Engineering Career Cluster

The Engineering career cluster focuses on planning, designing, testing, building, and maintaining of machines, structures, materials, systems, and processes using empirical evidence and science, technology, and math principles. This career cluster includes occupations ranging from mechanical engineer and drafter to electrical engineer and to mapping technician.

The Engineering Foundations program of study focuses on occupational and educational opportunities associated with a wide range of skills applied in the Engineering industry. Students will design, test, and evaluate projects related to engines, machines, and structures. This program of study incudes applying scientific, mathematical, and empirical evidence to solve problems through innovation, design, construction, operation, and maintenance of different engineering systems.

Secondary Courses for High School Credit

Level 1	• Principles of Applied Engineering • Principles of Technology • Introduction to Computer-Aided Design and Drafting • Introduction to Engineering Design (PLTW)
Dual Credit	Dual credit offerings will vary by local education agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards concentrator/completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	• Intern at an engineering, robotics, or aerospace company. • Visit an engineering firm and shadow multiple types of engineers.
Expanded Learning Opportunities	• Participate in SkillsUSA or TSA • Join a local engineering association and attend meetings

Aligned 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 Infrastructio fo/te (fo a0 Tw 6 -09Tf1(a)0desk Associfor Electristristro r D.2 (i)-4 E64ytr48.1 (f)c9Tw 6 -0 0 6 18.5765 825(d)-0.89T(d)23.5 (f)-64 -0 0 5.04 28.52 (r)0.9 (a)11.8 (s)19.1 (t)- 28.52 (r)0.9 (a)11.8 (s)19.1 (t)- 28.52 (r)0T51.8 (s)19.1

Engineering Career Cluster

Course Information

Level 1

Course	Prerequisites | Corequisites	Career Clusters
Principles of Applied Engineering* 13036200 (1 credit)	**Prerequisites:** None **Corequisites:** None **Recommended Prerequisites:** None **Recommended Corequisites:** None	
Principles of Technology* 13037100 (1 credit)	**Prerequisites:** One credit of high school science and Algebra I **Corequisites:** None **Recommended Prerequisites:** None **Recommended Corequisites:** None	
Introduction to Computer-Aided Design and Drafting* 13037350 (1 credit)	**Prerequisites:** None **Corequisites:** None **Recommended Prerequisites:** Principles of Applied Engineering, Principles of Architecture and Design, or Principles of Manufacturing. **Recommended Corequisites:** None	
Introduction to Engineering Design (PLTW)* N1303742 (1 credit)	**Prerequisites:** None **Corequisites:** None **Recommended Prerequisites:** None **Recommended Corequisites:** None	
Engineering Essentials (PLTW)* N1303760 (1 credit)	**Prerequisites:** None **Corequisites:** None **Recommended Prerequisites:** None **Recommended Corequisites:** None	

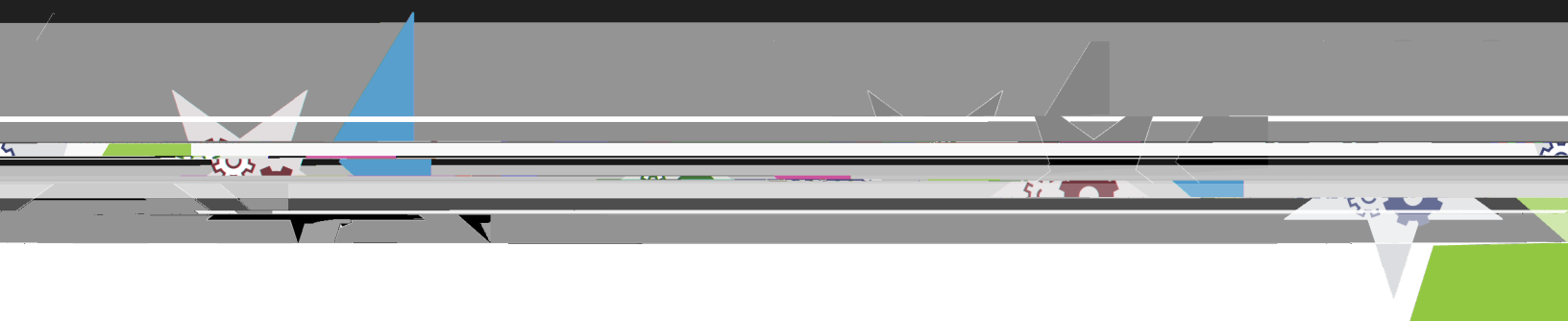
Level 2

Course	Prerequisites | Corequisites	Career Clusters
Intermediate Computer-Aided Design and Drafting* 13037360 (1 credit)	**Prerequisites:** Architectural Design I, Introduction to Computer-Aided Design and Drafting, or Engineering Design and Presentation I **Corequisites:** None **Recommended Prerequisites:** None **Recommended Corequisites:** None	
Manufacturing Engineering Technology I* 13032900 (1 credit)	**Prerequisites:** None **Corequisites:** None **Recommended Prerequisites:** Algebra I **Recommended Corequisites:** None	
Robotics I* 13037000 (1 credit)	**Prerequisites:** None **Corequisites:** None **Recommended Prerequisites:** Principles of Applied Engineering **Recommended Corequisites:** None	

** Indicates course is included in more than one program of study.*

For additional information on the **Engineering** career cluster, contact cte@tea.texas.gov or visit https://tea.texas.gov/cte

Engineering Career Cluster



Engineering Career Cluster

Course Information

Level 4

Course	Prerequisites | Corequisites	Career Clusters
Career Preparation for Programs of Study* First Time TakencRP-2P69749of -0.009(Ɐ0.138.039 5.76)9 203jofryit 0 9.96 75 (n)-2 (g)1 (C8.04 391.79 7802t32of)-4.2 (-0.009(Ɐ)3 .2		