Program Overview: Bachelor of Science
Mechanical Engineering Technology

About This Major . . .

Mechanical engineers design and build products and systems to meet the needs of society. Our students learn state-of-the-art techniques that they will need to be a part of this effort. This degree is designed for a student who is a 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.

Students will encounter multiple project-based courses in which they actively work on real-world problems and challenges and develop practical engineering experience. The Mechanical Engineering Technology program culminates with a two-semester capstone design project in which teams of students work on industry-sponsored design challenges. The purpose of this course is to simulate an entry-level engineering project in industry—allowing students to apply the engineering knowledge acquired in the fundamental courses to a real-world, open-ended design problem. Projects have ranged from design of a novel electrochemical surface treatment to improve the mechanical properties of aluminum and titanium for Calphalon, Inc., to design of an instrumented micro-volume fluid nozzle for dispensing a variety of fluids onto a printed circuit board for GPD Global.

For more information on what you can do with this major, go to http://www.coloradomesa.edu/engineering/index.html

All CMU baccalaureate graduates are expected to demonstrate proficiency in critical thinking, communication fluency, quantitative fluency, and specialized knowledge/applied learning.

After completing our engineering degree, you will be able to:

1. apply the knowledge, techniques, skills, and modern tools of engineering to engineering problems. (Critical Thinking and 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)

Program Highlights:

A Hands-On Education
Engineering is about *doing*. Students are in the lab early in the program, working on projects and learning to use industry standard software such as Matlab, LabVIEW, and SolidWorks, and equipment, such as a 3D printer, manual and numerically-controlled mills and lathes, a wind tunnel, a mechanical test frame, as well as microcontrollers, circuits, and electronics.

A Real-World Focus
Engineers need excellent communication skills to be effective. Our students learn writing and speaking for both technical and non-technical audiences. They learn the economics of engineering and study ethics and professionalism as well.

Life after Mesa
"The degree is Mechanical Engineering Technology, but the career is Mechanical Engineering." Upon completion of this degree students will be prepared for entry-level mechanical engineering jobs requiring the application of engineering principles and technological developments to the creation of useful machinery or products. Potential employers include Abbot Global Healthcare & Research, GPD Global, Lockheed Martin, and Caterpillar.

Program Requirements

A student must follow CMU graduation requirements by completing 126 semester credit hours, including 50 credits of coursework at the 300+ level. See the "Undergraduate Graduation Requirements" in the catalog for additional graduation information. Students should work closely with a faculty advisor when selecting and scheduling courses prior to registration. In general, CMU's programs of study are based on two curriculum groups:

1. Essential Learning

CMU's Essential Learning program provides the foundation of skills and information that cuts across all fields of study and the support for advanced concepts that students will later encounter in their majors. Before moving into work at the 300+ level, students complete the Maverick Milestone and its co-requirement, Essential Speech. This pair of courses is a capstone experience where students integrate what they have learned from their foundation courses by making connections among diverse areas of knowledge. The capstone is also an opportunity for students to work with disparate ideas, a critical skill expected of all CMU graduates that will aid them in solving the complex and unscripted problems they will encounter in their personal, professional, and civic lives.

2. What You Will Study in This Major. . .

Foundation Courses

These courses provide you with fundamental knowledge and skills you will need for your engineering courses:

- General Chemistry I
- General Physics I
- Engineering Calculus I and II
- Introduction to Machine Shop
- Print Reading and Sketching
- Geometrical Dimensioning and Tolerancing

Engineering Courses

Mechanical engineers need a wide spectrum of engineering knowledge. The courses shown here give you that knowledge:

- Introduction to Engineering
- CAD and Fabrication
- First-Year Engineering Projects
- Materials Science and Lab
- Introduction to Manufacturing
- Statics and Structures
- Mechanics of Solids
- Engineering Economics and Ethics
- Circuits and Electricity
- Fluid Mechanics
- Component Design
- Dynamics
- Engineering Integration I and II
- Professionalism Seminar
- Measurements Lab
- Industrial Controls
- Design Project I and II

Other Required Courses

- Engineering Computing
- Scientific Writing
- Engineering Statistics and Quality Control

Engineering Options

- Advanced Manufacturing
- Heat and Power
- Fluid Power Systems
- Energy Systems
- Electric Power Systems

Concentrations and Electives

Designed with the needs of local and national industry in mind, the Mechanical Engineering Technology program allows students to pursue a concentration in either Manufacturing or Energy and Power.

Elective courses supporting these concentration tracks include:

- Advanced Manufacturing
- Lean Manufacturing
- Heat and Power
- Fluid Power Systems
- Energy Systems
- Electric Power Systems

Students further have the option to take mechanical engineering elective courses such as:

- Finite Element Analysis
- Biomechanical Engineering
- HVAC
- Advanced Materials
- Engineering Entrepreneurship

For more information about this major, go to: http://www.coloradomesa.edu/engineering/met.html or contact the Department of Physical and Environmental Sciences, 232 Wubben Hall, 970.248.1400.