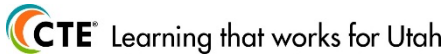


Utah Career and Technical Education Career Pathway

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. Bureau of Labor Statistics, 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	
CAD Component			
38.01.00.00.051	CAD Mechanical Design 1	.50	1.00 credit
38.01.00.00.052	CAD Mechanical Design 2	.50	
<i>Or choose the following course:</i>			
38.01.00.00.300	PLTW Introduction to Engineering Design	1.00	
Foundation Component			
38.01.00.00.151	Engineering Principles 1	.50	1.00 credit
38.01.00.00.152	Engineering Principles 2	.50	
<i>Or choose the following course:</i>			
38.01.00.00.310	PLTW Principles of Engineering	1.00	
Capstone Component			
38.01.00.00.990	Engineering Capstone	1.00	1.00 credit
<i>Or choose the following course:</i>			
38.01.00.00.390	PLTW Engineering Design and Development	1.00	
ELECTIVE COURSES			
38.03.00.00.010	Engineering Technology	.50	3.00 credits for completion
38.01.00.00.211	Physics with Technology	1.00	
41.00.00.00.050	CTE Internship	.50	
41.00.00.00.030	Workplace Skills	.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.

12th Grade	1-Year Certificate	2-Year Associate or Technical Degree	4-Year Bachelor's Degree	More Graduate or Prof. Degree
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.

CTE Skill Certificates
 Competency-based student assessments, measured by core standards and competencies, needed to be successful in the workforce.
 In 2017-2018, 111,238 CTE skill certificates were awarded to high school students. Students' knowledge and performance is demonstrated as part of the Skill Certificate process.

UtahFutures: College and Career Planning
 Visit UtahFutures.org for salary projections, labor market demand, and training options.
 In 2016-2017, the graduation rate for students who concentrated in a CTE Career Pathway was 95 percent, compared to Utah's statewide graduation rate of 86 percent.