Michigan Tech

Office Memo

Office of the Provost and
Senior Vice President for Academic Affairs

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TO: Richard Koubek, President

FROM: Andrew Storer, Provost & Senior Vice President for Academic Affairs

DATE: April 17, 2026

SUBJECT: Senate Proposal 25-26

Attached is Senate proposal 25-26, “Interdisciplinary Minor in Robotics,” and a memo stating the Senate passed this proposal at their April 16, 2026 meeting. I have reviewed this memo and recommend approving the proposal.

If you concur with my recommendation, the provost’s office will notify the appropriate offices as no further approvals are needed.

I concur X do not concur _____ with the provost’s recommendation as stated in this memo.

Richard J. Koubek Digitally signed by Richard J. Koubek
Date: 2026.04.20 14:54:29 -04'00'

Richard Koubek, President

Date

University Senate

DATE:	April 16, 2026
TO:	Richard Koubek, President
FROM:	Robert Hutchinson, University Senate President
SUBJECT:	Proposal 25-26
COPIES:	Andrew Storer, Provost & Senior VP for Academic Affairs

At its meeting on April 16, 2026, the University Senate approved Proposal 25-26, “"Interdisciplinary Minor in Robotics."” Feel free to contact me if you have any questions.

University Senate of Michigan Technological University

Proposal 25-26

Interdisciplinary Minor in Robotics

Basic Program Information

Participating Departments

Mechanical and Aerospace Engineering
Electrical and Computer Engineering
Manufacturing and Mechanical Engineering Technology
Computer Science
Applied Computing
Psychology and Human Factors
Humanities

Primary Contacts: Daniel R. Fuhrmann (fuhrmann@mtu.edu), Chair, Department of Applied Computing, and Audra Morse (anmorse@mtu.edu), Associate Dean for Academic Affairs, College of Engineering.

Program/Degree type: Undergraduate Minor

Program Title: Minor in Robotics

Planned Implementation Date: Fall 2026

Program location/modality: on-campus/face-to-face

Target student population: current students: all majors in the College of Engineering and the College of Computing, with emphasis on Mechanical Engineering, Mechanical Engineering Technology, Electrical Engineering, Electrical Engineering Technology, Computer Engineering, Computer Science, and Information Technology.

Restrictions: Students in the BS in Robotics Engineering or the BS in Mechatronics programs are not eligible to earn this minor.

General Description and Characteristics of Program

The participating units above propose a new interdisciplinary minor called “Minor in Robotics.” The minor is designed for students in STEM fields, primarily mechanical engineering or engineering technology, electrical engineering or engineering technology, or computer science or information technology, to gain additional training in robotics and mechatronics so that they can apply their disciplinary training to interdisciplinary teams or projects in the field of robotics. Students who

complete the minor will be able to utilize their technical knowledge of mechanical systems, electrical systems, or computing, to the design of systems that integrate all three of these components. Furthermore, students will be able to incorporate understanding of human factors and larger issues of societal and cultural impact into their work.

This program will be administered by the Department of Applied Computing, and the AC academic advisor will serve as the academic advisor for the minor, at least initially. The Department of Applied Computing will seek input from other units as needed, and depending on the demand for the minor, the advising load may be distributed throughout the students' home departments.

Rationale

Michigan Tech has a long history of teaching and research in areas related to robotics and mechatronics. As a field, robotics is well-aligned with the strategic vision for the university as well as our culture and ethos of industry-ready projects that combine theory and practice and are appealing to students. However, this activity is spread across multiple units and hence may not be as visible to current and prospective students as it otherwise might be. We have recently made strides to coordinate some of this activity, with an awareness campaign for prospective students through University Marketing and Communications as well as a new faculty interest group that may eventually form a research center. This proposed minor is also meant to draw attention to our shared expertise in robotics. It provides a career pathway for students who wish to pursue robotics through one of our traditional engineering, engineering technology, or computing baccalaureate degrees.

