



**2018-2019 PROGRAM REQUIREMENTS**  
**Degree: Bachelor of Science**  
**Major: Mechanical Engineering Technology**

**About This Major . . .**

The objective of the Mechanical Engineering Technology Program (MET) is to provide the knowledge necessary to apply state-of-the-art techniques to design and build products and systems to meet the current and future needs of society. The Bachelor of Science Degree in Mechanical Engineering Technology is designed for a student who is doer or implementer - one who is able to apply mathematics, the natural and engineering sciences, engineering principles, and current engineering practices to the solution of design problems and to the operation and testing of mechanical systems.

The MET graduate applies established procedures that use current state-of-the-art techniques to work with mechanical systems. Laboratory courses are an integral component of the MET program and are designed to develop student competence to apply experimental design methods, as well as provide a "hands-on" approach to designing and building products and systems to meet the current and future needs of society. The employment of METs in manufacturing related areas should increase as the demand for improved machinery and machine tools grows and industrial machinery and processes become increasingly complex. Emerging technologies in biotechnology, and nanotechnology will create new job opportunities for METs. In addition to job openings from growth, many openings should result from the need to replace workers who leave the labor force.

For more information on what you can do with this major, go to <http://www.coloradomesa.edu/career/whatmajor.html>

All CMU baccalaureate graduates are expected to demonstrate proficiency in critical thinking, communication fluency, quantitative fluency, and specialized knowledge/applied learning. In addition to these campus-wide student learning outcomes, graduates of this major will be able to:

1. Apply the knowledge, techniques, skills, and modern tools of engineering to engineering problems. (Critical Thinking/Applied Learning)
2. Apply knowledge of mathematics, science, and technology to engineering problems. (Quantitative Fluency)
3. Effectively use oral, written, and graphical communication skills to address both technical and non-technical audiences. (Communication Fluency)
4. Apply the ethical standards of the discipline to engineering problems. (Specialized Knowledge)

**Advising Process and DegreeWorks**

This document is intended for informational purposes to help determine what courses and associated requirements are needed to earn a degree. The suggested course sequencing outlines how students could finish degree requirements. Some courses are critical to complete in specific semesters, while others may be moved around. Meeting with an academic advisor is essential in planning courses and altering the suggested course sequencing. It is ultimately the student's responsibility to understand and fulfill the requirements for her/his intended degree(s).

DegreeWorks is an online degree audit tool available in MAVzone. It is the official record used by the Registrar's Office to evaluate progress towards a degree and determine eligibility for graduation. Students are responsible for reviewing their DegreeWorks audit on a regular basis and should discuss questions or concerns with their advisor or academic department head. Discrepancies in requirements should be reported to the Registrar's Office.

**Graduation Process**

Students must complete the following in the first two months of the semester prior to completing their degree requirements:

- Review their DegreeWorks audit and create a plan that outlines how unmet requirements will be met in the final semester.
- Meet with their advisor and modify their plan as needed. The advisor must approve the final plan.
- Submit the "Intent to Graduate" form to the Registrar's Office to officially declare the intended graduation date and commencement ceremony plans.
- Register for all needed courses and complete all requirements for each degree sought.

Submission deadlines and commencement details can be found at <http://www.coloradomesa.edu/registrar/graduation.html>.

If a student's petition for graduation is denied, it will be her/his responsibility to consult the Registrar's Office regarding next steps.

### **INSTITUTIONAL DEGREE REQUIREMENTS**

The following institutional degree requirements apply to all CMU baccalaureate degrees. Specific programs may have different requirements that must be met in addition to institutional requirements.

- 120 semester hours minimum.
- Students must complete a minimum of 30 of the last 60 hours of credit at CMU, with at least 15 semester hours in major discipline courses numbered 300 or higher.
- 40 upper-division credits (an alternative credit limit applies to the Bachelor of Applied Science degree).
- 2.00 cumulative GPA or higher in all CMU coursework.
- A course may only be used to fulfill one requirement for each degree/certificate.
- No more than six semester hours of independent study courses can be used toward the degree.
- Non-traditional credit, such as advanced placement, credit by examination, credit for prior learning, cooperative education and internships, cannot exceed 30 semester credit hours for a baccalaureate degree; A maximum of 15 of the 30 credits may be for cooperative education, internships, and practica.
- Pre-collegiate courses (usually numbered below 100) cannot be used for graduation.
- Capstone exit assessment/projects (e.g., Major Field Achievement Test) requirements are identified under Program-Specific Degree Requirements.
- The Catalog Year determines which program sheet and degree requirements a student must fulfill in order to graduate. Visit with your advisor or academic department to determine which catalog year and program requirements you should follow.
- See "Requirements for Undergraduate Degrees and Certificates" in the catalog for a complete list of graduation requirements.

