NOT FOR USE FOR CURRICULAR COURSE CHANGES
REQUEST FOR PROGRAM IMPROVEMENTS

NOTE: Changes to programs may require course changes, which must be processed electronically. Any questions should be directed to Associate Provost David Reinhold at 7-4564 or david.reinhold@wmich.edu

DEPARTMENT: MAE
PROPOSED EFFECTIVE FALL YEAR: 2020

PROPOSED IMPROVEMENTS: Academic Program Proposed Improvements
☐ New degree*
☐ New major*
☐ New curriculum*
☐ New concentration*
☐ New certificate*
☐ New minor*
☐ Deletion*
☐ Revised major
☐ Revised minor
☐ Admission requirements
☐ Graduation requirements
☐ Change in Title
☐ Transfer

☐ Other (explain**)
** Other: Only revised general education requirements for WMU Essential Studies

Title of degree, curriculum, major, minor, concentration, or certificate: Mechanical Engineering Major (MEGJ)

Chair, Department Curriculum Committee:

CHECKLIST FOR DEPARTMENT CHAIRS/DIRECTORS
☐ For new programs and other changes that have resource implications, the dean has been consulted.
☐ When appropriate, letters of support from department faculty are attached.
☐ When appropriate, letters of support from other departments in the same college are attached.
☐ The proposal has been reviewed by HIGE for possible implications for international student enrollment.
☐ The proposal is consistent with the departmental assessment plan, and identifies measurable learning outcomes for assessment.
☐ Detailed resource plan is attached where appropriate.
☐ All questions attached have been completed and supporting documents are attached.
☐ The proposal is written and complete as outlined in the Faculty Senate guidelines and the curriculum change guides.

Chair/Director:

CHECKLIST FOR COLLEGE CURRICULUM COMMITTEE
☐ The academic quality of the proposal and the faculty involved has been reviewed.
☐ Detailed resource plan is attached where appropriate.
☐ Consistency between the proposal and the relevant catalog language has been confirmed.
☐ The proposal has been reviewed for effect on students transferring from Michigan community colleges. Detailed information on transfer articulation must be included with undergraduate proposals.
☐ Consistency between the proposal and the College and department assessment plans has been confirmed.
☐ Consistency between the proposal and the College and department strategic plans has been confirmed.
☐ All questions attached have been completed and supporting documents are attached.
☐ The proposal is written and complete as outlined in the Faculty Senate guidelines and the curriculum change guides.

Chair, College Curriculum Committee:

Revised Sept. 2018. All previous forms are obsolete and should not be used.
NOT FOR USE FOR CURRICULAR COURSE CHANGES
REQUEST FOR PROGRAM IMPROVEMENTS

CHECKLIST FOR COLLEGE DEANS

☐ For new programs and proposed program deletions, the provost has been consulted.
☐ For new programs, letter of support from University Libraries Dean indicating library resource requirements have been met.
☐ When appropriate, letters of support from other college faculty and/or chairs are attached.
☐ When appropriate, letters of support from other college deans, whose programs/courses may be affected by the change, are attached.
☐ The proposal has been reviewed for implications for accreditation, certification, or licensure.
☐ Detailed resource plan is attached where appropriate.
☐ All questions attached have been completed and supporting documents are attached.
☐ The proposal is written and complete as outlined in the Faculty Senate guidelines and the curriculum change guides.

Dean: ____________________________ Date: ________________

FOR PROPOSALS REQUIRING REVIEW BY:
GSC/USC; EPGC, GRADUATE COLLEGE, and/or FACULTY SENATE EXECUTIVE BOARD

☐ Return to Dean

☐ Forward to: Curriculum Manager: ____________________________ Date: ________________

☐ Approve ☐ Disapprove

*needs review by

Chair, GSC/USC: ____________________________ Date: ________________

☐ Approve ☐ Disapprove

Chair, EPGC: ____________________________ Date: ________________

☐ Approve ☐ Disapprove

Graduate College Dean: ____________________________ Date: ________________

☐ Approve ☐ Disapprove

Faculty Senate President: ____________________________ Date: ________________

☐ Approve ☐ Disapprove

*needs review by

Provost: ____________________________ Date: ________________

Revised Sept. 2018. All previous forms are obsolete and should not be used.
1. Explain briefly and clearly the proposed improvement:

   Updated program content to address WMU Essential Studies Program requirements.

