
# MECHATRONICS & ROBOTICS

Careerline Tech Center

**Course Description:**
Mechatronics is an interdisciplinary field involving mechanical, electronic, computer, robotic, and control systems. In this program, students will gain the technical knowledge and skills needed to install, repair and maintain electromechanical, fluid power, process control or robotic systems.

- Learn to use state-of-the-art equipment in classroom/lab settings including mills, lathes, drill press, and FANUC robot.
- Obtain hands-on programming experience in hydraulics/pneumatics, SOLIDWORKS CAD, basic machining, CNC programming, electrical boards, Programmable Logic Controller (PLC), and welding.
- Build an electric race car and will compete against other schools at the Berlin Raceway in the NECA competition.

Students who would benefit from this program are those who enjoy problem-solving, computer designs, and applying mathematical skills. This field allows for creative thinking and team collaboration.

**High School Credit:** Students will earn elective credit at their high school upon completion of this course. Please see a high school counselor (based on district decision) for eligibility towards 4th-year math-related credit, VPAA credit, and waived credits for third year science and second year world language.

**College Credit:** Muskegon Community College ELTC 101 Basic Electricity (4 Credits), CAD 250 Solidworks (3 credits), MT101 Basic machining (3 Credits), HE110A-Industry safety & workplace TRNG (1 credit).

# MECHATRONICS & ROBOTICS

**LENGTH OF PROGRAM**
1 year

**Instructor:**
James Golden
Jgolden@oaisd.org

**ParaPro:**
Mitch Vrablic
MVrablic@oaisd.org

## Related Careers with 2022 Median Annual Pay from O*Net

- Robotics Technician $60,570
- Mechanical Engineers $96,310
- CNC Tool Programmers $46,760
- Electrical & Electronic Engineering Technicians $66,390
- And many more

*Experience the CTE Difference!*

**TO ENROLL**
bit.ly/CTCenroll

**QUESTIONS?**
Contact Jannette Bole
jbole@oaisd.org

**FOLLOW US**
careerlinetech.org

**Careerline Tech Center**
13663 Port Sheldon Street | Holland | 616-738-8950



## Course Outline:

**1st Semester:** Blue Print Reading, Metrology, Pneumatics/ Hydraulics, CNC Programming and Machining, along with 5S and working in high performance teams.

**2nd Semester:** Design Electrical Circuits, Basic AC/DC Electricity, Electrical Motors and Controllers, Programming FANUC Robotics.

## Resources Used:

Solidworks (CAD), FANUC RoboGuide (Robotics), and RS Logix (PLC).

## Postsecondary Partners:

Grand Valley State University and Lake Superior State University

**Work-Based Learning:** All students at CTC have the opportunity to participate in experiences such as guest speakers, tours, and work experiences that connect them with local employers in their program area.

**Safety Training Provided In:** OSHA 10-hr General Industry and Armstrong Hand Tool

**Certifications Offered:** FANUC Handling Tool, CSWA Solidworks, OSHA 10-hr General Industry

**Student Leadership Opportunities:** Students can participate in activities with classmates and outside community partners to strengthen their leadership skills through competing in NECA(National Electrical Cart Association) and/ or use 3D printers to help local schools with projects for their classrooms.

**Capstone:** Upon course completion and with teacher recommendation, qualifying students may extend their learning through Capstone. This highly independent course has rigorous attendance and employability requirements. Enrollment starts in May. See your work-based learning coordinator for more information.