

Manufacturing Career Cluster

The Manufacturing Career Cluster focuses on planning, managing, and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance, and process engineering. This career cluster includes occupations ranging from Welder and Machinist to Industrial Engineering Technician, and Semi-Conductor Processing Technician.

Robotics



The Robotics program of study is focuses on occupational and educational opportunities associated with the assembly, operation, maintenance, and repair of electromechanical equipment or devices. This program of study includes exploration of a variety of mechanical fields, including robotics, refinery and pipeline systems, deep ocean exploration, and hazardous waste removal.

Secondary Courses for High School Credit

Level 1

- Principles of Applied Engineering

Level 2

- Robotics I

Level 3

- None

Level 4

- Practicum in Manufacturing I - Robotics (H) ¹
- *Practicum in Manufacturing II – Robotics (H)
*Coming 2025-26 School Year



Postsecondary Opportunities

Associates Degrees

- Instrumentation Technology
- Robotics Technology
- Automation Engineer Technology

Bachelor's Degrees

- Mechanical Engineering
- Electrical and Electronics Engineering
- Electromechanical Engineering Technology

Master's, Doctoral, and Professional Degrees

- Engineering/Industrial Management
- Industrial Engineering

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
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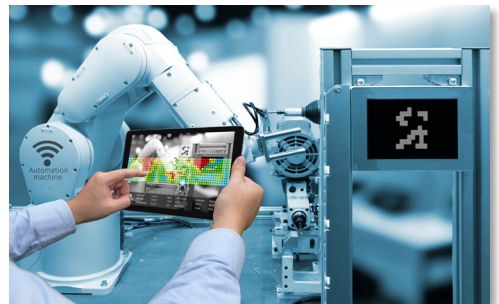
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| <ul style="list-style-type: none"> Participate in SkillsUSA and local STEM events | <ul style="list-style-type: none"> Work at a local business or industry apprenticeship |
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Industry-Based Certifications

- C-101 Certified Industry 4.0 Associate – Basic Operations ¹
- C-103 Certified Industry 4.0 Associate – Robot System Operations ¹

Aligned Advanced Academic Courses

- AP Computer Science A



Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Industrial Engineers	\$104,000	1,900	26%
Computer Numerically Controlled Tool Operators	\$46,700	1,200	10%
Industrial Machinery Mechanics	\$61,000	5,300	35%

Successful completion of the Robotics program of study will fulfill requirements of the Business and Industry. Revised – May 2024

Robotics Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	GRADE LEVEL(S)
Principles of Applied Engineering	13036200 (1 credit)	None	9

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	GRADE LEVEL(S)
Robotics I	13037000 (1 credit)	Principles of Applied Engineering	10

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	GRADE LEVEL(S)
None	-	-	-

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	GRADE LEVEL(S)
Practicum in Manufacturing I – Robotics (H)	13033000 (2 credits)	Robotics I	11 - 12
*Practicum in Manufacturing II – Robotics (H) <i>*Coming 2025-26 School Year</i>	13033010 (2 credits)	Practicum in Manufacturing I - Robotics (H)	12

FOR ADDITIONAL INFORMATION ON THE MANUFACTURING CAREER CLUSTER,
PLEASE CONTACT YOUR CAMPUS CTE COUNSELOR
<https://tea.texas.gov/cte>

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Further nondiscrimination information can be found at
[Notification of Nondiscrimination in Career and Technical Education Programs.](#)