2. Rationale. Give your reason(s) for the proposed improvement.

   Required to remove references to general education requirements and update with WMU Essential Studies Program requirements.

3. Effect on other colleges, departments, or programs. If consultation with others is required, attach evidence of consultation and support. If objections have been raised, document the resolution. Demonstrate that the program you propose is not a duplication of an existing one.

   No effect.

4. Effect on your department's programs. Show how the proposed change fits with other departmental offerings.

   None.

5. Alignment with college's and department's strategic plan, mission, and vision.

   Provides broad-based liberal arts education for mechanical engineering students and supports both ABET requirements to ensure we graduate well-rounded mechanical engineers ready to lead challenges facing our society.

6. Effects on enrolled students: Are program conflicts avoided? Will your proposal make it easier or harder for students to meet graduation requirements? Can students complete the program in a reasonable time? Show that you have considered scheduling needs and demands on students' time.

   No effect on enrolled students as they will continue under the catalog year with which they entered. A deliberate transition will occur university-wide to address any issues that arise for current students.

7. Student or external market demand. What is your anticipated student audience? What evidence of student or market demand or need exists? What is the estimated enrollment? What other factors make your proposal beneficial to students?

   Not applicable.

8. Effects on resources. Explain how your proposal would affect department and University resources, including faculty, equipment, space, technology, and library holdings. If proposing a new program, include a letter and/or email of support from the university libraries affirming that the library resource issues have been reviewed. Tell how you will staff additions to the program. If more advising will be needed, how will you provide for it? What will be the initial one-time costs and the ongoing base-funding costs for the proposed program? (Attach additional pages, as necessary.)

   None. All revisions to the mechanical engineering program in response to the new WMU Essential Studies Program were coordinated across the college and university through the WMU Essential Studies Program design.

9. List the learning outcomes for the revised or proposed major, minor, or concentration. The department will use these outcomes for future assessments of the program.

   No change to program outcomes.

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.

3. an ability to communicate effectively with a range of audiences.

4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.

5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

10. Describe how this change is a response to assessment outcomes that are part of a department or college assessment plan or informal assessment activities.

The changes were in response to a university-wide revised general education program.

11. (Undergraduate proposals only) Describe in detail how this change affects transfer articulation for Michigan community colleges. For new majors or minors, describe transfer guidelines to be developed with Michigan community colleges. For revisions to majors or minors, describe necessary revisions to Michigan community college guidelines. Department chairs should seek assistance from college advising directors or from the admissions office in completing this section.

This aspect is being addressed by the Director of the WMU Essential Studies Program, the Associate Provost for Assessment and Undergraduate Studies, and the advising staff.

12. Please offer both “Current Catalog Language” and “Proposed Catalog Language” if there is to be a change in the catalog description for a given program. For the “current” language, please copy and paste relevant language from the most current catalog and for the “proposed” language, please share the exact proposed new catalog language. As possible, bold or otherwise note the key changes in the new proposed catalog language.

CURRENT CATALOG COPY


The following Program Educational Objectives (PEO) are broad statements that describe the career and professional accomplishments that the program is preparing graduates to achieve within two to five years after graduation.

1. Career Growth: as demonstrated by metrics such as achieving proficiency in current position, increasing responsibility, diversity of job functions, recognition, progression and/or job advancement.

2. Professional Development: as demonstrated by metrics such as pursuing additional educational activities, professional certifications, leadership effectiveness, staying current with evolving technologies and/or demonstrating initiative.

3. Service: as demonstrated by metrics such as involvement in their communities, professional societies, and/or humanitarian endeavors.

4. Innovation: as demonstrated by metrics such as the development of new processes, devices, methods, patents, and/or dissemination of knowledge.

For up-to-date educational objectives and learning outcomes, see the department’s Web site at www.wmich.edu/mechanical-aerospace.academics/mechanical.

Admission

1. To be admitted to this Engineering curriculum, a student must complete all pre-engineering requirements with grades of "C" or better. These requirements may be found in the beginning of the College of Engineering and Applied Sciences section.

2. Students seeking admission to this curriculum must submit an application following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students may complete an application prior to their first semester of enrollment. Only students in good academic standing as defined by the University will be admitted to this curriculum.

Baccalaureate-Level Writing Requirement

Students who have chosen the Mechanical Engineering curriculum will satisfy the Baccalaureate-Level Writing Requirement by successfully completing ME 3650: Machine Design I or ME 4800: Mechanical and Aeronautical

Revised Sept. 2018. All previous forms are obsolete and should not be used.
Engineering Project.