### **PROGRAM-SPECIFIC DEGREE REQUIREMENTS**

- 126 semester hours for the BS in Mechanical Engineering Technology.
- 2.0 cumulative GPA or higher in coursework toward the major content area.
- A grade of "C" or higher is required in all foundation and major courses.

### **ESSENTIAL LEARNING REQUIREMENTS** (31 semester hours)

See the current catalog for a list of courses that fulfill the requirements below. If a course is an Essential Learning option and a requirement for your major, you must use it to fulfill the major requirement and make a different selection for the Essential Learning requirement.

**English** (6 semester hours, must receive a grade of “C” or better and must be completed by the time the student has 60 semester hours.)

- ☐ ENGL 111 - English Composition (3)
- ☐ ENGL 112 - English Composition (3)

**Mathematics** (3 semester hours, must receive a grade of “C” or better, must be completed by the time the student has 60 semester hours.)

- ☐ MATH 135 - Engineering Calculus I (4)
- \*3 credits apply to the Essential Learning requirements and 1 credit applies to Foundation Courses.

**Humanities** (3 semester hours)

- ☐ Select one Humanities course (3)

**Social and Behavioral Sciences** (6 semester hours)

- ☐ SOCI 120 - Technology and Society (3)
- ☐ Select one Social and Behavioral Sciences course (3)

**Natural Sciences** (7 semester hours, one course must include a lab)

- ☐ PHYS 131 - Fundamental Mechanics (4)
  - ☐ PHYS 131L - Fundamental Mechanics Laboratory (1)
  - ☐ CHEM 151 - Engineering Chemistry (4)\*
- \*2 credits apply to Essential Learning requirements and 2 credits apply to Foundation Courses.

**History** (3 semester hours)

- ☐ Select one History course (3)

**Fine Arts** (3 semester hours)

- ☐ Select one Fine Arts course (3)

### **OTHER LOWER-DIVISION REQUIREMENTS**

**Wellness Requirement** (2 semester hours)

- ☐ KINE 100 - Health and Wellness (1)
- ☐ Select one Activity course (1)

**Essential Learning Capstone** (4 semester hours)

Essential Learning Capstone must be taken after completion of the Essential Learning English and Mathematics requirements, and when a student has earned between 45 and 75 hours.

- ☐ ESSL 290 - Maverick Milestone (3)
- ☐ ESSL 200 - Essential Speech (1)

**FOUNDATION COURSES** (13 semester hours, must pass all courses with a grade of “C” or higher.)

- ☐ CHEM 151 - Engineering Chemistry (4)\*
- ☐ CHEM 151L - Engineering Chemistry Laboratory (1)
- ☐ MAMT 102 - Introduction to Machine Shop (1)
- ☐ MATH 135 - Engineering Calculus I (1)
- ☐ MATH 136 - Engineering Calculus II (4)
- ☐ MAMT 105 - Print Reading and Sketching (2)
- ☐ MAMT 106 - Geometric Tolerancing (2)

\*2 credits apply to Essential Learning requirements and 2 credits apply to Foundation Courses.

**BS, MECHANICAL ENGINEERING TECHNOLOGY REQUIREMENTS** (76 semester hours, must pass all courses with a grade of “C” or higher.)

**Basic Engineering Courses** (19 semester hours)

- ☐ ENGR 101 - Introduction to Engineering (1)
- ☐ ENGR 125 - CAD and Fabrication (3)
- ☐ ENGR 140 - First-Year Engineering Project (3)
- ☐ ENGR 224 - Materials Science (2)
- ☐ ENGR 224L - Materials Science Laboratory (1)
- ☐ ENGR 225 - Introduction to Manufacturing (3)
- ☐ ENGR 261 - Statics and Structures (3)
- ☐ ENGR 263 - Mechanics of Solids (3)

