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| Level 1 | Principles of Manufacturing Introduction to Engineering Design (PLTW) |
| | Robotics I |
| Level 2 | |
| | Robotics II |
| Level 3 | |
| | Robotics III-Practicum in Manufacturing Career Preparation I |
| Level 4 | |

| HIGH SCHOOL/ INDUSTRY CERTIFICATION | CERTIFICATE/ LICENSE* | ASSOCIATE'S DEGREE | BACHELOR'S DEGREE | MASTER'S/ DOCTORAL PROFESSIONAL DEGREE |
|---|--------------------------------------|--|---------------------------|---|
| FAA 107 Drone Pilot | Engineer, Professional | Electro- mechanical Engineering/ Technology | Electrical Engineering | Electrical Engineering |
| | Certified Quality Technician | Certified Quality Technician | Industrial Engineering | Industrial Engineering |
| | Plant Maintenance Technologist | Industrial Mechanics and Maintenance Technology | Mechanical Engineering | Mechanical Engineering |

| Occupations | Median Wage | Annual Openings | % Growth |
|-----------------------------------|----------------|--------------------|----------|
| Electro-Mechanical Assemblers | \$30,160 | 951 | 9% |
| Electro-Mechanical Technicians | \$56,555 | 127 | 9% |
| Industrial Machinery Mechanics | \$49,816 | 3,788 | 27% |

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.

| WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES | |
|---|--|
| Exploration Activities: | Work Based Learning Activities: |
| Participate in SkillsUSA and local STEM events | Apprenticeship at a local business or industry American Welding Society |

The Advanced Manufacturing and Machinery Mechanics program of study focuses on the assembly, operation, maintenance, and repair of electromechanical equipment or devices. CTE learners may work in a variety of mechanical fields, gaining knowledge and experience in robotics, refinery and pipeline systems, deep ocean exploration, or hazardous waste removal. CTE concentrators may work in a variety of fields of engineering.



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 Advanced Manufacturing and Machinery program of study will fulfill requirements of the Business and Industry or STEM endorsement if the math and science requirements are met. Revised - July 2020



COURSE INFORMATION

| COURSE NAME | SERVICE & COURSE ID | PREREQUISITS (PREQ) COREQUISITES (CREQ) | Grade |
|---|-----------------------------|---|-------|
| Principles of Manufacturing | 13032200 / 8320 (1 credit) | None | 9-12 |
| Introduction to Engineering Design (PLTW) | N1303742 / 8387 (1 credit) | None | 9-12 |
| Robotics I | 13037000 / 8400 (1 credit) | Introduction to Engineering Design (PLTW) | 9-10 |
| Robotics II | 13037050 / 8401 (1 credit) | Robotics I | 10-12 |
| Robotics III-Practicum in Manufacturing | 13033000 / XXXX (2 credits) | Robotics II, Biology, Algebra I, and Geometry | 12 |
| Career Preparation I | 12701300 / 8000 (2 credits) | None | 11-12 |

BISD Recommended Course Sequence

| Grade | 9 th Year | 10 th Year | 11 th Year | 12 th Year |
|---------|---|-----------------------|-----------------------|-----------------------------|
| Courses | Principles of Manufacturing or Introduction to Engineering Design | Robotics I | Robotics II | Robotics III or Career Prep |