

District Career & Technical Education (CTE) Pathway Proposal

The Career & Technical Education (CTE) Pathway proposal is to be submitted to the CTE Coordinator for prior approval and should include the following information:

Name of State approved (CCCS) CTE Program: Information Technology

CCCS Student Rights Assurance: Approved programs must assure and have strategies in place to ensure that no student is unlawfully: • Discriminated against the basis of age, race, religion, color, national origin, sex/gender, pregnancy status, gender identity, sexual orientation, or disability in its activities or programs as required by Title VI, Title IX, and Section 504, Age Discrimination Act, and Title II of the Americans with Disabilities Act. • Denied an equal opportunity to benefit from occupational education solely on the basis of race, color, religion, national origin, sex, age, or disability. Additionally, CTE staff must work with students with qualified disabilities (including the learning disabled and those with physical, sensory, and temporary disabilities) to provide appropriate assistance to students so that they may participate in approved CTE programs as fully as possible. Each program is responsible for providing evidence of each of these in the case of an audit or upon CCCS request.

I. GOALS

A. Provide a brief overview of the CTE Pathway. This pathway focuses on building linkages in IT occupations for entry level, technical, and professional careers related to the design, development, support, and management of hardware, software, multimedia, and systems integration services.

B. How does this CTE Pathway fit into the overall educational program? CTE programs significantly increase not only the high school graduation rate, but also results in a higher percentage of students going to college and persisting through graduation. Students taking both academic and technical courses have lower dropout rates and better achievement gains than other students.

C. What benefits would students receive from this CTE pathway? This pathway introduces students to subpathways in coding, networking, cybersecurity, and web site design and creation utilizing industry-standard development tools and software. Students will have the opportunity to earn industry certifications to further their postsecondary readiness.

II. CAREER & TECHNICAL EDUCATION (CTE) PATHWAY COURSES

Complete the table below indicating the course sequence students would take within the CTE program. Other courses may be added or changed within the program, based upon the need of students or program modifications. **New course names will be indicated in red text.**

<i>Pathway Name:</i>	Information Technology
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<i>Sub-Pathway Name (if applicable):</i>	Coding
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<i>Level:</i>	<i>State Approved Course Name:</i>	<i>State Approved Description:</i>	<i>CIP Code</i>
Level 1	Computer Science Foundations A & B	Computer Science Foundations (CSF) is a course intended to provide students with exposure to various information technology occupations and pathways such as Networking Systems, Coding, Web Design, and Cybersecurity. Upon completion of this course, proficient students will be able to describe various information technology (IT) occupations and professional organizations. Moreover, they will be able to demonstrate logical thought processes and discuss the social, legal, and ethical issues encountered in the IT profession. Depending on the focus area, proficient students will also demonstrate an understanding of electronics and basic digital theory; project management and teamwork; client relations; causes and prevention of Internet security breaches; and writing styles appropriate for web publication. Upon completion of the CSF course, students will be prepared to make an informed decision about which Information Technology program of study to pursue.	110101
Level 1	Intro to PC Applications	This course introduces basic computer terminology, file management, and PC system components. Provides an overview of office application software including word processing, spreadsheets, databases, and presentation graphics. Includes the use of a web browser to access the Internet.	110101
Level 2	Coding I (A & B)	Coding I is a course intended to teach students the basics of computer programming. The course places emphasis on practicing standard programming techniques and learning the logic tools and methods	110101

		typically used by programmers to create simple computer applications. Upon completion of this course, proficient students will be able to solve problems by planning multi step procedures; write, analyze, review, and revise programs, converting detailed information from workflow charts and diagrams into coded instructions in a computer language; and will be able to troubleshoot/debug programs and software applications to correct malfunctions and ensure their proper execution.	
Level 3	Coding II (A & B)	Coding I is a course intended to teach students the basics of computer programming. The course places emphasis on practicing standard programming techniques and learning the logic tools and methods typically used by programmers to create simple computer applications. Upon completion of this course, proficient students will be able to solve problems by planning multi step procedures; write, analyze, review, and revise programs, converting detailed information from workflow charts and diagrams into coded instructions in a computer language; and will be able to troubleshoot/debug programs and software applications to correct malfunctions and ensure their proper execution.	110101
Level 3	Mobile App Development (A & B)	Mobile App Development is a course intended to teach students the basic concepts and skills of mobile app design. The course places an emphasis on the history of mobile technologies, design and development methodologies, code for mobile applications, application life cycles, APIs, mobile device controls, user interfaces, deployment, publishing for mobile devices, developer tools, and career development. Upon completion of this course, proficient students will demonstrate an understanding of mobile app development concepts.	110101
Level 3	Game Design (A & B)	Game Design combines problem-solving techniques with computer game design and implementation to introduce the student to basic gaming and computer science concepts. Students design, implement, and test computer games using software that allows for basic game creation through a wide variety of game creation tools.	110101
Level 4	Capstone	This course allows for individualized, advanced, and/or cumulative work in a program of study. This work is individualized to the student within a specific program of study to allow for specialized study. It may include problem-/project-based learning or preparation for industry certification. The specific content and course design is determined by the instructor, in	110101

