

Utah Career and Technical Education Career Pathway

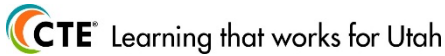
2019-2020 School Year



<p>CTSO Information Career and Technical Student Organizations (CTSO) align with the national Career Clusters® and the Utah CTE Career Pathways.</p> <p>Students who participate in the Cyber Security Career Pathway choose among the following CTOS, depending upon what is available at their school:</p> <p style="text-align: center;">FBLA SkillsUSA TSA</p> <p>Workforce Trends According to the U.S. Bureau of Labor Statistics, employment of information security analysts is projected to grow 28 percent through the year 2026. Demand is expected to be very high, as these analysts will be needed to create innovative solutions to prevent hackers from stealing critical information or causing problem for computer networks.</p>	<h3 style="margin: 0;">Career Cluster: Information Technology</h3> <h3 style="margin: 0;">Career Pathway: Cyber Security</h3> <table border="1" style="width: 100%; border-collapse: collapse; margin: 10px 0;"> <thead> <tr style="background-color: #00a6c9; color: white;"> <th style="width: 15%;">CORE CODE</th> <th style="width: 55%;">FOUNDATION COURSES (required)</th> <th style="width: 15%;">CREDITS</th> <th style="width: 15%;"></th> </tr> </thead> <tbody> <tr> <td></td> <td style="text-align: center;"><i>Choose three of the following courses:</i></td> <td></td> <td rowspan="5" style="text-align: center; vertical-align: middle;">1.50 credits</td> </tr> <tr> <td>35.02.00.00.042</td> <td>Cloud Computing</td> <td style="text-align: center;">.50</td> </tr> <tr> <td>35.01.00.00.036</td> <td>Cyber Security Ethical Hacking</td> <td style="text-align: center;">.50</td> </tr> <tr> <td>35.01.00.00.038</td> <td>Cyber Security Forensics</td> <td style="text-align: center;">.50</td> </tr> <tr> <td>35.02.00.00.060</td> <td>Web Development 1</td> <td style="text-align: center;">.50</td> </tr> <tr style="background-color: #00a6c9; color: white;"> <th colspan="2" style="text-align: center;">ELECTIVE COURSES</th> <th></th> <th></th> </tr> <tr> <td>35.02.00.00.021</td> <td>Database Development</td> <td style="text-align: center;">1.00</td> <td rowspan="6" style="text-align: center; vertical-align: middle;">1.50 credits</td> </tr> <tr> <td>35.02.00.00.008</td> <td>Exploring Computer Science 2</td> <td style="text-align: center;">.50</td> </tr> <tr> <td>35.02.00.00.005</td> <td>Introduction to Information Technology</td> <td style="text-align: center;">.50</td> </tr> <tr> <td>35.01.00.00.025</td> <td>Linux Fundamentals</td> <td style="text-align: center;">.50</td> </tr> <tr> <td>41.00.00.00.050</td> <td>CTE Internship</td> <td style="text-align: center;">.50</td> </tr> <tr> <td>41.00.00.00.030</td> <td>Workplace Skills</td> <td style="text-align: center;">.50</td> </tr> <tr> <td colspan="3" style="text-align: center;">3.00 credits for completion</td> <td></td> </tr> </tbody> </table> <p style="font-size: small;">Foundation courses taken beyond the required credits can be used as elective credit. Visit UtahCTE.org to learn how to earn industry certification in this Career Pathway.</p> <p style="text-align: center;">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.