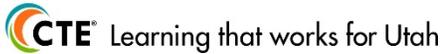


# Utah Career and Technical Education Career Pathway

## 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 Aerospace Engineering Career Pathway. TSA fosters personal growth, leadership, and opportunities in science, technology, engineering, and mathematics (STEM).

### Workforce Trends

According to the U.S. Department of Labor, employment of aerospace engineers is projected to grow 6 percent nationwide through the year 2026. Employment opportunities will be best for those trained in software, such as C++, or with education and experience in stress and structural engineering.

### Student Testimonial

"CTE classes have shown me a clear path for my future, because I have been able to experience more than just math and English. A CTE Internship, combined with my engineering classes, has given me a great insight to what the future holds for me. I believe an aerospace engineering and operations technician job is exactly what I want. I will be able to build, test, and maintain aircraft."  
Preston Henke

## Career Cluster: Engineering & Technology

### Career Pathway: Aerospace Engineering

CORE CODE	FOUNDATION COURSES (required)	CREDITS		
<b>Aeronautical Component</b>				
08.06.00.00.040	Aerospace	1.00	3.00 credits	
<i>Or choose the following course:</i>				
38.01.00.00.350	<a href="#">PLTW Aerospace Engineering</a>	1.00		
<b>Foundation Component</b>				
38.01.00.00.151	<a href="#">Engineering Principles 1</a>	.50		
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		
<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		
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		
<b>3.00 credits for completion</b>				

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.**

### Aerospace Engineering is:

- > High-skill
- > High-wage
- > In-demand

### Sample Occupations Requiring:

- [High School Diploma](#)
- > N/A
- [Certificate](#)
- > N/A
- [Assoc. or Technical Degree](#)
- > Engineering Technician
- > Inspection Technician
- > Testing Technician
- [Baccalaureate Degree](#)
- > Aerospace Engineer
- > Architectural and Engineering Manager
- > Career and Technical Education Teacher

### [Graduate or Prof. Degree](#)

- > Aerospace Engineer

## 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
<p>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.</p> <p>In high school a variety of certificates can be earned.</p>		<p>An academic degree is an award for the completion of a program or course of study over multiple years at postsecondary education institutions.</p> <p>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).</p>		

### Utah Business and Industry Facts

Aerospace and aviation companies located in Utah employ more than 42,000 workers.

Utah high school seniors have the opportunity to participate in the [Utah Aerospace Pathways program](#). The program was created by industry to open opportunities for young men and women who are interested in the aerospace.

### UtahFutures: College and Career Planning

Visit [UtahFutures.org](#) to explore occupations, search salary projections, access labor market information, investigate training options, and to create a plan.

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

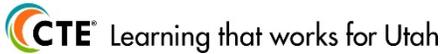
### CTE Credentials of Value

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.

# 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 CAD Mechanical Design Career Pathway. TSA fosters personal growth, leadership, and opportunities in science, technology, engineering, and mathematics (STEM).

**Workforce Trends**  
 Industrial growth and increasingly complex designs will spur growth in drafting services. As technology advances, opportunities will be best for drafters with at least 2 years of postsecondary training, and computer-aided design systems experience.

### Career Cluster: Engineering & Technology

#### Career Pathway: CAD Mechanical Design

CORE CODE	FOUNDATION COURSES (required)	CREDITS	
38.01.00.00.051	<a href="#">CAD Mechanical Design 1</a>	.50	1.50 credits
38.01.00.00.052	<a href="#">CAD Mechanical Design 2</a>	.50	
38.01.00.00.053	<a href="#">CAD Mechanical Design 3</a>	.50	
<b>Or choose the following courses:</b>			
38.01.00.00.300	<a href="#">PLTW Introduction to Engineering Design</a>	1.00	
ELECTIVE COURSES			
38.03.00.00.010	<a href="#">Engineering Technology</a>	.50	1.00 credit
40.13.00.00.030	<a href="#">Industrial Design</a>	1.00	
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	
		<b>2.50 credits for completion</b>	

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.**

**CAD Mechanical Design is:**  
 > High-skill  
 > High-wage

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

[Certificate](#)  
 > N/A

[Assoc. or Technical Degree](#)  
 > Engineering Technician  
 > Mechanical Drafter  
 > Mechanical Engineering Technician

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

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

**Student Testimonial**  
 “My training, in CTE courses in high school, prepared me for life after high school by helping me discover my love of drafting. I discovered the need for drafters in the world of engineering. I focused my CTE Pathway toward this career goal and have taken some advanced drafting classes to improve both my knowledge of the field and my employability in the field.”  
 Calvin Hill

### 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**  
 According to the Utah Department of Workforce Services, 620 mechanical drafters are employed by more than 3,000 businesses throughout the state.  
 The annual median salary for an experienced mechanical drafter is \$51,690.

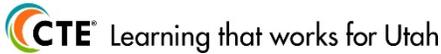
**UtahFutures: College and Career Planning**  
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Visit [UtahCTE.org](http://UtahCTE.org) to access high-quality, rigorous career-focused programs that result in attainment of credentials with labor market value.