**MET Courses** (36 semester hours)

- ☐ ENGR 305 - Engineering Economics and Ethics (2)
- ☐ ENGR 312 - Engineering Thermodynamics (3)
- ☐ ENGR 317 - Fundamentals of Circuits and Electronics (2)
- ☐ ENGR 317L - Fundamentals of Circuits and Electronics Laboratory (1)
- ☐ ENGR 321 - Fluid Mechanics (3)
- ☐ ENGR 325 - Component Design (3)
- ☐ ENGR 343 - Dynamics (3)
- ☐ ENGR 345 - Engineering Integration I (3)
- ☐ ENGR 385 - Engineering Integration II (3)
- ☐ ENGR 401 - Professionalism Seminar (1)
- ☐ ENGR 427 - Measurements Laboratory (2)
- ☐ ENGR 435 - Industrial Controls (3)
- ☐ ENGR 445 - MET Design Project I (3)
- ☐ ENGR 446 - Writing for Design Projects (1)
- ☐ ENGR 485 - MET Design Project II (3)

**Other Required Courses** (9 semester hours)

- ☐ CSCI 130 - Introduction to Engineering Computing (3)
- ☐ ENGL 325 - Writing for Engineers (3)
- ☐ STAT 305 - Statistics and Quality Control for Engineering (3)

**Upper Division Engineering Electives** (12 semester hours)

Complete 12 semester hours at 300 or 400 level with an ENGR prefix or other course(s) with advisor approval

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## SUGGESTED COURSE SEQUENCING

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### Freshman Year, Fall Semester: 16 credits

- ENGR 101 - Introduction to Engineering (1)
- MATH 135 - Engineering Calculus I (4)
- ENGL 111 - English Composition (3)
- KINE 100 - Health and Wellness (1)
- ENGR 125 - CAD and Fabrication (3)
- MAMT 105 - Print Reading and Sketching (2)
- MAMT 106 - Geometric Tolerancing (2)

### Freshman Year, Spring Semester: 16 credits

- MATH 136 - Engineering Calculus II (4)
  - ENGL 112 - English Composition (3)
  - ENGR 140 - First-Year Engineering Project (3)
  - MAMT 102 - Introduction to Machine Shop (1)
  - PHYS 131 - Fundamental Mechanics (4) with PHYS 131L - Fundamental Mechanics Laboratory (1)
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### Sophomore Year, Fall Semester: 15 credits

- CHEM 151 - Engineering Chemistry (4) with CHEM 151L - Engineering Chemistry Laboratory (1)
- CSCI 130 - Introduction to Engineering Computing (3)
- ENGR 261 - Statics and Structures (3)
- KINA Activity (1)
- Essential Learning - Humanities (3)

### Sophomore Year, Spring Semester: 16 credits

- SOCI 120 - Technology and Society (3)
  - ENGL 325 - Writing for Engineers (3)
  - ENGR 224 - Materials Science (2) with ENGR 224L - Materials Science Laboratory (1)
  - ENGR 263 - Mechanics of Solids (3)
  - ESSL 290 - Maverick Milestone (3)
  - ESSL 200 - Essential Speech (1)
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### Junior Year, Fall Semester: 17 credits

- ENGR 225 - Introduction to Manufacturing (3)
- ENGR 305 - Engineering Economics and Ethics (2)
- ENGR 312 - Engineering Thermodynamics (3)
- ENGR 321 - Fluid Mechanics (3)
- STAT 305 - Statistics and Quality Control for Engineering (3)
- ENGR 345 - Engineering Integration I (3)

### Junior Year, Spring Semester: 15 credits

- ENGR 317 - Circuits and Electronics (2) and ENGR 317L - Circuits and Electronics Laboratory (1)
  - ENGR 325 - Component Design (3)
  - ENGR 343 - Dynamics (3)
  - ENGR 385 - Engineering Integration II (3)
  - ENGR Elective (3)
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### Senior Year, Fall Semester: 15 credits

- ENGR 401 - Professionalism Seminar (1)
- ENGR 427 - Measurements Laboratory (2)
- ENGR 445 - MET Design Project I (3)
- Essential Learning - Fine Arts (3)
- Essential Learning - History (3)
- ENGR Elective (3)

**Senior Year, Spring Semester: 16 credits**

- ENGR Electives (6)
  - ENGR 435 - Industrial Controls (3)
  - ENGR 446 - Writing for Design Project (1)
  - ENGR 485 - MET Design Project II (3)
  - Essential Learning - Social/Behavioral Sciences (3)
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