

MANUFACTURING CAREER CLUSTER



PROGRAM OF STUDY:

MANUFACTURING: 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>Prerequisite: Manufacturing Engineering I & II</i>	2.0	2	12	MCTC

CERTIFICATION OPPORTUNITIES

During the first year of Manufacturing Engineering, students will have the opportunity to sit for the Certified Manufacturing Associate and Autodesk Associate Fusion 360 certification exam. Students enrolled in Practicum in Manufacturing will have the opportunity to test for the FANUC Robot Operator I certification.

CAREER POSSIBILITIES

- CNC Machinist
- CNC Programming
- Maintenance Technician
- Mechatronics Engineering
- Plant Management
- Process Control
- Robot Programming



8057V MANUFACTURING ENGINEERING I - FALL SEMESTER

8058V MANUFACTURING ENGINEERING II - SPRING SEMESTER

Grades: 11-12 1 Credit each course

Prerequisites: 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 lab area.
- 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).

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.