</p>	CORE CODE	FOUNDATION COURSES (required)	CREDITS			<i>Choose three of the following courses:</i>		1.50 credits	35.02.00.00.042	Cloud Computing	.50	35.01.00.00.036	Cyber Security Ethical Hacking	.50	35.01.00.00.038	Cyber Security Forensics	.50	35.02.00.00.060	Web Development 1	.50	ELECTIVE COURSES				35.02.00.00.021	Database Development	1.00	1.50 credits	35.02.00.00.008	Exploring Computer Science 2	.50	35.02.00.00.005	Introduction to Information Technology	.50	35.01.00.00.025	Linux Fundamentals	.50	41.00.00.00.050	CTE Internship	.50	41.00.00.00.030	Workplace Skills	.50	3.00 credits for completion				<p>Cyber Security is:</p> <ul style="list-style-type: none"> > High skill > High wage > High demand <p>Sample Occupations Requiring:</p> <p style="color: #00a6c9;"><u>High School Diploma</u></p> <p>> N/A</p> <p style="color: #00a6c9;"><u>Certificate</u></p> <p>> N/A</p> <p style="color: #00a6c9;"><u>Assoc. or Technical Degree</u></p> <p>> Computer Network Support Specialist</p> <p style="color: #00a6c9;"><u>Baccalaureate Degree</u></p> <p>> Career and Technical Education Teacher</p> <p>> Computer and Information Systems Managers</p> <p>> Computer Programmers</p> <p>> Information Security Analyst</p> <p style="color: #00a6c9;"><u>Graduate or Prof. Degree</u></p> <p>> Computer and Information Research Scientists</p>
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<p>Student Testimonial “Getting a degree will help me to pursue my goal of working as a computer programmer at a large company. CTE classes prepared me by showing me what I would actually be doing in the different job fields and how I would apply the information that I learned in class.”</p> <p style="text-align: right;">Aaron Montoya</p>	<h3 style="margin: 0;">HIGH SCHOOL TO POSTSECONDARY EDUCATION AND TRAINING</h3> <p style="margin: 0; color: white;">There are a number of options for education and training beyond high school, depending on your career goals.</p> <table border="1" style="width: 100%; border-collapse: collapse; margin: 10px 0;"> <thead> <tr> <th style="width: 15%; background-color: #00a6c9; color: white;">12th Grade</th> <th style="width: 15%; background-color: #ff7f0e; color: white;">1-Year Certificate</th> <th style="width: 15%; background-color: #2ca02c; color: white;">2-Year Associate or Technical Degree</th> <th style="width: 15%; background-color: #ffc107; color: white;">4-Year Bachelor’s Degree</th> <th style="width: 15%; background-color: #555; color: white;">More Graduate or Prof. Degree</th> </tr> </thead> <tbody> <tr> <td style="font-size: small;">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.</td> <td style="font-size: small;">In high school a variety of certificates can be earned.</td> <td colspan="3" style="font-size: small;">An academic degree is an award for the completion of a program or course of study over multiple years at postsecondary education institutions.</td> </tr> <tr> <td colspan="2"></td> <td colspan="3" style="font-size: small;">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).</td> </tr> </tbody> </table>	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).			<p>Utah Business and Industry Facts</p> <p style="font-size: small;">In 2018, the Information Technology and Innovation Foundation (ITIF) ranked Utah’s state government website (Utah.gov) #1 for security, and 17th overall. “Government websites should be fast, secure, mobile-friendly, and accessible to everyone, said Daniel Castro, ITIF vice president.</p>																																
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<p style="font-size: x-small;">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.</p>	<p style="font-size: x-small;">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.</p>																																																

