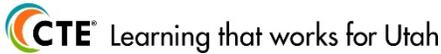


# Utah Career and Technical Education Career Pathway

## 2019-2020 School Year



**CTSO Information**  
 Career and Technical Student Organizations (CTSO) align with the national Career Clusters® and the Utah CTE Career Pathways.

TSA is the CTSO for students in the Mechanical Engineering Career Pathway. TSA fosters personal growth, leadership, and opportunities in science, technology, engineering, and mathematics (STEM).

**Workforce Trends**  
 Due to the expansion of jobs in the technical fields and the increasing number of engineers who are retiring, the number of job openings in technology and engineering are increasing.

According to the U.S. Department of Labor, 13 percent of U.S. engineering jobs are held by women, with one in four jobs in technology, engineering, and mathematics.

### Career Cluster: Engineering & Technology

### Career Pathway: Mechanical Engineering

CORE CODE	FOUNDATION COURSES (required)	CREDITS	
<b>CAD Component</b>			
38.01.00.00.051	<a href="#">CAD Mechanical Design 1</a>	.50	1.00 credit
38.01.00.00.052	<a href="#">CAD Mechanical Design 2</a>	.50	
<i>Or choose the following course:</i>			
38.01.00.00.300	<a href="#">PLTW Introduction to Engineering Design</a>	1.00	
<b>Foundation Component</b>			
38.01.00.00.151	<a href="#">Engineering Principles 1</a>	.50	1.00 credit
38.01.00.00.152	<a href="#">Engineering Principles 2</a>	.50	
<i>Or choose the following course:</i>			
38.01.00.00.310	<a href="#">PLTW Principles of Engineering</a>	1.00	
<b>Capstone Component</b>			
38.01.00.00.990	<a href="#">Engineering Capstone</a>	1.00	1.00 credit
<i>Or choose the following course:</i>			
38.01.00.00.390	<a href="#">PLTW Engineering Design and Development</a>	1.00	
<b>ELECTIVE COURSES</b>			
38.03.00.00.010	<a href="#">Engineering Technology</a>	.50	3.00 credits for completion
38.01.00.00.211	<a href="#">Physics with Technology</a>	1.00	
41.00.00.00.050	<a href="#">CTE Internship</a>	.50	
41.00.00.00.030	<a href="#">Workplace Skills</a>	.50	

Foundation courses taken beyond the required credits can be used as elective credit.

**Career and Technical Education provides all students access to high-quality, rigorous career-focused programs that result in attainment of credentials with labor market value.**

**Mechanical Engineering is:**  
 > High-skill  
 > High-wage

**Sample Occupations Requiring:**  
[High School Diploma](#)  
 > N/A

[Certificate](#)  
 > N/A

[Assoc. or Technical Degree](#)  
 > Civil Engineer Technician  
 > Engineering Technician  
 > Industrial Engineering Technician  
 > Mechanical Engineering Technician

[Baccalaureate Degree](#)  
 > Aerospace Engineer  
 > Biomedical Engineer  
 > Career and Technical Education Teacher  
 > Civil Engineer  
 > Electrical Engineer  
 > Industrial Engineer  
 > Mechanical Engineer

[Graduate or Prof. Degree](#)  
 > Civil Engineer

**Student Testimonial**

"I have always liked doing hands-on projects and thinking of different ways to make something better. With the CTE classes I was able to see whole processes, from the design stage on paper to transferring that design and idea into a computer application, then all the way to building a prototype."

Hunter Okerlund

### HIGH SCHOOL TO POSTSECONDARY EDUCATION AND TRAINING

There are a number of options for education and training beyond high school, depending on your career goals.

<b>12th Grade</b>	<b>1-Year Certificate</b>	<b>2-Year Associate or Technical Degree</b>	<b>4-Year Bachelor's Degree</b>	<b>More Graduate or Prof. Degree</b>
Certificates are awarded upon the successful completion of a brief course of study, usually one year or less. Upon completion of a course of study, a certificate does not require any further action to retain. In high school a variety of certificates can be earned.		An academic degree is an award for the completion of a program or course of study over multiple years at postsecondary education institutions. In 2016-2017, 74 percent of secondary students who concentrated in a CTE Career Pathway placed in postsecondary education, advanced training, military service or employment (October 1-December 31).		

**Utah Business and Industry Facts**

The Engineering Initiative, established by the Utah State Legislature in 2001, aimed to triple engineering and computer science graduates. Since 2015, Utah state schools graduated 907 engineering and computer science students per year, 657 more than promised.

According to Richard Brown, Dean of Engineering at the University of Utah, Utah's gross domestic product has more than doubled since the Engineering Initiative started.

**UtahFutures: College and Career Planning**  
 Visit [UtahFutures.org](http://UtahFutures.org) to explore occupations, search salary projections, access labor market information, investigate training options, and to create a plan.

Visit [UtahCTE.org](http://UtahCTE.org) to access high-quality, rigorous career-focused programs that result in attainment of credentials with labor market value.

**CTE Credentials of Value**

In 2017-2018, 112,867 CTE Skill Certifications were awarded to secondary students and 19,189 third-party certifications were earned by secondary students.

In 2017-2018, the graduation rate for students who concentrated in a CTE Career Pathway was 95 percent, compared to Utah's statewide graduation rate of 87 percent.