**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.

# 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 Electrical Engineering Career Pathway. TSA fosters personal growth, leadership, and opportunities in science, technology, engineering, and mathematics (STEM).

**Workforce Trends**  
Employment will be limited by computer-aided design and other technologies that increase productivity.  
Job opportunities will be best for those individuals who have an associate degree or extensive job training.

## Career Cluster: Engineering & Technology

### Career Pathway: Electrical Engineering

CORE CODE	FOUNDATION COURSES (required)	CREDITS	
<b>Foundation Component</b>			
38.01.00.00.151	<a href="#">Engineering Principles 1</a>	.50	2.00 credits
38.01.00.00.021	<a href="#">Electronics 1</a>	.50	
38.01.00.00.022	<a href="#">Electronics 2</a>	.50	
38.01.00.00.023	<a href="#">Electronics 3</a>	.50	
<i>Or choose the following courses:</i>			
38.01.00.00.320	<a href="#">PLTW Digital Electronics</a>	1.00	1.00 credit
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.**

**Electrical Engineering is:**  
 > High-skill  
 > High-wage  
 > In-demand

**Sample Occupations Requiring:**  
[High School Diploma](#)  
 > Electronics Equipment Assembler  
[Certificate](#)  
 > Electronics Installer Repairer  
[Assoc. or Technical Degree](#)  
 > Electronics Drafter  
 > Electronics Engineering Technician  
[Baccalaureate Degree](#)  
 > Career and Technical Education Teacher  
 > Electrical Engineer  
 > Electronics Engineer  
[Graduate or Prof. Degree](#)  
 > Electronics Engineer

**Student Testimonial**  
 “Engineering, electronics, an architectural design, I found joy in these courses. These CTE Pathways have shown me many careers that provide [income] and most importantly joy and well-being.”  
 Michael Contreras

## 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
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**Utah Business and Industry Facts**  
 According to the Utah Department of Workforce Services, the median annual salary for an experienced electronics engineering technician is \$60,660.  
 In Utah, more than 1,400 individuals are employed as electrical engineers.

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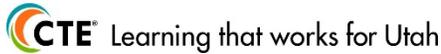
**CTE Credentials of Value**

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.

# 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 Manufacturing Engineering Career Pathway. TSA fosters personal growth, leadership, and opportunities in science, technology, engineering, and mathematics (STEM).

**Workforce Trends**  
 A manufacturing engineer designs, documents and standardizes manufacturing processes, along with related tooling, for companies where they are employed. This is a niche occupation where specialized skills are required.

### Career Cluster: Engineering & Technology

#### Career Pathway: Manufacturing Engineering

CORE CODE	FOUNDATION COURSES (required)	CREDITS	
38.01.00.00.011	<a href="#">Manufacturing Principles 1</a>	.50	1.00 credit
38.01.00.00.012	<a href="#">Manufacturing Principles 2</a>	.50	
<b>Or choose the following course:</b>			
38.01.00.00.340	<a href="#">PLTW Computer Integrated Manufacturing</a>	1.00	
ELECTIVE COURSES			
40.10.00.00.140	<a href="#">Composites 1</a>	.50	2.00 credits
38.03.00.00.010	<a href="#">Engineering Technology</a>	.50	
40.10.00.00.072	<a href="#">Machining 1 *</a>	.50	
38.03.00.00.060	<a href="#">Manufacturing Technology</a>	.50	
40.11.00.00.100	<a href="#">Material Handling</a>	1.00	
40.10.00.00.085	<a href="#">Metalworking 1 *</a>	.50	
38.01.00.00.211	<a href="#">Physics with Technology</a>	1.00	
40.10.00.00.050	<a href="#">Plastics</a>	.50	
40.10.00.00.110	<a href="#">Welding Technician – Entry Level</a>	.50	
41.00.00.00.050	<a href="#">CTE Internship</a>	.50	
41.00.00.00.030	<a href="#">Workplace Skills</a>	.50	
<b>3.00 credits for completion</b>			

\* Course can be taken up to 1.00 credit.  
 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.**

**Manufacturing Engineering is:**  
 > High-skill  
 > High-wage  
 > In-demand

**Sample Occupations Requiring:**  
[High School Diploma](#)  
 > Production Technician  
[Certificate](#)  
 > Production Technician  
[Assoc. or Technical Degree](#)  
 > N/A  
[Baccalaureate Degree](#)  
 > Career and Technical Education Teacher  
 > Manufacturing Engineer  
[Graduate or Prof. Degree](#)  
 > Manufacturing Engineer

**Student Testimonial**  
 “I would like a career as a manufacturing engineer and go on to pursue my own business in the manufacturing industry. CTE gave me experience for what my career will be like. CTE also [allowed me] to be able to work on the skills that I need to improve on in that specific area.”  
 Garret Maycock

### 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.

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**Utah Business and Industry Facts**  
 In 2017, Northrop Grumman purchased aerospace manufacturer Orbital ATK (who has a strong presence in Utah) for \$9.2 billion. The company has nearly 3,000 employees with a payroll of approximately \$250 million.  
 Northrop Grumman not only develops and tests propulsion systems for rockets and missiles, they manufacture advanced composite components for commercial and military aircraft.