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.

Students who participate in the Information Technology Systems Career Pathway choose among the following CTOS, depending upon what is available at their school:
 FBLA | SkillsUSA | TSA

Workforce Trends
 Growth will be driven by rapid increases in the computer and data processing services industry.

In Utah, the average annual employment growth rate for computer systems analysts is 5 percent through the year 2024.

According to the Utah Technology Council, IT occupations account for \$6.9 billion (14.3 percent) of Utah's total payroll.

Career Cluster: Information Technology

Career Pathway: Information Technology Systems

CORE CODE	FOUNDATION COURSES (required)	CREDITS	
<i>Choose 1.50 credits from the following courses:</i>			
35.01.00.00.040	A+ (Computer Maintenance)	1.00	1.50 credits
35.01.00.00.010	Cisco Certified Network Administrator (CCNA)	1.00	
35.01.00.00.030	Network Fundamentals	.50	
ELECTIVE COURSES			
35.02.00.00.021	Database Development	1.00	1.50 credits
35.02.00.00.005	Introduction to Information Technology	.50	
35.01.00.00.025	Linux Fundamentals	.50	
35.01.00.00.020	Microsoft Certified Professional	.50	
41.00.00.00.050	CTE Internship	.50	
41.00.00.00.030	Workplace Skills	.50	
3.00 credits for completion			

Foundation courses taken beyond the required credits can be used as elective credit.
 Visit UtahCTE.org to learn how to earn industry certification in this Career Pathway.

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.

Information Technology Systems is:

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

Sample Occupations Requiring:

High School Diploma
 > N/A

Certificate
 > N/A

Assoc. or Technical Degree
 > Computer Network Support Specialist

Baccalaureate Degree
 > Career and Technical Education Teacher
 > Computer Network Architect
 > Computer and Information Systems Manger
 > Computer Systems Analyst
 > Database Administrator
 > Network and Computer Systems Administrator

Graduate or Prof. Degree
 > Computer and Information Research Scientist

Student Testimonial

"This program helped me earn many industry-level certifications including: CompTIA, IT Strata Fundamentals, IC3, Microsoft Technical Associate (MIT), OS Fundamentals, and Security and Academy of Information Technology certifications."

Parker Kingsford

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

In 2017, Forbes named Utah "cloud computing's new capital." Forbes ranked six Utah tech companies in the top 100 and three of the Utah tech companies were ranked in the top 20—Qualtrics (No.6), Domo (15), Pluralsight (20), Workfront (58), Health Catalyst (64), and InsideSales (92).

CTE Skill Certificates
 Competency-based student assessments, measured by core standards and competencies, needed to be successful in the workforce.

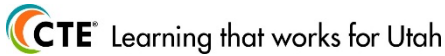
In 2017-2018, 111,238 CTE skill certificates were awarded to high school students. Students' knowledge and performance is demonstrated as part of the Skill Certificate process.

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.

Utah Career and Technical Education Career Pathway

2019-2020 School Year



Career Cluster: Information Technology

Career Pathway: Programming & Software Development

CORE CODE	FOUNDATION COURSES (required)	CREDITS	
Choose 1.00 credit from the following courses:			
35.02.00.00.030	Computer Programming 1	.50	
35.02.00.00.035	Computer Science Principles *	.50	
35.02.00.00.036	Computer Science and Software Engineering	1.00	2.00 credits
Choose 1.00 credit from the following courses:			
35.02.00.00.041	AP Computer Science	1.00	
35.02.00.00.032	Computer Programming 2	.50	1.00 credit
35.02.00.00.040	Computer Programming 3	1.00	
35.02.00.00.045	Gaming Development Fundamentals	.50	
ELECTIVE COURSES			
35.02.00.00.037	Algorithms and Data Structures	1.00	1.00 credit
35.02.00.00.021	Database Development	1.00	
32.02.00.00.220	Entrepreneurship	.50	
35.02.00.00.007	Exploring Computer Science 1	.50	
35.02.00.00.008	Exploring Computer Science 2	.50	
35.02.00.00.046	Gaming Development Fundamentals 2	.50	
35.02.00.00.005	Introduction to Information Technology	.50	
35.02.00.00.048	Mobile Development Fundamentals	.50	
41.00.00.00.050	CTE Internship	.50	
41.00.00.00.030	Workplace Skills	.50	
3.00 credits for completion			

* Course can be taken up to 1.00 credit.

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

Visit UtahCTE.org to learn how to earn industry certification in this Career Pathway.

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.

Students who participate in the Programming and Software Development Career Pathway choose among the following CTOS, depending upon what is available at their school:

FBLA | SkillsUSA | TSA

Workforce Trends

Demand continues for programmers who can help organizations keep up with changing technology. Prospects are best for those who have the knowledge of various programming languages.

