

MECHATRONICS

AUTOMATED SYSTEMS SPECIALIST/ROBOTICS



After an introduction to industrial workplace safety, including the ability to earn First Aid and CPR/AED certifications, students will focus on the installation and repair of electrical, hydraulic, pneumatic and digital controls that operate Automated Mechanical and Robotic Systems. If college level work is attained, student may earn up to 11 LCC credits.

Program Location:
LCC West Campus

Session Offered: AM

Average Lecture Days/Week: 2-3 days

Average Lab Days/Week: 2-3 days

Homework: Weekly

Required reading:
College level textbook

LCC Credits Available: 11
(If college level work is attained)

Student learning outcomes include but are not limited to:

- Describe the scope and application of local state and Federal safety regulations as they apply to both industrial and construction worksites
- Describe appropriate safety procedures
- Explain and demonstrate materials handling
- Explain the safe use of hand tools and small power tools
- Explain the basics of fire, building and facility safety
- Demonstrate knowledge of basic first aid
- Solve series, parallel and combination DC circuit problems
- Construct basic circuits and measure electrical quantities using multi-meters, ammeters, ohmmeters and watt-meters
- Describe the relationship between electricity and magnetism
- Describe how electricity travels through gases and liquids
- Wire simple household circuits including duplex receptacles, single-pole, 3-way and 4-way switches
- Demonstrate the proper use of torque wrenches, power hand tools, wrenches, marking and striking devices, measurement devices, taps and dies, and other miscellaneous hand tools
- Build or assemble robotic devices or systems
- Disassemble and reassemble robots or peripheral equipment to make repairs
- Perform preventive or corrective maintenance on robotic systems or components
- Test performance of robotic assemblies

Eaton Intermediate does not discriminate on the basis of race, color, national origin, sex, age, or disability in its programs and activities. Civil Rights Coordinators are located at 1790 E. Packard Hwy, Charlotte Michigan to handle inquiries regarding the nondiscrimination policies. Telephone (517) 543-5500.

HIGH SCHOOL/COLLEGE CREDIT

The primary focus of the Eaton Intermediate School District Career Preparation Center is to enhance a student's high school curriculum by providing an opportunity to learn a technical trade and/or to obtain a head start on a post-secondary education.

All students completing an Eaton Intermediate School District's Career Center program at Lansing Community College **have the opportunity** to earn either direct or articulated college credit while completing their high school program if specific criteria are met.

LCC credit is awarded to a student who: a) completes the high school career and technical education course with a minimum of a "C" average; b) meets the performance objectives for a specific Lansing Community College course; and, c) passes the college course final examinations, if one is required. These credits are shown as numerical grades on the student's LCC transcript. Transcripts may be requested through Lansing Community College Enrollment Services Department by August following course completion.

The courses listed below show the possible LCC college credits that may be available to high school students taking an EISD Career Preparation Program.

MECHATRONICS

METS 102 Industrial Safety 2 LCC Credits

This course covers safety in the industrial workplace and on construction worksites. Included are local, state and federal safety regulations. The focus will be on the prevention of accidents but will teach the correct response if an accident should occur. First aid, CPR/AED certificates will be issued upon successful completion.

ELTE 110 Practical Electricity 3 LCC Credits

This course introduces the student to electricity on a practical level. The student will learn to use meters to measure electrical quantities, do basic circuit calculations, install basic household electrical wiring and investigate the behavior of motors. Reviews electrical codes and standards.

METS 105 Hand-Tools & Measurements 3 LCC Credits

This course teaches the student the proper and safe use of hand tools used in the manufacturing maintenance profession. The proper use of torque wrenches, power hand tools, wrenches, marking and striking devices, measurement devices, taps and dies, and other miscellaneous hand tools is covered.

METS 150 Robotics and Automated Control I 3 LCC Credits

This course includes the basics of electrical components, mechanical components, electrical drives, pneumatic and hydraulic control circuits, and robotics in a complex mechatronic system. Students will gain experience needed to perform routine maintenance and installation involving electrical and mechanical systems for an entry level position in manufacturing.

For additional information concerning this program, go to: <http://www.lcc.edu/catalog/syllabus/>
Choose to search: by "Keyword" - Type in : e.i.s.d - then select current year