Requirements

Candidates for the Bachelor of Science in Engineering (Mechanical) degree must satisfy the following requirements in addition to those required by Western Michigan University:

1. A grade point average of 2.0 or better must be earned in courses presented for graduation with AE, ECE, IEE, EDMM, and ME prefixes.
2. A student is required to earn a grade of "C" or better in all departmental prerequisite courses before enrollment is permitted in the next sequence course.
3. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
4. Complete the following program of 128-134 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.
5. The Mechanical Engineering curriculum requires students to complete a course in General Education Area I, Area II, Area III, Area IV, Area V, and Area VIII. At least two of the General Area courses must be at the 3000/4000-level, and no more than two courses from any one department may be used to satisfy the Area requirements.

First Semester (17-18 hours)

- General Education Credits: 3 hours
- CHEM 1100 - General Chemistry I Credits: 3 hours
  (Pre-engineering requirement)
- CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
  (Pre-engineering requirement)
- EDMM 1420 - Engineering Graphics Credits: 3 hours
- MATH 1220 - Calculus I Credits: 4 hours
  or
- MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours

Select Either:

- ENGL 1050 - Thought and Writing Credits: 4 hours
  or
- IEE 1020 - Technical Communication Credits: 3 hours
  (Pre-engineering requirement)

Second Semester (18 hours)

- General Education Credits: 3 hours Pre-Engineering requirement
- CS 1200 - Programming in C for Engineers Credits: 3 hours
  (Pre-engineering requirement)
- MATH 1230 - Calculus II Credits: 4 hours
  or
- MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours
  (Pre-engineering requirement)
- ME 2615 - Introduction to Mechanical Engineering Credits: 3 hours
- PHYS 2050 - University Physics I Credits: 4 hours
  (Pre-engineering requirement)
- PHYS 2060 - University Physics I Laboratory Credits: 1 hour

Revised Sept. 2016. All previous forms are obsolete and should not be used.
(Pre-engineering requirement)

Third Semester (15 hours)

The following courses are pre-engineering requirements.

- MATH 2720 - Multivariate Calculus and Matrix Algebra **Credits:** 4 hours
- ME 2320 - Thermodynamics I **Credits:** 3 hours
- ME 2560 - Statics **Credits:** 3 hours
- PHYS 2070 - University Physics II **Credits:** 4 hours
- PHYS 2080 - University Physics II Laboratory **Credits:** 1 hour

Fourth Semester (17 hours)

- ECE 2100 - Circuit Analysis **Credits:** 4 hours
  (Pre-engineering requirement)
- MATH 3740 - Differential Equations and Linear Algebra **Credits:** 4 hours
- ME 2500 - Materials Science for Engineers **Credits:** 3 hours
- ME 2570 - Mechanics of Materials **Credits:** 3 hours
- ME 2580 - Dynamics **Credits:** 3 hours

Fifth Semester (16 to 17 hours)

- ME 3560 - Fluid Mechanics **Credits:** 3 hours
- ME 3580 - Mechanism Analysis **Credits:** 3 hours
- ME 3620 - Theory of Engineering Experimentation **Credits:** 3 hours
- ME 3650 - Machine Design I **Credits:** 3 hours

Select Either:

- CHEM 1120 - General Chemistry II **Credits:** 3 hours
  and
- CHEM 1130 - General Chemistry Laboratory II **Credits:** 1 hour
  or
- PHYS 3090 - Introductory Modern Physics **Credits:** 4 hours
  and
- PHYS 3100 - Introductory Modern Physics Lab **Credits:** 1 hour

Sixth Semester (15 hours)

- ECE 2110 - Machines and Electronic Circuits **Credits:** 3 hours
- ME 3350 - Instrumentation **Credits:** 3 hours
- ME 3600 - Control Systems **Credits:** 3 hours
- ME 4310 - Heat Transfer **Credits:** 3 hours
- ME 4320 - Thermodynamics II **Credits:** 3 hours

Seventh Semester (16 to 18 hours)

- ME Elective **Credits:** 3 hours
- ME Elective **Credits:** 3 to 4 hours
- ME Elective **Credits:** 3 to 4 hours
- General Education **Credits:** 3 hours

Revised Sept. 2018. All previous forms are obsolete and should not be used.
• General Education Credits: 3 hours
• ME 4790 - Mechanical Engineering Project Planning Credits: 1 hour

Eighth Semester (14 to 16 hours)
• ME Elective Credits: 3 to 4 hours
• ME Elective Credits: 3 to 4 hours
• General Education Credits: 3 hours
• General Education Credits: 2 hours
• ME 4800 - Mechanical Engineering Project Credits: 3 hours

Revised Sept. 2018. All previous forms are obsolete and should not be used.
Accredited by the Engineering Accreditation Commission of ABET, [www.abet.org](http://www.abet.org).

