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| Level 1 | Principles of Applied Engineering Computer Aided Drafting and Manufacturing (TBD) Introduction to Engineering Design (PLTW) Engineering Essentials (PLTW) Manufacturing Engineering Technology I |
| Level 2 | |
| Level 3 | Engineering and Design and Development (PLTW) Engineering Design and Presentation I Computer Integrated Manufacturing (PLTW) Aerospace Engineering (PLTW) Digital Electronics Civil Engineering and Architecture (PLTW) Engineering Science Environmental Sustainability (PTLW) |
| Level 4 | Engineering Design and Problem Solving Engineering Design and Presentation II Practicum in STEM Scientific Research and Design |

| HIGH SCHOOL/INDUSTRY CERTIFICATION | CERTIFICATE/LICENSE* | ASSOCIATE'S DEGREE | BACHELOR'S DEGREE | MASTER'S/DOCTORAL PROFESSIONAL DEGREE |
|--|----------------------------------|--|---|---|
| Autodesk Certified Professional or User (ACU)-Inventor | Engineer, Professional | Electrical and Electronics Engineering | Electrical and Electronics Engineering | Electrical and Electronics Engineering |
| Certified SolidWorks Associate (CSWA) | Fluid Power Systems Designer | Drafting and Design Technology/Technician, General | CAD/CADD Drafting and/or Design Technology/Technician | Mechanical Engineering |
| Certified Engineering Technician-Audio Systems | Certified Biomedical Auditor | Engineering Technology | Bioengineering and Biomedical Engineering | Bioengineering and Biomedical Engineering |
| | Certified Cost Estimator/Analyst | | Construction Engineering Technology/Technician | |

| Occupations | Median Wage | Annual Openings | % Growth |
|----------------------|-------------|-----------------|----------|
| Aerospace Engineers | \$110,843 | 481 | 9% |
| Industrial Engineers | \$97,074 | 1,263 | 10% |
| Mechanical Engineers | \$91,107 | 1,535 | 11% |
| Chemical Engineers | \$112,819 | 474 | 9% |
| Electrical Engineers | \$98,405 | 1,137 | 10% |

| WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES | |
|---|--|
| Exploration Activities: | Work Based Learning Activities: |
| Participate in competitions like Skills USA | Engineering internship Job shadow a machinist |

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 Engineering program of study focuses on the design, development, and use of engines, machines, and structures. CTE learners will learn how to apply science, mathematical methods, and empirical evidence to the innovation, design, construction, operation, and maintenance of different manufacturing systems.



The Science, Technology, Engineering, and Mathematics (STEM) Career Cluster focuses on planning, managing, and providing, scientific research and professional and technical services, including laboratory and testing services, and research and development services.

Successful completion of the Engineering 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 ID | PREREQUISITES (PREQ) COREQUISITES (CREQ) | Grade |
|--|--|--|-------|
| Principles of Applied Engineering | 13036200 (1 credit) | None | 9-10 |
| Computer Aided Drafting for Manufacturing (TBD) | TBD | TBD | TBD |
| Introduction to Engineering Design (PLTW) | N1303742 (1 credit) | None | 9-12 |
| Engineering Essentials (PLTW) | N1303760 (1 credit) | None | 9-10 |
| Manufacturing Engineering Technology I | 13032900 (1 credit) | None | 10-12 |
| Engineering Design and Development (PLTW) | N1303749 (1 credit) | None | 9-12 |
| Engineering Design and Presentation I | 13036500 (1 credit) | PREQ: Algebra I | 10-12 |
| Computer Integrated Manufacturing (PLTW) | N1303748 (1 credit) | None | 9-12 |
| Aerospace Engineering (PLTW) | N1303745 (1 credit) | None | 9-12 |
| Digital Electronics | 13037600 (1 credit) | PREQ: Algebra I and Geometry | 10-12 |
| Civil Engineering & Architecture (PLTW) | N1303747 (1 credit) | None | 9-12 |
| Engineering Science | 13037500 (1 credit) | PREQ: Algebra I and Biology Chemistry, Integrated Physics, and Chemistry (IPC), or Physics | 10-12 |
| Environmental Sustainability (PLTW) | N1303746 (1 credit) | None | 9-12 |
| Engineering Design & Problem Solving | 13037300 (1 credit) | PREQ: Algebra I and Geometry | 11-12 |
| Engineering Design and Presentation II | 13036600 (2 credits) | PREQ: Algebra I and Geometry | 11-12 |
| Practicum in Science, Technology, Engineering, and Mathematics | 13037400 (2 credits) 13037405 (3 credits) 13037410 (2 credits) 13037415 (2 credits) | PREQ: Algebra I and Geometry | 12 |
| Scientific Research & Design | 13037200 (1 credit) | PREQ: Biology, Chemistry, Integrated Physics, and Chemistry (IPC), or Physics | 11-12 |

FOR ADDITIONAL INFORMATION ON THE SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS CAREER CLUSTER, PLEASE CONTACT: CTE@tea.texas.gov

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