



Level 1	Blueprint Reading for Manufacturing Applications Principles of Manufacturing Principles of Applied Engineering
Level 2	Metal Fabrication and Machining I Diversified Manufacturing I Occupational Safety and Environmental Technology I
Level 3	Precision Metal Manufacturing I Metal Fabrication and Machining II Diversified Manufacturing II Occupational Safety and Environmental Technology II Computer Integrated Manufacturing (PLTW)
Level 4	Precision in Metal Manufacturing II/Lab Occupational Safety and Environmental Technology III Practicum in Manufacturing Practicum in Entrepreneurship

HIGH SCHOOL/INDUSTRY CERTIFICATION	CERTIFICATE/LICENSE*	ASSOCIATE'S DEGREE	BACHELOR'S DEGREE	MASTER'S/DOCTORAL PROFESSIONAL DEGREE
MSSC Certified Production Technician	Certified Welder or Welder Inspector	Welding Technology/Welder	Welding Engineering Technology/Technician	Welding Engineering Technology/Technician
ISCET Associate-Level Certified Electronics Technician	Machining Level 1 - CNC Milling: Programming Setup & Operations	Machine Shop Technology/Assistant	Biomedical Technology/Technician	Occupational Health and Industrial Hygiene
Mastercam Professional Level Certification	Certified Welding Engineering	Operations Management and Supervision	Operations Management and Supervision	Operations Management and Supervision
NIMS Industrial Technology Maintenance - Basic Mechanical System	Certified Environmental, Safety, and Health Trainer	Occupational Safety and Health Technology/Technician	Environmental Health	Environmental Health

Occupations	Median Wage	Annual Openings	% Growth
Mechanical Engineering Technicians	\$57,117	453	9%
CNC Machine Operators	\$39,250	1,319	12%
Aerospace Engineering and Operations Technicians	\$60,757	114	9%
Electrical and Electronics Engineering Technicians	\$60,382	1,439	9%
Industrial Engineering Technicians	\$61,672	326	9%

WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES	
Exploration Activities:	Work Based Learning Activities:
Participate and compete in SkillsUSA Job shadow a machinist	Apprenticeship at a local business or industry American Welding Society

Additional industry-based certification information is available on the TEA CTE website. For more information on postsecondary options for this program of study, visit TXCTE.org.

The Manufacturing Technology program of study focuses on the development and use of automatic and computer-controlled machines, tools, and robots that perform work on metal or plastic. CTE learners will learn how to set up and operate a variety of machine tools to produce precision parts and instruments. Students will also learn how to modify parts to make or repair machine tools or maintain individual machines, and how to use hand-welding or flame-cutting equipment.



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.

Successful completion of the Manufacturing Technology program of study will fulfill requirements of the Business and Industry and STEM Endorsement if math and science requirements are met. Revised - March 2022



COURSE INFORMATION

COURSE NAME	SERVICE ID	PREREQUISITES (PREQ) COREQUISITES (CREQ)	Grade
Blueprint Reading for Manufacturing Applications	N1303684 (1 credit)	None	10-12
Principles of Manufacturing	13032200 (1 credit)	None	9-12
Occupational Safety and Environmental Technology I	N1303680 (1 credit)	None	9-12
Principles of Applied Engineering	13036200 (1 credit)	None	9-10
Metal Fabrication and Machining I	13032700 (2 credits)	None	10-12
Diversified Manufacturing I	13032650 (1 credit)	None	10-12
Occupational Safety and Environmental Technology II	N1303681 (1 credit)	PREQ: OSET I	9-12
Precision Metal Manufacturing I	13032500 (2 credits)	None	10-12
Metal Fabrication and Machining II	13032800 (2 credits)	PREQ: Metal Fabrication and Machining I	11-12
Diversified Manufacturing II	13032660 (1 credit)	PREQ: Diversified Manufacturing I	11-12
Occupational Safety and Environmental Technology III	N1303682 (2 credits)	PREQ: OSET I and II	11-12
Computer Integrated Manufacturing (PLTW)	N1303748 (1 credit)	None	9-12
Precision Metal Manufacturing II/Lab	13032600 (2 credits) 13032610 (3 credits)	None	11-12
Practicum in Manufacturing	13033000 (2 credits) 13033005 (3 credits) 13033010 (2 credits) 13033015 (3 credits)	None	12
Practicum in Entrepreneurship	N1303425 (2 credits)	None	11-12

FOR ADDITIONAL INFORMATION ON THE MANUFACTURING CAREER CLUSTER, PLEASE CONTACT:

CTE@tea.texas.gov
<https://tea.texas.gov/cte>

(District) offers career and technical education programs in (types of programs offered). Admission to these programs is based on (admission standards). It is the policy of (District) not to discriminate on the basis of race, color, national origin, sex or handicap in its vocational programs, services or activities as required by Title VI of the Civil Rights Act of 1964, as amended; Title IX of the Education Amendments of 1972; and Section 504 of the Rehabilitation Act of 1973, as amended. It is the policy of (District) not to discriminate on the basis of race, color, national origin, sex, handicap, or age in its employment practices as required by Title VI of the Civil Rights Act of 1964, as amended; Title IX of the Education Amendments of 1972; the Age Discrimination Act of 1975, as amended; and Section 504 of the Rehabilitation Act of 1973, as amended. (District) will take steps to assure that lack of English language skills will not be a barrier to admission and participation in all educational and vocational programs. For information about your rights or grievance procedures, contact the Title IX Coordinator at (physical address of Coordinator) (email address of Title IX Coordinator), (phone number of Title IX Coordinator), and the Section 504 Coordinator at (physical address of Coordinator), (email address of Section 504 Coordinator), (phone number of Section 504 Coordinator)