From the technical point of view, the field of robotics can be viewed as the intersection in a Venn diagram that includes mechanical systems, electrical systems, and computing. The mechanical systems provide for physical structure and motion, the electrical systems provide for sensing, data acquisition, communication, and low-level control, while the computing aspects provide for high-level control through either traditional rule-based programming or more contemporary machine learning and artificial intelligence applications. At Michigan Tech we have two undergraduate degree programs at the intersection of these three fields: the BS in Robotics Engineering (an engineering degree) and the BS in Mechatronics (an engineering technology degree).

There are distinctions between robotics and mechatronics, a subject of considerable debate among many in the two fields, including right here at Michigan Tech. Many will argue that mechatronics is a larger "umbrella" area that includes robotics but also a lot of other things that one would not necessarily think of as robots, such as laser printers, refrigerators, and even

entire factories or industrial facilities. Nevertheless both areas, however people define them, are built on a foundation of the integration of mechanical, electrical, and computing components. We have chosen the term “robotics” for this minor because we believe it is a term with the most appeal to the target audience, and because the university is using this term to describe its campus-wide efforts, see e.g. https://www.mtu.edu/academics/robotics .

While some students may choose to be generalists, developing expertise in all three of the areas referenced above and how they might be integrated, others may choose to become experts in one particular area but with an interest in the field of robotics. This latter group is the target audience for the proposed interdisciplinary minor. Mechanical engineers, electrical engineers, and computer scientists all have a role to play in developing robotics technology. Ideally a design team would comprise subject matter experts in all the various areas, working in a collaborative fashion and led by those with a broader view of the entire field.

Beyond understanding the purely technical aspects, students working in the field of robotics should be prepared to incorporate human factors in their designs, and be able to understand the implications of their work from a societal and cultural perspective. This is also a required component of the minor.

While the 27-credit total appears large by Michigan Tech standards for a minor, most of the students in the target audience will already have satisfied many of the courses through their respective majors. Some courses may also satisfy Essential Education requirements.

Related Programs at Michigan Tech and Other Institutions

Academic programs in robotics, mechatronics, and related areas have become prevalent in many institutions of higher learning in the United States, especially those with a STEM focus like Michigan Tech.

At Michigan Tech we have two such interdisciplinary degree programs. One is the BS in Robotics Engineering, an engineering degree offered by the Department of Electrical and Computer Engineering. The second is the BS in Mechatronics, an engineering technology degree offered jointly by the Department of Applied Computing and the Department of Manufacturing and Mechanical Engineering Technology.

The University of Michigan has a separate Department of Robotics within the College of Engineering, with its own new building and state-of-the-art facilities, and offers undergraduate and graduate degrees, including the PhD, in robotics.

The University of Michigan-Dearborn provides a BS and MS in Robotics Engineering, through its Department of Electrical and Computer Engineering, much like Michigan Tech.

Oakland University (Rochester, MI) offers a BS in Mechatronics and Robotics Engineering, along with a MS in Mechatronic Systems Engineering. The university is well-known for its programs for nontraditional students, offering degrees that are available for full-time working professionals.

The University of Detroit-Mercy offers a 4-year BS program and a 5-year BS/MS program in Robotics and Mechatronic Systems Engineering.

Lawrence Technological University (Southfield, MI) offers a BS in Robotics Engineering. Lawrence Tech is often considered a peer institution of Michigan Tech, in that we compete for the same pool of students in SE Michigan.

Lake Superior State University, while a relatively small institution, is well-known for its robotics curricula. The Center for Advanced Robotics Engineering (CARE) supports undergraduate programs that offer a degree, concentration, or minor in robotics. The degrees offered are in Robotics Engineering and Mechatronics. The concentration in robotics is offered in Mechanical, Electrical, and Computer Engineering degrees, while the minor in robotics is offered in the Electrical Engineering Technology and Manufacturing Engineering Technology degrees.

