

# 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 manufacturing/process engineering.

## Industrial Maintenance Regional Program of Study



The Industrial Maintenance regional program of study focuses CTE learners on the occupations and educational opportunities available in maintaining and repairing manufacturing equipment and facilities. Students in this program of study will gain knowledge and experience in electrical, welding, hydraulics, plumbing, heating and air conditioning and construction technology.

### Secondary Courses for High School Credit

#### Level 1

- Introduction to Welding

#### Level 2

- Construction Technology I
- Electrical Technology I
- Heating, Ventilation, and Air Conditioning (HVAC), and Refrigeration Technology I

#### Level 3

- Basic Fluid Power

#### Level 4

- Career Preparation I

### Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
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- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• Participate and compete in SkillsUSA</li> <li>• Shadow a machinist</li> </ul> | <ul style="list-style-type: none"> <li>• Work at a local business</li> <li>• Participate in an industry apprenticeship</li> </ul> |
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### Industry-Based Certifications

- C-200 Certified Industry 4.0 Automation Systems Specialist I - 201 Electrical Systems 1
- C-200 Certified Industry 4.0 Automation Systems Specialist I - 202 Electric Motor Control Systems 1
- C-200 Certified Industry 4.0 Automation Systems Specialist I - 204 Motor Control Troubleshooting 1
- Certified Technician-Supply Chain Automation (CT-SCA)
- Industrial Technology Maintenance (ITM) - Basic Mechanical Systems
- Industrial Technology Maintenance (ITM) - Basic Pneumatic Systems
- Industrial Technology Maintenance (ITM) - Electrical Systems
- Industrial Technology Maintenance (ITM) - Maintenance Operations
- NCCER Core
- OSHA 30 Hour General\*
- ISCET Certified Electronics Technicians

\*IBC Sunsetting 8/31/24

### Postsecondary Opportunities

#### Certificate / License

- Certified Welder or Welder Inspector
- Certified Welding Engineering

#### Associates Degrees

- Welding Technology/ Welder
- Industrial Engineering Technicians

#### Bachelor's Degrees

- Welding Engineering Technology/ Technician
- Industrial Engineering Technicians

#### Master's, Doctoral, and Professional Degrees

- Welding Engineering Technology/ Technician
- Industrial Engineering Technicians

### Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Industrial Production Managers	\$106,205	827	9%
Industrial Engineers	\$97,074	1,263	10%
Industrial Engineering Technicians	\$61,672	326	9%
Electrical and Electronics Repairers, Commercial and Industrial Equipment	\$53,498	667	9%
Industrial Machinery Mechanics	\$49,816	3,788	27%

Successful completion of the Industrial Management regional program of study will fulfill requirements of the Business and Industry endorsement. Revised – August 2022

# Industrial Maintenance Course Information

## Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Introduction to Welding	13032250 (1 credit)	None	None

## Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Construction Technology I	13005100 (2 credits)	None	None
Electrical Technology I	13005600 (1 credit)	None	None
Heating, Ventilation, and Air Conditioning (HVAC) and Refrigeration Technology I	13005800 (1 credit)	None	None

## Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Basic Fluid Power	N1303683 (1 credit)	None	None

## Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Career Preparation I	12701300 (2 credits) 12701305 (3 credits)	None	None

FOR ADDITIONAL INFORMATION ON THE MANUFACTURING CAREER CLUSTER,  
PLEASE CONTACT: [CTE@tea.texas.gov](mailto:CTE@tea.texas.gov)  
<https://tea.texas.gov/cte>

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