

# MANUFACTURING ENGINEERING

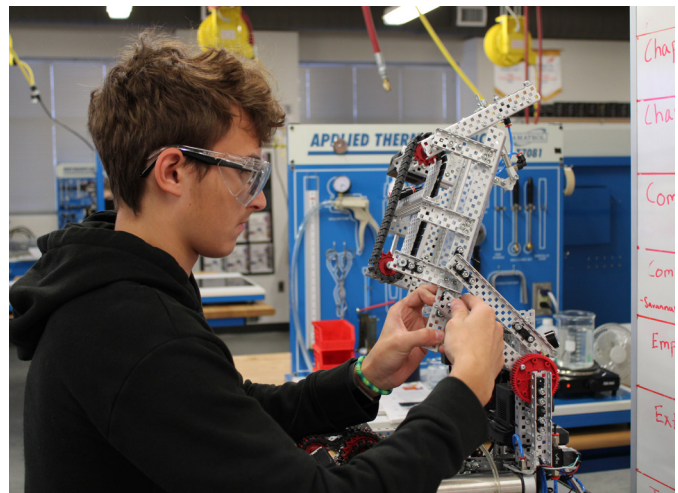
## CAREER CLUSTER: MANUFACTURING

### STATEWIDE PROGRAM OF STUDY: ROBOTICS & AUTOMATION TECHNOLOGY

Course	Credits	Class Periods	Grade	Location
Principles of Manufacturing OR Principles of Applied Engineering	1.0	1	8-12	Home Campus
Manufacturing Engineering I & II <i>Prerequisite: Principles of Manufacturing or Principles of Applied Engineering</i>	2.0	2	11-12	MCTC
Practicum in Manufacturing Engineering <i>Prerequisites: Manufacturing Engineering I &amp; II</i>	2.0	2	12	MCTC

## CERTIFICATION OPPORTUNITIES

- Certified Manufacturing Associate
- SACA C-101 Associate- Basic Operations
- SACA C-201 Electrical Systems 1
- FANUC Robot Operator 1



## PROGRAM EXPERIENCES

Manufacturing Engineering is broadly defined as the branch of engineering that focuses on the set up, continuous improvement, and operations of the manufacturing process. Students enrolled in Manufacturing Engineering will receive hands-on lab experience to gain skills and knowledge to better understand this process.

Future Engineers and Machine Technicians alike will benefit from this course as it focuses on Mechatronics and Mechatronics Engineering.

## 8057V MANUFACTURING ENGINEERING I - FALL SEMESTER

## 8058V MANUFACTURING ENGINEERING II - SPRING SEMESTER

**Grades: 11-12 1 Credit each course**

*Prerequisite: Principles of Applied Engineering or Principles of Manufacturing*

This course provides an introduction to diverse manufacturing. Students develop skills in automation and mechatronics engineering utilizing innovative computer simulations and hands-on training stations to apply learned skills in hydraulics, pneumatics, mechanical fabrication, thermodynamics, electrical control and programmable logic controllers (PLCs) in a real-world environment.

## 8059V PRACTICUM IN MANUFACTURING ENGINEERING

**Grade: 12 2 Credits**

*Prerequisites: Manufacturing Engineering I & II*

This course provides practical application of previously learned knowledge and skills in real-world and simulated environments. Students create solutions in automation and manufacturing by mastering the Tabletop Mechatronics station, Fanuc Robotic Arm and Fanuc Computer Numerical Control (CNC). They transform CAD designs into 3D models using a 3D printer.

## EXPECTATIONS OF STUDENTS

- Ability to learn theory through both lecture and the computer-based modules.
- Exhibit ability to work independently during lab time.
- Ability to apply learned skills on various simulators including programmable logic controls (PLC), electronics, pneumatics/hydraulics, and computer numerical controls (CNC).

## CAREER POSSIBILITIES

- CNC Machinist
- CNC Programmer
- Electrical Engineer
- Mechatronics Engineer
- Plant Manager
- Process Controller
- Robot Programmer