There appear to be fewer degree programs with the names like BS in Robotics Engineering in Wisconsin, although robotics and mechatronics do figure prominently in many engineering programs through collaborations among multiple academic units and various pathways through traditional engineering programs.

Robotics, mechatronics, and related areas play a key role in many of the two-year community and technical colleges in Michigan and Wisconsin. There the emphasis is on hands-on skills that are directly applicable to positions in automation and manufacturing in the region. As an aside, we note that the term “mechatronics” is much more common in high schools and community colleges than it is at four-year institutions (Michigan Tech is among the first to use the term.) Furthermore, the community and technical colleges in our region have specialized facilities for training in robotics and mechatronics that rival and even surpass the teaching facilities in many four-year institutions, including Michigan Tech, where the emphasis is often more on theory and abstractions.

While the state of Michigan has several high-quality academic programs in robotics and mechatronics leading to undergraduate and graduate degrees, like ours at Michigan Tech, there does not appear to be many undergraduate minors in the field, targeting students in traditional STEM majors. Lake Superior State is one notable exception, although their minor in robotics is limited to students in their engineering technology programs. This would appear to be an

opportunity to attract students whose primary interest is in mechanical engineering, electrical engineering, or computer science, but who have interest in putting those skills to use in careers in robotics and automation.

Projected Enrollment

The purpose of the proposed minor two-fold: 1) to provide a pathway for existing students in STEM fields to apply their disciplinary knowledge to robotics applications, thereby broadening job and career opportunities, and 2) to attract new students to Michigan Tech who are interested in robotics and might not have otherwise been aware of all the related courses and activities in the engineering, engineering technology, and computing departments.

The combined Fall 2025 enrollment in the seven target undergraduate majors (Mechanical Engineering, Mechanical Engineering Technology, Electrical Engineering, Electrical Engineering Technology, Computer Engineering, Computer Science, and Information Technology) was 2693, representing 39% of the Michigan Tech undergraduate student population. If we assume that 10% of these students might be interested in robotics and this minor, then the projected enrollment from current Michigan Tech students would be about 270.

A comparable number of new students may choose to come to Michigan Tech because of our promotion of robotics and this minor, if our efforts are successful. To avoid being overly optimistic, we are projecting that the number of new students attending because of an interest in robotics and this minor would be about half the number of current students who choose the minor, or about 130.

The projected enrollment from current students and new students who choose to pursue this minor is thus 400, within four years.

While these projections are admittedly speculative, the impact of meeting or not meeting these targets on existing Michigan Tech programs is minimal. The minor is spread over a large number of departments and courses. Categories 1, 2, and 3 below (see Curriculum Design) primarily comprise required courses in the target majors; the one exception to this might be an increased demand in computing courses from mechanical engineering majors, if a large number of students seeking the minor come from MAE. Otherwise the biggest impact of meeting the projected enrollment would come in Category 4 below, which consists primarily of technical electives in the various majors, and in the advising load. These are issues that can be addressed once we see the true response to the minor.

Specialized Accreditation Requirements

None required.

Professional Licensure Requirements

None required.

Curriculum Details

Learning Goals

Students who complete the Minor in Robotics will be able to:

- Explain and apply mechanical concepts of statics, dynamics, materials, and machines, in the design of robotic systems
- Explain and apply electrical concepts of electrical circuits, sensing, instrumentation, communication, and control, in the design of robotic systems
- Explain and apply computing concepts of software development, operating systems, semantic control, machine learning, and artificial intelligence in the design of robotic systems
- Integrate or synthesize concepts from multiple fields in the design of robotic systems
- Incorporate human factors in their design and/or understand their work in a societal or cultural context.

Assessment Plan

Following university processes, minors in engineering- and computer-related fields do not require assessment.

