

# MECHANICAL ENGINEERING TECHNOLOGY (BS)

Degree: Bachelor of Science  
Major: Mechanical Engineering Technology  
Program Code: 3453

## 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, visit Career Services' What to Do with a Major? (<https://www.coloradomesa.edu/career/students/explore/major.html>) resource.

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

1. Apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline (Critical Thinking/Applied Learning)
2. Design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline (Specialized Knowledge)
3. Apply written, oral, and graphical communication in broadly defined technical and non-technical environments, and identify and use appropriate technical literature (Information Literacy, Communication Fluency)
4. Conduct standard tests, measurements, and experiments and analyze and interpret the results to improve processes (Quantitative Fluency)
5. Function effectively as a member as well as a leader on technical teams
6. 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 (Ethical Reasoning)

## Requirements

Each section below contains details about the requirements for this program. Select a header to expand the information/requirements for that particular section of the program's requirements.

**To print or save an overview of this program's information, including the program description, learning outcomes, requirements, suggested course sequencing (if applicable), and advising and graduation information, scroll to the bottom of the left-hand navigation menu and select 'Print Options.'** This will give you the options to either 'Send Page to Printer' or 'Download PDF of This Page.' The 'Download PDF of This Page' option prepares a much more concise presentation of all program information. The PDF is also printable and may be preferable due to its brevity.

## 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.

## Specific to this degree:

- 127 semester hours for the BS in Mechanical Engineering Technology.
- Students must register for and complete the Fundamentals of Engineering (FE) exam at an NCEES-approved test center prior to graduation.

## 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.

Code	Title	Semester Credit Hours
<b>English<sup>1</sup></b>		
ENGL 111	English Composition I-GTCO1	3
ENGL 112	English Composition II-GTCO2	3
<b>Mathematics<sup>1</sup></b>		
MATH 135	Engineering Calculus I <sup>2</sup>	3
<b>History</b>		
Select one History course		3
<b>Humanities</b>		
Select one Humanities course		3
<b>Social and Behavioral Sciences</b>		
SOCI 120	Technology and Society-GTSS3	3
Select one Social and Behavioral Sciences course		3
<b>Fine Arts</b>		
Select one Fine Arts course		3
<b>Natural Sciences<sup>3</sup></b>		
PHYS 131	Fundamental Mechanics-GTSC1	4
PHYS 131L	Fundamental Mechanics Laboratory-GTSC1	1
CHEM 151	Engineering Chemistry <sup>4</sup>	2
Total Semester Credit Hours		31

<sup>1</sup> Must receive a grade of "C" or better and must be completed by the time the student has 60 semester hours.

<sup>2</sup> This is a 4 semester credit hour course. 3 credits apply to the Essential Learning requirements and 1 credit applies to Foundation Courses.

<sup>3</sup> One course must include a lab.

<sup>4</sup> This is a 4 semester credit hour course. 2 credits apply to Essential Learning requirements and 2 credits apply to Foundation Courses.

## Other Lower Division Requirements

Code	Title	Semester Credit Hours
<b>Wellness Requirement</b>		
KINE 100	Health and Wellness	1
Select one Activity course		1
<b>Essential Learning Capstone<sup>1</sup></b>		
ESSL 290	Maverick Milestone	3
ESSL 200	Essential Speech	1
Total Semester Credit Hours		6

<sup>1</sup> 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.

## Foundation Courses

(13 semester hours, must pass each course with a grade of "C" or higher.)

Code	Title	Semester Credit Hours
CHEM 151	Engineering Chemistry	2
CHEM 151L	Engineering Chemistry Laboratory	1
MAMT 102	Machining Fundamentals	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
Total Semester Credit Hours		13

## Program Specific Degree Requirements

(77 semester hours, must pass each course with a grade of "C" or higher and maintain a 2.0 cumulative GPA or higher in coursework in this area.)

Code	Title	Semester Credit Hours
<b>Basic Engineering Courses</b>		
ENGR 101	Introduction to Engineering	1
ENGR 125	Computer-Aided Design 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
<b>MET Courses</b>		
ENGR 305	Engineering Economics & 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	Engineering Measurements	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
<b>Other Required Courses</b>		
CSCI 130	Introduction to Engineering Computer Science	4
ENGL 325	Writing for Engineers	3
STAT 305	Statistics and Quality Control for Engineering	3
<b>Restricted Electives</b>		

Complete 12 semester hours at the 300 or 400 level with an ENGR prefix or MATH 236 or other course(s) with advisor approval. 12

#### Other Requirements

Fundamentals of Engineering (FE) Exam Taken

Total Semester Credit Hours 77

## Suggested Course Plan

### First Year

#### Fall Semester

		Semester Credit Hours
ENGR 101	Introduction to Engineering	1
MATH 135	Engineering Calculus I	4
ENGL 111	English Composition I-GTCO1	3
KINE 100	Health and Wellness	1
ENGR 125	Computer-Aided Design and Fabrication	3
MAMT 105	Print Reading and Sketching	2
MAMT 106	Geometric Tolerancing	2
Semester Credit Hours		16

#### Spring Semester

MATH 136	Engineering Calculus II	4
ENGL 112	English Composition II-GTCO2	3
ENGR 140	First-Year Engineering Project	3
MAMT 102	Machining Fundamentals	1
PHYS 131 & 131L	Fundamental Mechanics-GTSC1 and Fundamental Mechanics Laboratory-GTSC1	5
Semester Credit Hours		16

### Second Year

#### Fall Semester

CHEM 151 & 151L	Engineering Chemistry and Engineering Chemistry Laboratory	5
CSCI 130	Introduction to Engineering Computer Science	4
ENGR 261	Statics and Structures	3
KINA Activity		1
Essential Learning - Humanities		3
Semester Credit Hours		16

#### Spring Semester

SOCI 120	Technology and Society-GTSS3	3
ENGL 325	Writing for Engineers	3
ENGR 224 & 224L	Materials Science and Materials Science Laboratory	3
ENGR 263	Mechanics of Solids	3
ESSL 290	Maverick Milestone	3
ESSL 200	Essential Speech	1
Semester Credit Hours		16

### Third Year

#### Fall Semester

ENGR 225	Introduction to Manufacturing	3
ENGR 305	Engineering Economics & 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
Semester Credit Hours		17

#### Spring Semester

ENGR 317 & 317L	Fundamentals of Circuits and Electronics and Fundamentals of Circuits and Electronics Laboratory	3
ENGR 325	Component Design	3
ENGR 343	Dynamics	3
ENGR 385	Engineering Integration II	3

Restricted Elective	3	
Semester Credit Hours		15

### Fourth Year

#### Fall Semester

ENGR 401	Professionalism Seminar	1
ENGR 427	Engineering Measurements	2
ENGR 445	MET Design Project I	3
Essential Learning - Fine Arts		3
Essential Learning - History		3
Restricted Elective		3
Semester Credit Hours		15

#### Spring Semester

Restricted Elective		6
ENGR 435	Industrial Controls	3
ENGR 446	Writing for Design Projects	1
ENGR 485	MET Design Project II	3
Essential Learning - Social/Behavioral Sciences		3
Semester Credit Hours		16
Total Semester Credit Hours		127

## Advising and Graduation Advising Process and DegreeWorks

Documentation on the pages related to this program 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.