

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.

Statewide Program of Study: Manufacturing Technology

The Manufacturing Technology program of study focuses on occupational and educational opportunities associated with the development and use of automatic and computer-controlled machines, tools, and robots that perform work on metal or plastic. It includes exploration of a variety of machine tools that are used to produce precision parts and instruments. This program of study addresses how to modify parts to make or repair machine tools or maintain individual machines, and how to use hand-welding or flame-cutting equipment.



Secondary Courses for High School Credit

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| Level 1 | <ul style="list-style-type: none">• Principles of Welding and Machining (1 credit)<ul style="list-style-type: none">• 1809CT; 9-12 grade• 1 semester at Ben Barber |
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| Level 2 | <ul style="list-style-type: none">• Diversified Manufacturing (1 credit)<ul style="list-style-type: none">• 1828CT; 9-12 grade• 1 semester at Ben Barber• <i>Prerequisite: Principles of Welding and Machining</i>• Welding and Machining I (2 credits)<ul style="list-style-type: none">• 1801CA/CB; 10-12 grade• 2 semesters at Ben Barber• <i>Prerequisite: Principles of Welding and Machining AND Algebra I</i>• NIMS Measurement, Materials, & Safety• Entrepreneurship (1 credit)<ul style="list-style-type: none">• 1720CT or 1720A/B; 9-12 grade• 1 semester at Ben Barber or 2 semesters at Home Campus |
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| Level 3 | <ul style="list-style-type: none">• Welding and Machining II (2 credits)<ul style="list-style-type: none">• 1802CA/CB; 11-12 grade• 2 semesters at Ben Barber• <i>Prerequisite: Welding & Machining I AND Geometry</i>• Computer Integrated Manufacturing (PLTW) (1 credit)<ul style="list-style-type: none">• 1838CT; 10-12 grade• 1 semester at Ben Barber• Weighted Credit• <i>Prerequisite: Introduction to Engineering</i> |
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| Level 4 | <ul style="list-style-type: none">• Practicum in Manufacturing (2 credit)<ul style="list-style-type: none">• 1822CA/CB; 12 grade• 2 semesters at Ben Barber• <i>Prerequisite: Level 1 or 2 AND Level 3 or 4 course AND Selection Process</i> |



Example Postsecondary Opportunities

Associate Degrees

- Industrial Technology
- Instrumentation Technology
- Manufacturing Engineering Technology
- Machine Shop Technology



Bachelor's Degrees

- Engineering/Industrial Management
- Industrial Engineering
- Mechanical Engineering Technology
- Manufacturing Engineering

Master's, Doctoral, and Professional Degrees

- Mechanical Engineering
- Engineering/Industrial Management
- Industrial Engineering
- Engineering



Example Aligned Occupations

Machinists

Median Wage: \$48,732
Annual Openings: 3,385
10-Year Growth: 23%

Industrial Engineering Technologists and Technicians

Median Wage: \$62,096
Annual Openings: 787
10-Year Growth: 17%

Mechanical Engineers

Median Wage: \$99,937
Annual Openings: 1,755
10-Year Growth: 19%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:

<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/programs-of-study-additional-resources>