

Electro-Mechanical Engineering Technology

Electro-Mechanical Engineering Technology Associate Degree

The Electro-Mechanical program is a marriage of Columbus State's Mechanical Engineering Technology and Electronics Engineering Technology programs. The skills electro-mechanical technicians possess are used in virtually every industry—from manufacturing, to environmental control, to food and pharmaceutical production, to power plants. Electro-mechanical technicians are immediately able to contribute to the companies that hire them.

Electro-mechanical technicians are in great demand. Any industry that uses electrical components and/or has any level of automation and process control needs and will always need EMEC technicians. Electro-mechanical engineering technicians perform both preventive and corrective maintenance on electro-mechanical systems as well as aiding in the design of such systems. The most rewarding part of this field is the variety and creativity it affords. EMEC technicians use their knowledge and skills to solve problems and come up with creative solutions daily.

Electro-Mechanical Engineering Technology also shares related courses with the Electronic Engineering Technology, Mechanical Engineering Technology and Quality Assurance Technology. For additional information refer to those sections of the College Catalog.

Electro-Mechanical Engineering Technology Associate Degree

| COURSE | CR |
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| Quarter 1 | |
| MATH 111 Technical Mathematics I | 4 |
| EET 105 Basic Electronic Systems | 5 |
| MECH 112 Computer Applications in Manufacturing | 3 |
| ENGT 100 Introduction to Engineering Technology | 4 |
| TOTAL CREDIT HOURS | 16 |
| Quarter 2 | |
| ENGL 101 Beginning Composition | 3 |
| MATH 112 Technical Math II | 4 |

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| EET 115 Basic Digital Systems | 5 |
| MECH 115 Engineering | 5 |
| Graphics | 4 |
| TOTAL CREDIT HOURS | 16 |

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| Quarter 3 | |
| ENGL 102 Essay and Research | 3 |
| MECH 145 2D CAD | 4 |
| EET 125 Electronic Switching Systems | 5 |
| PHYS 117 College Physics (Mechanics and Heat) | 5 |
| TOTAL CREDIT HOURS | 17 |

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| Quarter 4 | |
| EET 255 Instrumentation and Controls | 3 |
| MECH 243 Robotics | 4 |
| EMEC 250 Motors and Controls | 4 |
| COMM 105 Speech (<i>or</i>) | 4 |
| COMM 110 Conference and Group Discussion | 3 |
| HUM XXX Humanities 111,112,113,151, 152 or 224 | 5 |
| TOTAL CREDIT HOURS | 19 |

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| Quarter 5 | |
| ENGT 131 Hydraulics and Pneumatics | 4 |
| COMM 204 Technical Writing | 3 |
| EMEC 251 Controls and Control Logic | 4 |
| MECH 270 Engineering Statistics | 4 |
| MECH 260 Basic Mechanisms | 4 |
| TOTAL CREDIT HOURS | 19 |

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|---|------------|
| Quarter 6 | |
| SSCI XXX Social Sciences 100, 101, 102, 104, or 105 | 5 |
| MECH 240 Machine Tools | 4 |
| EMEC 260 PLC Programming | 4 |
| QUAL 240 Total Quality Management | 3 |
| TOTAL CREDIT HOURS | 16 |
| TOTAL DEGREE CREDIT HOURS | 103 |

Electro-Mechanical Engineering Technology (EMEC)

For other related course descriptions, see Electronic Engineering Technology and Mechanical Engineering Technology.

EMEC 250 Motors and Controls (A, SP) 4 credits

This course presents a study in the basic elements of single-phase and three-phase AC motors and generators, DC motors and generators, transformers, motor controls, and motor protection (fuses and overloads). Students learn how to select, size, and wire three-phase motors and starters as well as do calculations related to sizing, horsepower, and efficiency.

Lecture: 3 hours – Lab: 3 hours Lab fee: \$15.00

EMEC 251 Controls and Control Logic (W, SU) 4 credits

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This course is a study in the basic interface circuitry used in electro-mechanical controls. Students learn about solenoids, relays, ladder logic, ladder diagrams, and how to design and wire controls systems to meet a given set of criteria. Troubleshooting is emphasized at each step.

Lecture: 3 hours – Lab: 3 hours

Prerequisite: EMEC 250 Lab fee: \$15.00

EMEC 260 PLC Programming (AU, SP) 4 credits

EMEC 260 is an introduction to Programmable Logic Controllers (PLCs). Students gain knowledge and experience in programming the Allen-Bradley SLC 500 series of PLCs. Students are required to design, wire, and troubleshoot programs to meet a given set of criteria.

Lecture: 3 hours – Lab: 3 hours

Prerequisite: EMEC 251 Lab fee: \$20.00

**ELECTRO-MECHANICAL ENGINEERING
TECHNOLOGY**

Chairperson, Dick Bickerstaff, B.A., *Youngstown State University*; M.A., *The Ohio State University*

Coordinator, Jeff Woodson, B.S., *Kent State University*; M.S., *The Ohio State University*

Faculty and Advisory Committee (See Mechanical Engineering Technology and Electronic Engineering Technology.)