Science, Technology, Engineering, and Mathematics Career Cluster

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.

Engineering
Statewide Program of Study

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.

Secondary Courses for High School Credit

Level 1
- Principles of Applied Engineering
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Level 2
- Manufacturing Engineering Technology I

Level 3
- Engineering Design and Presentation I
- Engineering Science
-

Level 4
- Engineering Design and Problem Solving
- Practicum in STEM
- Scientific Research and Design

Postsecondary Opportunities

Associates Degrees
- Electrical and Electronics Engineering
- Drafting and Design Technology/ Technician, General
- Engineering Technology

Bachelor's Degrees
- Electrical and Electronics Engineering
- CAD/CADD Drafting and/or Design Technology/ Technician
- Bioengineering and Biomedical Engineering
- Construction Engineering Technology/ Technician

Master's, Doctoral, and Professional Degrees
- Electrical and Electronics Engineering
- Mechanical Engineering
- Bioengineering and Biomedical Engineering

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Participate in Skills USA competitions	• Intern at an engineering firm • Shadow a machinist

Industry-Based Certifications

- Autodesk Associate (Certified User) AutoCAD
- Autodesk Associate (Certified User) Fusion 360
- Autodesk Associate (Certified User) Inventor for Mechanical Design
- Autodesk Associate (Certified User) Revit Architecture
- Autodesk Associate (Certified User) Revit for Electrical
- Autodesk Associate (Certified User) Revit for Structural Design
- Autodesk Certified Professional Fusion 360
- Autodesk Certified Professional in AutoCAD for Design and Drafting
- Autodesk Certified Professional in Civil 3D for Infrastructure Design
- Autodesk Certified Professional in Inventor for Mechanical Design
- Autodesk Certified Professional in Revit for Architectural Design
- Autodesk Certified Professional in Revit for Electrical Design
- Autodesk Certified Professional in Revit for Structural Design
- C-103 Certified Industry 4.0 Associate - Robot System Operations
- Engineering Technology Foundations
- Lean Six Sigma Green Belt Certification
- Pre-Engineering/Engineering Technology - Job Ready

- Certified SOLIDWORKS Associate*

*IBC sunsetting 8/31/24

Aligned Occupations

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	105

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 – October 2022

TEA Texas Education Agency

Engineering
Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Principles of Applied Engineering	13036200 (1 credit)	None	None

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Manufacturing Engineering Technology I	13032900 (1 credit)	None	None

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Engineering Design and Presentation I	13036500 (1 credit)	Algebra I	None
Engineering Science	13037500 (1 credit)	Algebra I, Biology, Chemistry and either Integrated Physics (IPC) or Physics, and at least one credit in a course from the STEM career cluster	None

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Engineering Design & Problem Solving	13037300 (1 credit)	Algebra I and Geometry	None
Practicum in Science, Technology, Engineering, and Mathematics	13037400 (2 credits) 13037405 (3 credits) 13037410 (2 credits) 13037415 (2 credits)	Algebra I and Geometry	None
Scientific Research & Design	13037200 (1 credit)	Biology, Chemistry and either Integrated Physics (IPC) or Physics	None

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

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Further nondiscrimination information can be found at Notification of Nondiscrimination in Career and Technical Education Programs.