Curriculum Design

27 credits total (minimum)

The program requires 6 credits in mechanical engineering or mechanical engineering technology, 6 credits in electrical engineering or electrical engineering technology, 6 credits in computer science or information technology, 6 credits in technical integration of these three areas, and 3 credits in human systems integration, for a total of 27 credits minimum. While this total may appear large by Michigan Tech standards for a minor, most of the students in the target audience will already have satisfied a good number of the courses through their respective disciplinary majors. Some courses may also satisfy Essential Education requirements. Please note the semester the courses are taught and the number of credits are listed below and course pre-reqs are available in Appendix C.

1. Fundamentals of Mechanical Engineering or Mechanical Engineering Technology. 6 credits minimum from the following courses:

May select one of either:

ME 2110	Statics, 3 credits (Fall, Spring, Summer)
MET 2110	Applied Statics, 3 credits (Fall, Spring)

May select one of either:

ME 2700	Dynamics, 3 credits (Fall, Spring, Summer)
MET 2130	Applied Dynamics, 4 credits (Fall, Spring)

May select one of either:

ME 2150	Mechanics of Materials, 3 credits (Fall, Spring, Summer)
MET 2150	Applied Strength of Materials, 4 credits (Fall, Spring)

May select one of the following[1]:

EE 3261	Control System, 3 credits (Fall, Spring)
EET 4311	Control Systems, 3 credits (Fall, Summer)
ME 4775	Analysis and Design of Feedback Control Systems, 4 credits (Fall)

2. Fundamentals of Electrical Engineering or Electrical Engineering Technology. 6 credits minimum from the following courses:

May select one of the following:

EE 2112	Electric Circuits and Lab, 4 credits (Fall, Spring, Summer)
EE 3010	Circuits and Instrumentation for Cyber Physical Systems, 3 credits (Fall, Spring, Summer)
EET 1411	Basic Electronics, 3 credits (Spring)
EET 1121/1122	Circuits 1/Circuits I Lab, 3/1 credits (Fall, Spring, Summer))

May select one of the following:

EE 2174	Digital Logic and Lab, 4 credits, (Fall, Spring, Summer)
EET 2411	Digital Electronics, 3 credits (Fall)

May select one or more of the following:

EE 3131	Electronics, 4 credits (Fall, Spring, Summer)
EET 2121/2122	Circuits II/Circuits II Lab, 3/1 credits (Fall)
EET 3131	Sensors and Instrumentation, 3 credits (Spring)

May select one of the following[1]:

EE 3261	Control Systems, 3 credits (Fall, Spring)
EET 4311	Control Systems, 3 credits (Fall, Summer)
ME 4775	Analysis and Design of Feedback Control Systems, 4 credits (Fall)

[1]One course from the control systems group may be applied to either Category 1 or Category 2.

3. Fundamentals of Computer Science or Information Technology. 6 credits minimum from the following courses:

CS 1121	Introduction to Programming I, 3 credits (Fall, Spring, Summer)
CS 1122	Introduction to Programming II, 3 credits (Fall, Spring, Summer)
CS 1131	Accelerated Introduction to Programming, 5 credits (Fall)
CS 1142	Programming at the Hardware Software Interface, 3 credits (Fall, Spring, Summer)
SAT 1610	Computer and Operating Systems Architecture, 3 credits (Spring)
SAT 2711	Linux Fundamentals, 3 credits (Fall, Summer)
SAT 3310	Scripting for Administration, Automation, and Security, 3 credits (Spring, Summer)
DATA 1200	Data Science with Python, 3 credits (Spring)

4. Technical Integration Courses in Robotics[2] . 6 credits minimum from the following courses:

ME 4705	Robotics and Mechatronics, 4 credits (Fall, Spring)
ME/EET 4707	Autonomous Systems, 3 credits (Fall, Spring)
MET 4355	Industrial Digital Twin Systems, 3 credits (Spring)
MET 4800	Dynamics and Kinematics of Robotics Platforms, 3 credits (Spring)
EE 2180	Introduction to Robotics and Lab, 3 credits (On Demand)
EE 3280	Robot Operating Systems, 3 credits (Fall)
EET 3144	Introduction to Industrial Robotics, 3 credits (Fall, Summer)
EET 4144	Real-Time Robotic Systems, 4 credits (Fall, Summer)
CS 3461	Introduction to Robotics
CS 4761	Human-Robot Interaction[3]
Various	Senior Design or Enterprise (3 credits maximum. Instructor must certify significant robotics or mechatronics content.)