In Utah, the average annual employment growth rate for software developers is 5.9 percent through the year 2024.

Programming & Software Development is:

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

Sample Occupations Requiring:

High School Diploma

> N/A

Certificate

> N/A

Assoc. or Technical Degree

> Web Developer

Baccalaureate Degree

> Career and Technical Education Teacher

> Computer Programmer

> Computer Systems Analyst

> Computer Systems Engineers/Architect

> Software Developer

> Video Game Designer

Graduate or Prof. Degree

> Software Engineer

Student Testimonial

"My goal is to become a video game designer or programmer. The classes I took in high school taught me how to use the programs that I would be using in my career field and have given me a taste of what programming and design are like."

Jenny Whitecar

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

Silicon Slopes was formed to promote Utah's growing technology community and is home to more than 5,000 tech companies that has generated 142,500 jobs.

From Ogden to Provo, technology companies dot the landscape. Pluralsight, Insidesales.com, Qualtrics, Vivint, Entrata, HealthCatalyst all started in Utah.

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.

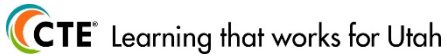
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In 2016-2017, the graduation rate for students who concentrated in a CTE Career Pathway was 95 percent, compared to Utah's statewide graduation rate of 86 percent.

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.

Students who want to participate in the Web Development Career Pathway choose among the following CTOS, depending upon what is available at their school:
 FBLA | SkillsUSA | TSA

Workforce Trends
 The World Wide Web has changed the way we communicate and consume information. With more than 1 billion websites the need for Web developers is high.

In Utah, the average annual employment growth rate for Web developers is 5.5 percent and for computer and information systems managers is 4.5 percent through the year 2024.

Career Cluster: Information Technology

Career Pathway: Web Development

CORE CODE	FOUNDATION COURSES (required)	CREDITS	
35.02.00.00.060	Web Development 1	.50	1.50 credits
Choose 1.00 credit of the following courses:			
35.02.00.00.055	HTML5 App Development Fundamentals	.50	
35.02.00.00.065	Web Development 2	.50	
35.02.00.00.067	Web Development Capstone	1.00	
ELECTIVE COURSES			
35.02.00.00.021	Database Development	1.00	1.50 credits
32.02.00.00.220	Entrepreneurship	.50	
35.02.00.00.090	Geographic Information Systems (GIS) Remote Sensing	.50	
35.02.00.00.005	Introduction to Information Technology	.50	
35.02.00.00.048	Mobile Development Fundamentals	.50	
41.00.00.00.050	CTE Internship	.50	
41.00.00.00.030	Workplace Skills	.50	
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Web Development is:

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

Sample Occupations Requiring:

[High School Diploma](#)
 > N/A

[Certificate](#)
 > N/A

[Assoc. or Technical Degree](#)
 > Web Developer

[Baccalaureate Degree](#)
 > Career and Technical Education Teacher
 > Computer and Information Systems Manager
 > Computer Programmer
 > Database Administrator
 > Graphic Designer
 > Multimedia Artists and Animators
 > Software Developer

[Graduate or Prof. Degree](#)
 > Web Developer

Student Testimonial

"My goal is to go to Utah Valley University and obtain an associate degree in computer technology with the focus on Web design. With the opportunity to receive an associate degree, it would allow me to apply and obtain work at any number of tech businesses across Utah County. CTE courses have provided experience in several areas that would not be available without CTE."

Zachary Crocker

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Utah Business and Industry Facts

Utah has deep consumer software roots. Ancestry.com, Overstock.com, Backcountry.com, and Vivint.com all started in the Beehive State.

"People in Utah want to contribute. Just walking down the street you can sense the desire to build and create, to make a mark. That kind of 'beehive' energy is exactly what a consumer startup needs . . ." said Chatbooks CEO Nate Quigley. *Silicon Slopes Magazine*, Spring 2017

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