



## ENGINEERING AND MACHINE TECHNOLOGIES

### Course Description:

The overall goal of the class is to understand machine tools and processes and how to complete these processes safely and accurately to a very high degree of precision.

- Students will work on conventional tool room equipment including mills, lathes, surface grinders as well as use hand tools, precision measurement instruments such as micrometers, indicators, and Computerized Machines (CNC).
- Blueprint reading, technical math, and problem-solving skills are emphasized throughout the program.
- Many entry level jobs are available through the engineering design & machine technologies class, along with supervised work experiences\*.

*\*Because students are enrolled in a State approved CTE course they can legally work on equipment listed above.*



**Careerline**  
*Tech Center*

Students who would benefit from this program are those who enjoy working with numbers, fractions and reading a micrometer and caliper for precision measurement, are mechanically and technically inclined, and enjoy problem-solving.

**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:** Direct or articulated credits through Muskegon Community College (CAD 110, CAD 135, HE110, MT101 and MT102.)

# ENGINEERING AND MACHINE TECHNOLOGIES

## LENGTH OF PROGRAM

1 year

### Instructor:

Scott Kole  
skole@oaisd.org

### ParaPro:

Barry Tilford  
btilford@oaisd.org

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

- CNC Tool Operators \$46,760
- Machinist \$48,510
- Service Writer \$29,330
- Lathe and Turning Machine Tool Setters, Operators, and Tenders (Metal and Plastic) \$47,020
- Tool & Die Makers \$59,800
- And many more

*Experience the CTE Difference!*



### TO ENROLL

[bit.ly/CTCenroll](http://bit.ly/CTCenroll)



### QUESTIONS?

Contact Jannette Bole  
[jbole@oaisd.org](mailto:jbole@oaisd.org)



### FOLLOW US

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### Careerline Tech Center

13663 Port Sheldon Street | Holland | 616-738-8950

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### Course Outline:

**1st Semester:** Safety, Metalworking Theory, Print Reading/GD&T, Benchwork, Intro to Mills/Lathes, Inspection and Measurement, Occupational Skills/Work Habits

**2nd Semester:** Machine Maintenance/Setup, Advanced Mill/Lathe Processes, CNC (Computer Numerical Control), CAD/CAM (Computer Aided Design/Computer Aided Machining)

### Resources Used:

All resources are computer based. Tooling U-SME online textbook, Solidworks 3D modeling software and MasterCam Computer Aided Machining Software

### Postsecondary Partners:

MAT<sup>2</sup>, Ferris State University, Grand Rapids Community College, and multiple company programs.

**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.

**Certifications Offered:** Certified SOLIDWORKS Associate (CSWA), Certified SOLIDWORKS Professional (CSWP), OSHA 10-Hour General Industry, CPR/AED/First Aid.

**Safety Trainings Provided:** Hand tool safety, general shop safety, including: saws, vertical mill, engine lathe, pedestal and surface grinder; CNC safety, CPR/AED/First Aid, and OSHA 10-Hour General Industry.

**Student Leadership Opportunities:** Students can participate in activities with classmates and outside community partners to strengthen their leadership skills through

**Opportunities include:** Students will have to opportunity to compete in multiple competitions, including MITES, competitions held at Metal Flow Corporation and Ferris State University.