[2]To address concerns about possible overloading of technical integration courses, the following is recommended. The ECE Department may give priority to students in the BS in Robotics Engineering for EE 2180 and EE 3280. The AC Department may give priority to students in the BS in Mechatronics program for EET 3144 and EET 4144. Note

that both the BS in Robotics Engineering and the BS in Mechatronics are excluded from this minor.

[3]Dual-listing with existing CS 5761 to be created right away.

5. Human Systems Integration[4]. 3 credits from the following courses:

HF 2000	Introduction to Engineering Psychology, 3 credits (Fall, Spring)
HF 2300	Introduction to Human-Centered Design, 3 credits (Spring)
HF 3850	Human Factors, 3 credits (Fall)
HU 3701	Philosophy of Technology, 3 credits (Fall, Spring)
HU 3704	Ethics of Artificial Intelligence, 3 credits (Fall, Spring)
HU 3710	Engineering Ethics, 3 credits (Spring)
HU 3845	Human-Machine Communication, 3 credits (Fall)
HU 3850	Automated Culture: Critical Approaches to AI, 3 credits (On demand)
SS 3801	Science, Technology, and Society, 3 credits (Fall)

[4]These courses might be used to satisfy Essential Education requirements under the SHAPE criteria. Students should work with their academic advisors to develop a complete plan.

Students must complete a minimum of 6 credits of 3000- or 4000-level courses, as required of all Michigan Tech minors.

New Course Descriptions

No new courses are being proposed as part of this minor.

Model Schedule

See Appendix A which shows sample pathways for the seven target majors, and Appendix B which shows the model schedule for one of the target majors (EET). The model schedules for other target majors are similar.

Faculty Qualifications

Courses will be taught by faculty determined to be qualified by their respective home units and other university review, where appropriate. Faculty qualifications will be available upon request.

Resources Needed

No additional costs are anticipated to start this minor. Depending on enrollment, additional teaching and advising capacity may be needed. However, a publicity campaign would require the support of UMC.

Library and other learning resources needed

No new library resources are needed to support this minor.

Suitability of existing space, facilities, and equipment

Current spaces and facilities are sufficient.

Program Costs

No additional costs are expected.

Approved by:

Department of Psychology and Human Factors	02/09/2026
Department of Humanities	02/11/2026
Department of Manufacturing and Mechanical Engineering Technology	02/17/2026
Department of Computer Science	02/19/2026
Department of Mechanical and Aerospace Engineering	02/23/2026
Department of Electrical and Computer Engineering	02/24/2026
Department of Applied Computing	02/27/2026
College of Engineering	02/26/2026
College of Sciences and Arts	02/26/2026
College of Computing	02/27/2026

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Interdisciplinary Minor in Robotics
Appendix A: Minor Pathways

This appendix shows how students in the primary target majors can complete the Minor in Robotics through a careful choice of core requirements, technical electives, and Essential Education courses. The primary target majors are:

Mechanical Engineering
Mechanical Engineering Technology
Electrical Engineering
Electrical Engineering Technology
Computer Engineering
Computer Science
Information Technology

While the minor may be accessible to other majors at Michigan Tech, additional work may be required over what is shown here.

