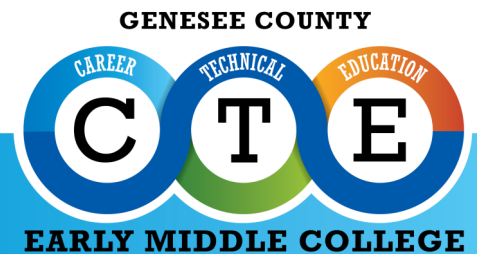


**Genesee County  
Career Technical Education  
Early Middle College**



# **Mechatronics Certificate**



**The Technology Division at Mott Community College prepares students for the Mechatronics Certificate of Achievement.**

**The Mechatronics Certificate** program prepares students for electro-mechanical related occupations spanning a variety of industry sectors including manufacturing, agriculture, aerospace, biotechnology, defense, and energy. Emphasis is placed on a system level approach to integrated electronic, mechanical, fluid power, computer and robotic systems.



**The jobs of today require highly skilled technicians.  
Gain the knowledge and hands-on experience that will  
make you employable in these rewarding careers.**



# MECHATRONICS CERTIFICATE

## A Genesee County Career and Technical Education Early Middle College Partnership

### ESSENTIAL ELEMENTS

In addition to the five year plan of study, these POS Essential Elements are integral to the student's educational development.

**Career and Technical Student Organization (CTSO)**

**Community Service**

**Educational Development Plan (EDP)**

**Work-Based Learning (WBL)**

### What is an Early Middle College?

The Genesee County Career and Technical Education Early Middle College (GC CTE EMC) is a unique opportunity for students to explore and earn an associate's degree, credential or transferable credit in a CTE Career Pathway while in high school.

Students will begin blending their high school coursework with college level coursework in 11th grade, adding additional college courses in 12th grade and complete a full schedule of college coursework in a 13th year.

### What is the MEMCA Certificate?

The Michigan Early Middle College Association (MEMCA) Certificate recognizes early middle college students who successfully complete a minimum of 15 college credit hours. The student must also complete 100 hours of verified community service, a minimum of 40 hours of internship, job shadowing, or clinical experience, or 70 hours of combined community service and verified career exploration.

**SEQUENCE OF COURSES** The grades 9-13 sequence of courses includes the Michigan Merit Curriculum requirements and the required college course work for the listed credentials. See Sequence of Course legend below.

<sup>1</sup>Students must place into these courses through a placement test. If a student does not place into these classes, the sequence of courses will be modified for the student's individual plan of study.

\*Michigan Merit Curriculum: These requirements can be met by successfully completing the first course in the same box. This option will vary by district; please discuss with your local counselor.

\*\*Students will enroll in this college course.

\*\*\*Students receive free college credit for this course by successfully completing the first course listed in the box.

9TH GRADE SEQUENCE OF COURSES		10TH GRADE SEQUENCE OF COURSES	
1st Semester	2nd Semester	1st Semester	2nd Semester
English 9	English 9	English 10	English 10
Math	Math	Math	Math
Science	Science	Science	Science
Social Studies	Social Studies	Social Studies	Social Studies
Foreign Language	Foreign Language	Physical Education	Health
Band/Choir/Fine Arts/VPAA	Band/Choir/Fine Arts/VPAA	Band/Choir/Fine Arts	Band/Choir/Fine Arts

## 11TH GRADE SEQUENCE OF COURSES

1st Semester	2nd Semester
GCI Mechatronics 2 <sup>nd</sup> Year Foreign Language, 3 <sup>rd</sup> Year Science & VPAA*	GCI Mechatronics 2 <sup>nd</sup> Year Foreign Language, 3 <sup>rd</sup> Year Science & VPAA*
English 11	English 11
Algebra II	Algebra II
Government	Elective
Band/Choir/Fine Arts or Elective	Band/Choir/Fine Arts or Elective

## 12TH GRADE SEQUENCE OF COURSES

1st Semester	2nd Semester
GCI Mechatronics Advanced Studies 2 <sup>nd</sup> Year Foreign Language, 3 <sup>rd</sup> Year Science & VPAA*	GCI Mechatronics Advanced Studies 2 <sup>nd</sup> Year Foreign Language, 3 <sup>rd</sup> Year Science & VPAA*
English 12	English 12
ELEC 131 Residential Electrical Wiring **	ELEC 135 Electronic Components and Applications **
ELEC 133 Electrical Circuits **	Elective
Band/Choir/Fine Arts or Elective	Band/Choir/Fine Arts or Elective

## 13TH GRADE SEQUENCE OF COURSES

1st Semester	2nd Semester
ELEC 139 Logical Control Systems **	ECON 221 Principles of Economics ** Economics <sup>1</sup>
ELEC 170 Modern Industrial Robotics I **	MECH 130 Pneumatic & Hydraulic Fundamentals **
ELEC 171 Modern Industrial Robotics II **	ELEC 236 Industrial Automation and Control **
MECH 120 Mechanical Components and Drives **	ELEC 155 Electric Motors Transformers and Power ** Final Year Math/ 4th Math Related*

\*This Program of Study is a guide; an individual sequence of courses will be developed for each student and is subject to change by student readiness, course availability and local school district policy.

## DEGREE/ CERTIFICATION

Mechatronics Certificate

## WAGES AND EMPLOYMENT TRENDS

**Median National Wages 2020**  
\$28.75 hourly, \$59,800 annual

**Median State Wages 2020**  
\$25.34 hourly, \$52,710 annual

**National Employment 2020**  
13,400 employees

**Projected National Growth  
2020-2030** -1%

**Projected National Openings  
2020-2030** 1,200 employees

Source: Bureau of Labor Statistics.



### HOW TO ENROLL

See your high school counselor to obtain an enrollment application for the Genesee County Career Technical Education Early Middle College. The application, along with additional information about the program, is also available at [www.gccteemc.org](http://www.gccteemc.org).



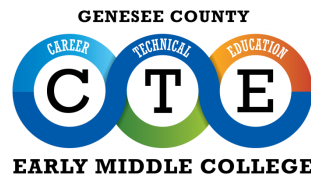
## PARTICIPATING DISTRICTS

Atherton • Beecher • Bendle • Bentley • Carman-Ainsworth • Clio • Davison  
Fenton • Flushing • Genesee • GISD • Goodrich • Grand Blanc • Kearsley  
Lake Fenton • LakeVille • Linden • Madison Academy • Montrose • Mt. Morris  
Swartz Creek • Westwood Heights

The Genesee County Career Technical Education Early Middle College is available to Genesee County high school students through a partnership of Genesee County public school districts and the Genesee Intermediate School District (GISD).



Students accepted into the Genesee County Career Technical Education Early Middle College program will remain students of their high school and may attend courses at Baker College, Genesee Career Institute, and Mott Community College to complete requirements in their Program of Study.



**For more information contact:  
Genesee County Career Technical Education  
Early Middle College Coordinator**

**Phone: (810) 591-3288**

**Email: [gc-cte-emc@geneseeisd.org](mailto:gc-cte-emc@geneseeisd.org)**

**Website: [www.gccteemc.org](http://www.gccteemc.org)**