

MECHANICAL ENGINEERING TECHNOLOGY, BS

Bachelor of Science in Mechanical Engineering Technology (292104BS)

More on the Mechanical Engineering Technology programs (<https://www.uakron.edu/engineering/ME/>)

Program Information

Mechanical Engineering Technology is concerned with product testing, the design of products, and the machines required to manufacture them. Our students include: recent high school graduates, transfers from other colleges and institutions, and those students currently employed who are looking for a degree in mechanical engineering technology.

As our mission statement states: "We provide high quality educational opportunities necessary to assist a diverse student population to achieve its career goals in the field of mechanical engineering technology." The Mechanical Engineering Technology, BS Degree program is accredited by the Engineering Technology Accreditation Commission of ABET, <http://www.abet.org>.

Program Educational Objectives

Program educational objectives are broad statements that describe what graduates are expected to attain within a few years after graduation. Program educational objectives are based on the needs of the program's constituencies (i.e., students, alumni, employers of our students, and faculty of the program), including being able to:

1. be successfully employed in a mechanical engineering technology related field capable of earning promotions, professional registration/licensing, certification, other recognition;
2. be effective in the understanding and application of mechanical engineering technology principles;
3. effectively communicate, work, and lead cross functional teams;
4. expand their technical knowledge through professional development, continuing education, or the pursuit of a graduate degree;
5. conduct their work within the accepted standards of professional integrity and ethics; and
6. serve in technical societies and other community service areas.

Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. These relate to the knowledge, skills, and behaviors that students acquire as they progress through the program, including:

1. an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline;
2. an ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline;
3. an ability to apply written, oral, and graphical communication in broadly-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature;

4. an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes;
5. an ability to function effectively as a member as well as a leader on technical teams.

Cooperative Education

Co-op work experiences are available on an optional basis in this academic program.

The following information has official approval of **The Department of Mechanical Engineering** and **The College of Engineering and Polymer Science**, but is intended only as a supplemental guide. Official degree requirements are established at the time of transfer and admission to the degree-granting college. Students should refer to the Degree Progress Report (Stellic) which is definitive for graduation requirements. *Completion of this degree within the identified time frame below is contingent upon many factors, including but not limited to: class availability, total number of required credits, work schedule, finances, family, course drops/withdrawals, successfully passing courses, prerequisites, among others.* The transfer process is completed through an appointment with your academic advisor.

Three year accelerated option: for first time students who have earned credits for at least the first year of courses. Credits can be earned through qualifying scores on appropriate Advanced Placement (AP) exams or through [College Credit Plus Program \(CCP\)](#) courses. Credits for qualifying AP scores or [CCP](#) courses are determined by the appropriate academic department. Departments may assign varied course credit, depending on the student's score on an AP exam or [grade in a CCP](#) course. Students may also receive credit by examination or via placement tests, where appropriate.

Requirements Summary

| Code | Title | Hours |
|---|-------|------------|
| General Education Requirements (https://bulletin.uakron.edu/undergraduate/general-education/)* | | 27 |
| Program-Specific General Education | | 11 |
| Math and Physical/Natural Science Courses I | | 3 |
| Math and Physical/Natural Science Courses II | | 7 |
| Required Mechanical Engineering Technology Courses I | | 25 |
| Required Mechanical Engineering Technology Courses II | | 29 |
| Discipline Specific Engineering Technology Courses I | | 9 |
| Discipline Specific Engineering Technology Courses II | | 9 |
| Technical Electives | | 8 |
| Total Hours | | 128 |

* [Several courses required for the major also satisfy General Education requirements. The University minimum of 36 credits are required for General Education for bachelor's degrees and credit for these courses will apply to both. Students in this program will specifically need a course to meet the Integrative and Applied Learning \(Complex Issues Facing Society\) requirement; this requirement is not met by any major course.](#)