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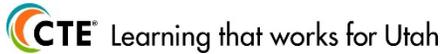
**CTE Credentials of Value**

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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.

# Utah Career and Technical Education Career Pathway

## 2019-2020 School Year



### Career Cluster: Engineering & Technology

#### Career Pathway: Materials Science

CORE CODE	FOUNDATION COURSES (required)	CREDITS	
38.01.00.00.281	<a href="#">Materials Science</a>	1.00	2.00 credits
38.01.00.00.211	<a href="#">Physics with Technology</a>	1.00	
ELECTIVE COURSES			
40.11.00.00.140	<a href="#">Composites</a>	.50	1.00 credit
38.03.00.00.010	<a href="#">Engineering Technology</a>	.50	
40.10.00.00.050	<a href="#">Industrial Plastics</a>	.50	
38.03.00.00.060	<a href="#">Manufacturing Technology</a>	.50	
41.00.00.00.050	<a href="#">CTE Internship</a>	.50	
41.00.00.00.030	<a href="#">Workplace Skills</a>	.50	
<b>3.00 credits for completion</b>			

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.**

#### 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 Materials Science Career Pathway. TSA fosters personal growth, leadership, and opportunities in science, technology, engineering, and mathematics (STEM).

#### Workforce Trends

The occupation of a material scientist is expected to experience faster than average employment growth. Business expansion will provide the majority of job openings in the coming decade. Material scientists with advanced degrees, particularly those with a Ph.D. and work experience are expected to have better job opportunities.

#### Materials Science is:

- > High-skill
- > High-wage

#### Sample Occupations Requiring:

- [High School Diploma](#)
- > Lab Tech
- [Certificate](#)
- > N/A
- [Assoc. or Technical Degree](#)
- > N/A
- [Baccalaureate Degree](#)
- > Career and Technical Education Teacher
- > Materials Engineer
- > Materials Scientist
- [Graduate or Prof. Degree](#)
- > Materials Engineer
- > Materials Scientist

### 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
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#### Utah Business and Industry Facts

Utah is home to Hexcel Corporations largest carbon fiber and matrix manufacturing plant. The plant is located in West Valley City and is a worldwide supplier of carbon fiber.

#### 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.

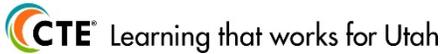
Visit [UtahCTE.org](http://UtahCTE.org) to access high-quality, rigorous career-focused programs that result in attainment of credentials with labor market value.

#### CTE Credentials of Value

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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.

# 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 CTSSO 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.

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**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.

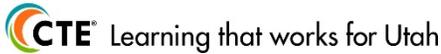
**UtahFutures: College and Career Planning**  
Visit [UtahFutures.org](http://UtahFutures.org) to explore occupations, search salary projections, access labor market information, investigate training options, and to create a plan.

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.

# 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 Robotics Career Pathway. TSA fosters personal growth, leadership, and opportunities in science, technology, engineering, and mathematics (STEM).

**Workforce Trends**  
Most robotics engineers are employed by private companies and work in laboratory or production settings.

## Career Cluster: Engineering & Technology

### Career Pathway: Robotics

CORE CODE	FOUNDATION COURSES (required)	CREDITS	
38.01.00.00.031	<a href="#">Robotics 1</a>	.50	1.00 credit
38.01.00.00.032	<a href="#">Robotics 2</a>	.50	
ELECTIVE COURSES			
35.02.00.00.030	<a href="#">Computer Programming 1</a>	1.00	2.00 credits
38.01.00.00.021	<a href="#">Electronics 1</a>	.50	
38.03.00.00.010	<a href="#">Engineering Technology</a>	.50	
40.09.00.00.070	Industrial Maintenance Technician	1.00	
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	
<b>3.00 credits for completion</b>			

**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.**

**Robotics is:**  
> High-skill  
> High-wage

**Sample Occupations Requiring:**  
[High School Diploma](#)  
> N/A  
[Certificate](#)  
> Machine Operator  
[Assoc. or Technical Degree](#)  
> Electro-Mechanical Technicians  
[Baccalaureate Degree](#)  
> Automation Engineer  
> Career and Technical Education Teacher  
> Engineer  
> Industrial Engineer  
> Robotics Engineer  
[Graduate or Prof. Degree](#)  
> Engineer

**Student Testimonial**  
"I want to earn an AAS degree in mechatronics. After completing my degree I plan on finding work with a company designing production equipment. My high school engineering instructor was an amazing person and has influenced my love of this field and the path that I have chosen."  
  
Connor Hendry

## 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**  
From "smart" shoes to flying robots to self-driving cars, throughout Utah there are hundreds of companies that use robotics to streamline the manufacturing process, produce goods, and make daily tasks easier.  
  
"We have this idea that robots will help us in the future," said Mark Minor, associate professor, University of Utah. "Well, the future is here. You just have to understand what they're doing."  
*(Deseret News, March 9, 2015)*

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