Comment. In all cases shown here, if the student in a given major is required to take additional credits beyond the minimum required for the degree, it is because there are courses in the minor which do not appear on the degree audit for the major, either as core requirements or as technical electives. For example, there is no room in the degree audit of the BS in Mechanical Engineering for courses in Computer Science, and vice versa. However, it is common practice at Michigan Tech for many of the degree programs to be more flexible in the choice of technical electives than the degree audit might indicate, either by allowing substitutions if the student can make a good case, or by regularly updating the list of allowable technical electives through the binder process. Hence, it is possible that students may be able to reduce the number of additional credits required, provided that the major degree program allows the courses under consideration to be added to the list of technical electives.

Pathway to Minor in Robotics
BS in Mechanical Engineering

Core Requirements (12 cr)

EE 3010
ME 2110
ME 2700
Senior Design/Enterprise

Technical Electives (6 cr)

3 credits from Category 2, Electrical Engineering/Eng Tech
3 credits from Category 4, Technical Integration Robotics/Mechatronics

Essential Education (3 cr)

3 credits from Category 5, Human Systems Integration

Additional Credits Required (6 cr)

6 credits from Category 3, Computer Science/Information Technology

Pathway to Minor in Robotics
BS in Mechanical Engineering Technology

Core Requirements (15 cr)

EET 1121
EET 3131
ME 2110
ME 2130
Senior Design/Enterprise

Technical Electives (3 cr)

MET 4800

Essential Education (3 cr)

3 credits from Category 5, Human Systems Integration

Additional Credits Required (6 cr)

6 credits from Category 3, Computer Science/Information Technology

Pathway to Minor in Robotics
BS in Electrical Engineering

Core Requirements (12 cr)

CS 1121
EE 2112
EE 2174
Senior Design/Enterprise

Technical Electives (12 cr)

6 credits from Category 1, ME/MET
3 credits from Category 3, CS/IT
3 credits from Category 4, Technical Integration Robotics/Mechatronics

Essential Education (3 cr)

3 credits from Category 5, Human Systems Integration

Additional Credits Required

none

Pathway to Minor in Robotics
BS in Electrical Engineering Technology

Core Requirements (15 cr)

CS 1111
EET 1121
EET 2121
EET 4144
Senior Design/Enterprise

Technical Electives (6 cr)

CS 1121
MET 2130

Essential Education (3 cr)

3 credits from Category 5, Human Systems Integration

Additional Credits Required (3 cr)

3 credits from Category 1, Mechanical Engineering/Eng Tech

Pathway to Minor in Robotics
BS in Computer Engineering

Core Requirements (15 cr)

CS 1121
CS 1142
EE 2112
EE 2174
Senior Design/Enterprise

Technical Electives (3 cr)

3 credits from Category 4, Technical Integration Robotics/Mechatronics

Essential Education (3 cr)

3 credits from Category 5, Human Systems Integration

Additional Credits Required (6 cr)

6 credits from Category 1, Mechanical Engineering/Eng Tech

Pathway to Minor in Robotics
BS in Computer Science

Core Requirements (6 cr)

CS 1121
CS 1122

Technical Electives (12 cr)

6 credits from Category 2, Electrical Engineering/Eng Tech
6 credits from Category 4, Technical Integration Robotics/Mechatronics

Essential Education (3 cr)

3 credits from Category 5, Human Systems Integration

Additional Credits Required (6 cr)

6 credits from Category 1, Mechanical Engineering/Eng Tech

Pathway to Minor in Robotics
BS in Information Technology

Core Requirements (15 cr)

EET 1411
EET 2411
SAT 1610
SAT 2711
Senior Design/Enterprise

Technical Electives (3 cr)

EET 4144

Essential Education (3 cr)

3 credits from Category 5, Human Systems Integration

Additional Credits Required (6 cr)

6 credits from Category 1, Mechanical Engineering/Eng Tech

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Interdisciplinary Minor in Robotics
Appendix B: Module Schedule for EET

Semester	Course	Category
Year 1, Fall	CS 1111	3
Year 1, Spring	EET 1121/1122	2
Year 1, Spring	CS 1121	3
Year 2, Fall	EET 2121/2122	2
Year 2, Fall	MET 2110	1
Year 2, Spring	MET 2130	1
Year 3, Fall	EET 3144	4
Year 3, Spring	SHAPE elective	5
Year 4, Fall	EET 4144	4

Model schedules for other target majors are similar.