Recommended General Education Courses

| Code | Title | Hours |
|--|---|-----------|
| Students pursuing a bachelor's degree must complete the following General Education coursework. Diversity courses may also fulfill major or Breadth of Knowledge requirements. Integrated and Applied Learning courses may also fulfill requirements in the major. | | |
| Students are not required to enroll in the specific courses listed below. However, to facilitate successful degree completion, the academic department strongly encourages completion of the following recommendations. | | |
| Academic Foundations | | 12 |
| <i>Mathematics, Statistics and Logic: 3 credit hours</i> | | |
| MATH 255 | Technical Calculus I | |
| PHIL 170 | Introduction to Logic | |
| <i>Speaking: 3 credit hours</i> | | |
| COMM 263 | Professional Communications and Presentations | |
| <i>Writing: 6 credit hours</i> | | |
| ENGL 111 | English Composition I | |
| ENGL 222 | Technical Report Writing | |
| Breadth of Knowledge | | 22 |
| <i>Arts/Humanities: 9 credit hours</i> | | |
| HIST 200 | Empires of the Ancient World | |
| MUSIC 201 | Exploring Music: Bach to Rock | |
| <i>Natural Sciences: 7 credit hours</i> | | |
| PHYS 164 | Technical Physics: Heat & Light | |
| <i>Social Sciences: 6 credit hours</i> | | |
| PAFS 256 | Diversity in American Society | |
| SOCIO 243 | Contemporary Global Issues | |
| Diversity | | |
| Domestic Diversity | | |
| PAFS 256 | Diversity in American Society | |
| Global Diversity | | |
| SOCIO 243 | Contemporary Global Issues | |
| Integrated and Applied Learning | | 2 |
| <i>Select one class from one of the following subcategories:</i> | | |
| Complex Issues Facing Society | | |
| PHIL 241 | Technology & Human Values | |
| Capstone | | |
| <i>Review the General Education Requirements page for detailed course listings.</i> | | |
| Total Hours | | 36 |

Program-Specific General Education

| Code | Title | Hours |
|--------------------|---|-----------|
| MATH 154 | Technical Algebra and Trigonometry 2 ¹ | 3 |
| PHYS 261 | College Physics I 2 | 4 |
| PHYS 262 | College Physics II 2 | 4 |
| Total Hours | | 11 |

Mathematics and Natural Science Courses I

These courses are also part of the Associate of Applied Science in Mechanical Engineering Technology.

| Code | Title | Hours |
|--------------------|-----------------------------------|----------|
| MATH 255 | Technical Calculus I ³ | 3 |
| Total Hours | | 3 |

Mathematics and Natural Science Courses II

| Code | Title | Hours |
|--------------------|--------------------------------------|----------|
| MATH 356 | Technical Calculus II | 3 |
| CHEM 151 | Principles of Chemistry I | 3 |
| CHEM 152 | Principles of Chemistry I Laboratory | 1 |
| Total Hours | | 7 |

Required Mechanical Engineering Technology Courses I

These courses are also part of the Associate of Applied Science in Mechanical Engineering Technology.

| Code | Title | Hours |
|--------------------|---|-----------|
| MCET 100 | Survey of Mechanical Engineering Technology ⁴ | 2 |
| MCET 101 | Introduction to Mechanical Design (Sch. lab) ⁴ | 3 |
| MCET 121 | Fundamentals of Engineering Drawing (Sch. lab) | 3 |
| MCET 131 | Software Applications for Technology | 1 |
| MCET 142 | Introduction to Material Technology (Sch. lab) ⁵ | 3 |
| MCET 243 | Kinematics (Sch. lab) ⁴ | 3 |
| MCET 245 | Mechanical Design II (Sch. lab) ⁵ | 5 |
| MCET 249 | Applied Thermal Energy I ⁵ | 2 |
| MCET 251 | Fluid Power ⁴ | 2 |
| MCET 252 | Thermo-Fluids Laboratory ⁵ | 1 |
| Total Hours | | 25 |