The following Program Educational Objectives (PEO) are broad statements that describe the career and professional accomplishments that the program is preparing graduates to achieve within two to five years after graduation.

1. **Career Growth**: as demonstrated by metrics such as achieving proficiency in current position, increasing responsibility, diversity of job functions, recognition, progression and/or job advancement.
2. **Professional Development**: as demonstrated by metrics such as pursuing additional educational activities, professional certifications, leadership effectiveness, staying current with evolving technologies and/or demonstrating initiative.
3. **Service**: as demonstrated by metrics such as involvement in their communities, professional societies, and/or humanitarian endeavors.
4. **Innovation**: as demonstrated by metrics such as the development of new processes, devices, methods, patents, and/or dissemination of knowledge.

For up-to-date educational objectives and learning outcomes, see the department’s Web site at [www.wmich.edu/mechanical-aerospace/academics/mechanical](http://www.wmich.edu/mechanical-aerospace/academics/mechanical).

**Admission**

1. To be admitted to this Engineering curriculum, a student must complete all pre-engineering requirements with grades of "C" or better. These requirements may be found in the beginning of the College of Engineering and Applied Sciences section.
2. Students seeking admission to this curriculum must submit an application following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students may complete an application prior to their first semester of enrollment. Only students in good academic standing as defined by the University will be admitted to this curriculum.

**Baccalaureate-Level Writing Requirement**

Students who have chosen the Mechanical Engineering curriculum will satisfy the Baccalaureate-Level Writing Requirement by successfully completing ME 3650 Machine Design I or ME 4800: Mechanical and Aeronautical Engineering Project.

**Requirements**

Candidates for the Bachelor of Science in Engineering (Mechanical) degree must satisfy the following requirements in addition to those required by Western Michigan University:

1. A grade point average of 2.0 or better must be earned in courses presented for graduation with AE, ECE, IEE, EMM, and ME prefixes.
2. A student is required to earn a grade of "C" or better in all departmental prerequisite courses before enrollment is permitted in the next sequence course.
3. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
4. Complete the following program of 129-131 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.
5. The Mechanical Engineering curriculum requires students to complete 6 elective Essential Studies (WES) courses, one course from each of the approved lists in the areas of “Inquiry and Engagement: Critical Thinking in the Arts and Humanities”, “Artistic Theory and Practice”, “World Language and Culture”, “Societies and Cultures”, “Global Perspectives” and “Personal Wellness”. At least two of the WMU Essential Studies courses must be at the 3000/4000-level.

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First Semester (17-18 hours)

- WMU Essential Studies Level 1: Inquiry and Engagement Course Elective Credits: 3 hours
- CHEM 1100 - General Chemistry I Credits: 3 hours
  (Pre-engineering requirement)
- CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
  (Pre-engineering requirement)
- EDMM 1420 - Engineering Graphics Credits: 3 hours
- MATH 1220 - Calculus I Credits: 4 hours
  (Satisfies WMU Essential Studies Level 1 Quantitative Literacy Course Requirement)
  or
- MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours
  (Satisfies WMU Essential Studies Level 1 Quantitative Literacy Course Requirement)

Select Either:

- ENGL 1050 - Thought and Writing Credits: 4 hours
  (Pre-engineering requirement)
  (Satisfies WMU Essential Studies Level 1: Writing Course Requirement)
  or
- IEE 1020 - Technical Communication Credits: 3 hours
  (Pre-engineering requirement)
  (Satisfies WMU Essential Studies Level 1: Writing Course Requirement)

Second Semester (18 hours)

- WMU Essential Studies Level 2: Artistic Theory and Practice Course Elective Credits: 3 hours
- CS 1200 - Programming in C for Engineers Credits: 3 hours
  (Pre-engineering requirement)
- MATH 1230 - Calculus II Credits: 4 hours
  or
- MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours
  (Pre-engineering requirement)
- ME 2615 - Introduction to Mechanical Engineering Credits: 3 hours
  (Satisfies WMU Essential Studies Level 1: Oral and Digital Communications Course Requirement)
- PHYS 2050 - University Physics I Credits: 4 hours
  (Pre-engineering requirement)
  (Satisfies WMU Essential Studies Level 2: Laboratory Science Course Requirement)
- PHYS 2060 - University Physics I Laboratory Credits: 1 hour
  (Pre-engineering requirement)
  (Satisfies WMU Essential Studies Level 2: Laboratory Science Course Requirement)

Third Semester (15 hours)

The following courses are pre-engineering requirements.

- MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours
- ME 2320 - Thermodynamics I Credits: 3 hours
  (Satisfies WMU Essential Studies Level 2: Science and Technology Course Requirement)
- ME 2560 - Statics Credits: 3 hours
- PHYS 2070 - University Physics II Credits: 4 hours

Revised Sept. 2018. All previous forms are obsolete and should not be used.
Fourth Semester (17 hours)

- ECE 2100 - Circuit Analysis Credits: 4 hours  
  (Pre-engineering requirement)
- MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours
- ME 2500 - Materials Science for Engineers Credits: 3 hours
- ME 2570 - Mechanics of Materials Credits: 3 hours
- ME 2580 - Dynamics Credits: 3 hours

Fifth Semester (16 to 17 hours)

- ME 3560 - Fluid Mechanics Credits: 3 hours
- ME 3580 - Mechanism Analysis Credits: 3 hours
- ME 3620 - Theory of Engineering Experimentation Credits: 3 hours
- ME 3650 - Machine Design I Credits: 3 hours

Select Either:

- CHEM 1120 - General Chemistry II Credits: 3 hours
- CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
  (and
- PHYS 3090 - Introductory Modern Physics Credits: 4 hours
  (and
- PHYS 3100 - Introductory Modern Physics Lab Credits: 1 hour

Sixth Semester (15 hours)

- ECE 2110 - Machines and Electronic Circuits Credits: 3 hours
- ME 3350 - Instrumentation Credits: 3 hours
- ME 3600 - Control Systems Credits: 3 hours
- ME 4310 - Heat Transfer Credits: 3 hours
- ME 4320 - Thermodynamics II Credits: 3 hours

Seventh Semester (16 hours)

- ME Elective Credits: 3 hours
- ME Elective Credits: 3 hours
- ME Elective Credits: 3 hours
  (WMU Essential Studies Level 2: World Language and Culture Course Elective Credits: 3 hours)
  (WMU Essential Studies Level 2: Societies and Cultures Course Elective Credits: 3 hours)
- ME 4790 - Mechanical Engineering Project Planning Credits: 1 hour

Eighth Semester (15 hours)

- ME Elective Credits: 3 hours
- ME Elective Credits: 3 hours
  (WMU Essential Studies Level 3: Global Perspectives Course Elective Credits: 3 hours)
  (WMU Essential Studies Level 2: Course Elective Credits: 3 hours)
- ME 4800 - Mechanical Engineering Project Credits: 3 hours

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ME MAPPING INTO WMU Essential Student Learning Outcomes

Connections

Exploration and Discovery

- Local and National Perspectives
- Global Perspectives

- ME4800 - Capstone
- Free Elective Semester 8

Foundations

- Personal Wellness
- World Language and Culture
- Science and Technology
- Laboratory Science
- Artistic Theory and Practice
- Societies and Cultures

Free Elective Semester 8
ME2320
PHYS 2050/2060
Free Elective Semester 2
Free Elective Semester 7

- Writing
- Oral and Digital Communications
- Quantitative Literacy
- Inquiry and Engagement: Critical Thinking in the Arts and Humanities

Prof 1 - IEE1020 or ENGL 1050
ME2615
Calc 1 - Math 1220 or Math 1700
Free Elective Semester 1