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Interdisciplinary Minor in Robotics
Appendix C: Course Prerequisites

This table lists all courses that could be used to satisfy program requirements and their prerequisites. In almost all cases, the prerequisites will be satisfied by required courses in the major (for the target majors) or by other courses in this minor.

For courses with both MEEM and ME prefixes, only the ME prefix is stated here.

For courses with both HF and PSY prefixes, only the HF prefix is stated here.

Prerequisites for Senior Design or Enterprise are not shown here as they vary widely by major program; however, all target majors require a capstone design course so prerequisites will be satisfied.

Some prerequisites require a grade of C or better; for brevity and to avoid clutter this information is not indicated here.

Program Course	**Prerequisites**
ME 2110	MA 2160
MET 2110	(PH 1110 or PH 1140 or PH 2100) and (MA 1160 or MA 1161 or MA 1121)
ME 2700	PH 2100 and (ENG 2120 or ME 2110)
MET 2130	(ENG 2120 or MET 2110 or ME 2110) and MA 2160
ME 2150	ME 2110
MET 2150	MET 2110 or ME 2110

EE 3261	EE 3160
EET 4311	MET 3130 or (MET 2110 and MET 2130) and EET 2150
ME 4775	ME 3750 or EE 3160
EE 2112	MA 3520 or MA 3521 or MA 3530 or MA 3560
EE 3010	MA 1121 or MA 1160 or MA 1161
EET 1411	MA 1031 or MA 1032 or MA 1120 or MA 1160 or MA 1161 or MA 1135 or MA 1121
EET 1121/1122	MA 1031 or MA 1032 or MA 1120 or MA 1121 or MA 1160 or MAT 1161 or MA 1135
EE 2174	CS 1121 or CS 1131 or CS 1111
EET 2411	(EET 1411 or EET 1121) and (MA 1031 or MA 1032 or MA 1120 or MA 1160 or MA 1161 or MA 1135 or MA 1121)
EE 3131	EE 2112 or EE 3010
EET 2121/2122	EET 1121/1122 and (MA 1160 or MA 1161)
EET 3131	EET 1411 or EET 2121 or PH 2230 or EE 2111 or EE 3010
CS 1121	MA 1031 or MA 1032 or MA 1120
CS 1122	CS 1121
CS 1131	MA 1031 or MA 1032 or MA 1120 or MA 1160 or MA 1161 or MA 1121
CS 1142	CS 1122 or CS 1131
SAT 1610	none
SAT 2711	CS 1111 or CS 1121 or CS 1131 or CS 1142 or MIS 2100
SAT 3310	CS 1111 or CS 1121 or CS 1131 or CS 1142 or MIS 2100

DATA 1200	MA 1030 or MA 1031 or MA 1032 or MA 1160 or MA 1161
ME 4705	ME 3750 or EE 3160
ME/EET 4707	ME 3750 or ME 4775 or EE 3160
MET 4355	none, class restriction junior, senior
MET 4800	MET 2130 or MET 3130
EE 2180	(EE 3010 or EE 2112) and (MA 2320 or MA 2321 or MA 2330)
EE 3280	EE 2180 and SAT 2711
EET 3144	none
EET 4144	EET 1411 or EET 2121 or PH 2230 or EE 2111 or EE 3010
CS 3461	CS 3421 or EE 3172
CS 4761	none; class restriction no freshman, sophomore
HF 2000	none
HF 2300	none
HF 3850	HF 2000 and UN 1015
HU 3701	UN 1015
HU 3704	none
HU 3710	UN 1015
HU 3845	UN 1015
HU 3850	UN 1015
SS 3801	none