level credits | 18 |
| Math credits | 6 |
| Engineering Mechanics credits | 9 (included in total course credits) |
| Seminar credits (MEEM 6000) | 2 (or 1 seminar and 1 co-op credit) |
| Minimum ME-EM credits | 15 |

Coursework Requirements

An ME-EM graduate faculty advisor will work with the student to formulate the student's coursework plan upon admission. BME-MEEM accelerated MS students need to demonstrate equivalent technical background to ME-EM accelerated MS students in the areas of mechanics of materials, design and analysis, and system dynamics. BME undergraduate students who have not taken the equivalent coursework in the three core areas may fulfill this requirement by taking one or more of the following preparatory courses, or other courses designated by the faculty advisor that are relevant to the student's interest or research area.

- MEEM 2150 Mechanics of Materials
- MEEM 3400 Mechanical System Design and Analysis
- MEEM 3700 Dynamic Systems