= Sequenced courses
### MECHANICAL ENGINEERING

<table>
<thead>
<tr>
<th>SEM 1</th>
<th>SEM 2</th>
<th>SEM 3</th>
<th>SEM 4</th>
<th>SEM 5</th>
<th>SEM 6</th>
<th>SEM 7</th>
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<tbody>
<tr>
<td>MATH 1220 or 1790 Calculus I</td>
<td>MATH 1230 or 1790 Calculus II</td>
<td>MATH 2720 Multivariable Calculus</td>
<td>MATH 3740 Differential Equations</td>
<td>ME 3560 Fluid Mechanics (F, Sp, Sur1)</td>
<td>ME 3350 Instrumentation (F, Sp, Sur1)</td>
<td>ME 4790 Mechanical Eng. Project Planning (F, Sp)</td>
<td>WES Free Elective</td>
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<td>MATH 1180 ≥ C or placement</td>
<td>MATH 1220 or 1790 ≥ C</td>
<td>MATH 2720 ≥ C</td>
<td>MATH 3740 ≥ C</td>
<td>ME 2560 ≥ C</td>
<td>ME 2570 ≥ C</td>
<td>ME 3350 ≥ C</td>
<td>ME 4790 ≥ C</td>
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<td>PHYS 2050/2060 University Physics I (L)</td>
<td>PHYS 2070/2080 University Physics II (L)</td>
<td>CHEM 1100/1110 Chemistry I (F, Sp)</td>
<td>ME 2500 Materials Science (F, Sp)</td>
<td>ME 3580 Mechanism Analysis (F, Sp)</td>
<td>ME 3600 Control Systems (F, Sp, Sur1)</td>
<td>ME 4790 Mechanical Eng. Project (F, Sp, Sur1)</td>
<td>WES Free Elective</td>
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<td>MATH 1230 or 1710 ≥ C</td>
<td>MATH 1230 or 1710 ≥ C</td>
<td>MATH 1180 ≥ C or concurrent</td>
<td>MATH 2560 ≥ C</td>
<td>MATH 2570 ≥ C</td>
<td>ME 4790 ≥ C</td>
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<td>CS 1200 Programming in C for Engineers (L)</td>
<td>ME 2320 Thermodynamics I (F, Sp, Sur1)</td>
<td>ME 2570 Mechanics of Materials (F, Sp, Sur2)</td>
<td>ME 3620 Engineering Experimentation (F, Sp)</td>
<td>ME 4310 Heat Transfer (F, Sp, Sur2)</td>
<td>ME 4390 Mechanical Eng. Design</td>
<td>ME 4790 Mechanical Eng. Project (F, Sp, Sur1)</td>
<td>ME 4790 Mechanical Eng. Project (F, Sp, Sur1)</td>
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<td>MATH 1230 or 1710 ≥ C</td>
<td>MATH 1230 or 1710 ≥ C</td>
<td>MATH 1230 or 1710 ≥ C</td>
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<td>MATH 2570 ≥ C</td>
<td>ME 4790 ≥ C</td>
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<td>ENGL 1000 or equivalent (Writing)</td>
<td>EDM 1420 Engineering Graphics (L) (F, Sp)</td>
<td>ME 2615 Introduction to Mechanical Engineering</td>
<td>ME 2560 Statics (F, Sp, Sur1)</td>
<td>ECE 2100 Circuit Analysis I (F, Sp, Sur1) (L)</td>
<td>CHEM 1120/1130 Chemistry II (F, Sp, Sur1, Sur2) (L)</td>
<td>ME 4320 Thermodynamics II (F, Sp)</td>
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<td>PHYS 2050 and 2060 ≥ C</td>
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<td>ME 4790 ≥ C</td>
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<td>ME 3650 Machine Design I (F, Sp) (L)</td>
<td>ME 2580 Machine &amp; Electronics Circuits (F, Sp) (L)</td>
<td>ECE 2110 Machine &amp; Electronics Circuits (F, Sp) (L)</td>
<td>ME 2560 or AAE 3710 ≥ C</td>
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<td>MATH 2570 ≥ C</td>
<td>PHYS 2070 ≥ C</td>
<td>MATH 2300 or 2720 ≥ C</td>
<td>MATH 2560 ≥ C</td>
<td>ME 4790 ≥ C</td>
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**NOTES:** Prerequisite courses are shown in smaller print.

*See your academic advisor for Western Essential Studies (WES) requirements.

<table>
<thead>
<tr>
<th>17-18 hours</th>
<th>18 hours</th>
<th>15 hours</th>
<th>17 hours</th>
<th>16-17 hours</th>
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<th>16 hours</th>
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**Total Hours:** 129-131 hours

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**World Language & Cultures**

**Personal Wellness**

**Artistic Theory & Practice**

**Global Perspectives**

**Local & National Perspectives**

**Inquiry & Engagement**

**Oral & Digital**

**Writing Requirement**