Required Mechanical Engineering Technology Courses II

| Code | Title | Hours |
|----------|--|-------|
| MCET 310 | Economics of Technology | 3 |
| MCET 312 | Programming for Technologists | 2 |
| MCET 344 | Dynamics ⁴ | 3 |
| MCET 346 | Mechanical Design III (Sch. lab) ⁵ | 4 |
| MCET 347 | Production Machinery & Processes ⁵ | 3 |
| MCET 365 | Applied Thermal Energy II ⁴ | 3 |
| MCET 370 | Plastics Design & Process ⁵ | 3 |
| MCET 402 | Mechanical Projects ⁵ | 2 |
| MCET 405 | Introduction to Industrial Machine Control (Sch. lab) ⁴ | 3 |
| MCET 470 | Plastics Processing & Testing (Sch. lab) ⁴ | 2 |

| | | |
|--------------------|---|-----------|
| MCET 490 | Mechanical Engineering Technology Senior Seminar ⁴ | 1 |
| Total Hours | | 29 |

Discipline Specific Engineering Technology Courses I

These courses are also part of the Associate of Applied Science in Mechanical Engineering Technology.

| Code | Title | Hours |
|--------------------|--|----------|
| AMET 248 | Introduction to CNC and Additive Manufacturing | 3 |
| COET 125 | Statics | 3 |
| COET 225 | Strength of Materials | 3 |
| Total Hours | | 9 |

Discipline Specific Engineering Technology Courses II

| Code | Title | Hours |
|--------------------|---|----------|
| EEET 242 | Machinery & Controls ⁵ | 3 |
| EEET 370 | Survey of Electronics (Sch. lab) ⁴ | 3 |
| AMET 241 | Introduction to Quality Assurance (Sch. lab) | 3 |
| Total Hours | | 9 |

Technical Electives

| Code | Title | Hours |
|--|--|----------|
| Complete eight credits, with at least three credits at the 300 or 400 level⁶ | | |
| MATH 345 | Technical Data Analysis | |
| EEET 121 | Introduction to Electronics and Computers | |
| EEET 237 | Digital Circuits (Sch. lab) | |
| EEET 238 | Microprocessor Applications | |
| EEET 360 | Virtual Instrumentation and Data Acquisition | |
| AMET 311 | Facilities Planning | |
| AMET 332 | Management of Technology Based Operations | |
| AMET 441 | Advanced Quality Practices | |
| AMET 448 | CNC Programming II | |
| AMET 480 | Automated Production | |
| AMET 130 | Work Measurement & Cost Estimating | |
| AMET 201 | Robotics & Automated Manufacturing | |
| AMET 211 | Manufacturing Operations | |
| AMET 230 | 3-D Modeling & Design | |
| MCET 130 | Introduction to Hydraulics and Pneumatics | |
| MCET 290 | Special Topics: Mechanical Engineering Technology (Sch. lab) | |
| MCET 498 | Independent Study in Mechanical Engineering Technology | |
| SURV 101 | Basic Surveying | |
| COET 462 | Mechanical Service Systems | |
| COET 463 | Electrical Service Systems | |
| Total Hours | | 8 |

acceptable substitute. Students who place higher in mathematics may meet this requirement with the class they are placed into.

² These classes together meet the seven-credit General Education Natural Science / Natural Science with lab Requirement. PHYS 291 Elementary Classical Physics I is an acceptable substitute for PHYS 261 College Physics I. PHYS 292 Elementary Classical Physics II is an acceptable substitute for PHYS 262 College Physics II.

³ MATH 221 Analytic Geometry-Calculus I is an acceptable substitute.

⁴ Typically offered in Fall only.

⁵ Typically offered in Spring only.

⁶ Mechanical Engineering Technology Approved Technical Electives: Availability dependent on sufficient enrollment and classroom availability.

Recommended Sequence

1st Year

| Fall Semester | | Hours |
|----------------------------------|--|-----------|
| MATH 154 | Technical Algebra and Trigonometry 2 | 3 |
| MCET 100 | Survey of Mechanical Engineering Technology ¹ | 2 |
| MCET 121 | Fundamentals of Engineering Drawing (Sch. lab) | 3 |
| PHYS 261 | College Physics I | 4 |
| Writing First Course Requirement | | 3 |
| Hours | | 15 |

Spring Semester

| | | |
|-----------------------------------|---|-----------|
| MCET 131 | Software Applications for Technology (Sch. lab) | 1 |
| COET 125 | Statics | 3 |
| PHYS 262 | College Physics II | 4 |
| Speaking Requirement | | 3 |
| Writing Second Course Requirement | | 3 |
| Hours | | 14 |

2nd Year

Fall Semester

| | | |
|--------------|---|-----------|
| MATH 255 | Technical Calculus I | 3 |
| AMET 248 | Introduction to CNC and Additive Manufacturing | 3 |
| MCET 101 | Introduction to Mechanical Design (Sch. lab) ¹ | 3 |
| MCET 243 | Kinematics (Sch. lab) ¹ | 3 |
| MCET 251 | Fluid Power ¹ | 2 |
| COET 225 | Strength of Materials | 3 |
| Hours | | 17 |

Spring Semester

| | | |
|---|---|-----------|
| MCET 142 | Introduction to Material Technology (Sch. lab) ² | 3 |
| MCET 245 | Mechanical Design II (Sch. lab) ² | 5 |
| MCET 249 | Applied Thermal Energy I ² | 2 |
| MCET 252 | Thermo-Fluids Laboratory ² | 1 |
| Social Science Requirement ⁵ | | 3 |
| Social Science Requirement ⁵ | | 3 |
| Hours | | 17 |

¹ This course meets the General Education Mathematics, Statistics, and Logic Requirement. MATH 149 Precalculus Mathematics is an

3rd Year**Fall Semester**

| | | |
|--------------|---|-----------|
| MATH 356 | Technical Calculus II | 3 |
| MCET 312 | Programming for Technologists | 2 |
| MCET 344 | Dynamics ¹ | 3 |
| EEET 370 | Survey of Electronics (Sch. lab) ¹ | 3 |
| CHEM 151 | Principles of Chemistry I | 3 |
| CHEM 152 | Principles of Chemistry I Laboratory | 1 |
| | Technical Elective ³ | 2 |
| Hours | | 17 |

Spring Semester

| | | |
|--------------|---|-----------|
| EEET 242 | Machinery & Controls ² | 3 |
| MCET 346 | Mechanical Design III (Sch. lab) ² | 4 |
| MCET 347 | Production Machinery & Processes ² | 3 |
| MCET 370 | Plastics Design & Process ² | 3 |
| | Technical Elective ³ | 3 |
| | Arts or Humanities Requirement ^{5,6} | 3 |
| Hours | | 19 |

4th Year**Fall Semester**

| | | |
|--------------|--|-----------|
| MCET 310 | Economics of Technology | 3 |
| MCET 365 | Applied Thermal Energy II ¹ | 3 |
| MCET 405 | Introduction to Industrial Machine Control (Sch. lab) ¹ | 3 |
| MCET 490 | Mechanical Engineering Technology Senior Seminar ¹ | 1 |
| MCET 470 | Plastics Processing & Testing ¹ | 2 |
| | Humanities Requirement ^{5,6} | 3 |
| Hours | | 15 |

Spring Semester

| | | |
|--------------|--|-----------|
| MCET 402 | Mechanical Projects ² | 2 |
| AMET 241 | Introduction to Quality Assurance (Sch. lab) | 3 |
| | Technical Elective (at the 300 or 400 level) | 3 |
| | Arts Requirement ^{5,6} | 3 |
| | Integrative and Applied Learning (Complex Issues Facing Society) Requirement | 3 |
| Hours | | 14 |

Total Hours **128**

Policy Alert: By the end of your first 48 credit hours attempted, you must have completed your required General Education English, Mathematics, Statistics, and Logic, and Speaking requirements.

¹ Traditionally Fall course (See Program Contact).

² Traditionally Spring course (See Program Contact).

³ Mechanical Engineering Technology Approved Technical Electives: Availability dependent on enrollment demands and classroom availability.

⁴ The student must take both the Introduction and Advanced Corrosion Technology courses to receive the Corrosion Technology Certificate. Other requirements may be required in addition. Please check with the student advisor to be sure.

⁵ Students are advised that they must choose classes to also fulfill General Education Domestic Diversity, Global Diversity, and Integrated and Applied Learning requirements.