		collaboration with the individual student.	
Level 4	Work-based Learning (WBL)	Students build on prior knowledge and skills in the program of study to further develop and apply employability and technical skills that prepare them for success in future career and postsecondary education, as deemed developmentally appropriate.	110101

<i>Sub-Pathway Name (if applicable):</i>	Networking Systems & Security Pathway
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<i>Level:</i>	<i>State Approved Course Name:</i>	<i>State Approved Description:</i>	<i>CIP Code</i>
Level 1	Computer Science Foundations A & B	<i>Computer Science Foundations (CSF) is a course intended to provide students with exposure to various information technology occupations and pathways such as Networking Systems, Coding, Web Design, and Cybersecurity. Upon completion of this course, proficient students will be able to describe various information technology (IT) occupations and professional organizations. Moreover, they will be able to demonstrate logical thought processes and discuss the social, legal, and ethical issues encountered in the IT profession. Depending on the focus area, proficient students will also demonstrate an understanding of electronics and basic digital theory; project management and teamwork; client relations; causes and prevention of Internet security breaches; and writing styles appropriate for web publication. Upon completion of the CSF course, students will be prepared to make an informed decision about which Information Technology program of study to pursue.</i>	110101
Level 1	Intro to PC Applications	This course introduces basic computer terminology, file management, and PC system components. Provides an overview of office application software including word processing, spreadsheets, databases, and presentation graphics. Includes the use of a web browser to access the Internet.	110101
Level 2	Cybersecurity I (A & B)	Cybersecurity I is a course intended to teach students the basic concepts of cybersecurity. The course places an emphasis on security integration,	110101

		<p>application of cybersecurity practices and devices, ethics, and best practices management. The fundamental skills in this course cover both in house and external threats to network security and design, how to enforce network level security policies, and how to safeguard an organization's information. Upon completion of this course, proficient students will demonstrate an understanding of cybersecurity concepts, identify fundamental principles of networking systems, understand network infrastructure and network security, and be able to demonstrate how to implement various aspects of security within a networking system.</p>	
Level 2	Coding I (A & B)	<p>Coding I is a course intended to teach students the basics of computer programming. The course places emphasis on practicing standard programming techniques and learning the logic tools and methods typically used by programmers to create simple computer applications. Upon completion of this course, proficient students will be able to solve problems by planning multi step procedures; write, analyze, review, and revise programs, converting detailed information from workflow charts and diagrams into coded instructions in a computer language; and will be able to troubleshoot/debug programs and software applications to correct malfunctions and ensure their proper execution.</p>	110101
Level 3	Cybersecurity II (A & B)	<p>Cybersecurity II challenges students to develop advanced skills in concepts and terminology of cybersecurity. This course builds on previous concepts introduced in Cybersecurity I while expanding the content to include malware threats, cryptography, wireless technologies and organizational security. Upon completion of this course, proficient students will demonstrate an understanding of cybersecurity ethical decisions, malware threats, how to detect vulnerabilities, principles of cryptology, security techniques, contingency plan techniques, security analysis, risk management techniques, and advanced methods of cybersecurity.</p>	110101
Level 3	Networking	<p>Networking is an advanced course designed to emphasize the conceptual and practical skills necessary to design, manage, and diagnose network hardware and software. Upon completion of this course, proficient students will identify types of networks, understand the layers of the open systems interconnection (OSI) model, prevent security risks, and apply troubleshooting theory to the successful execution of networking tasks. Course content covers</p>	110101

		transmission control protocol, internet protocol, wired and wireless topologies, switching and routing, network hardware, wireless networking, and network operating systems (NOS). Upon completion of this course, proficient students will be prepared to sit for the CompTIA Network+ exam.	
Level 4	Work-based Learning (WBL)	Students build on prior knowledge and skills in the program of study to further develop and apply employability and technical skills that prepare them for success in future career and postsecondary education, as deemed developmentally appropriate.	110101
Level 4	IT Clinical Internship	IT Clinical Internship is a capstone course and work-based learning experience designed to provide students with real-world application of skills and knowledge obtained in previous Networking Systems courses. Students are eligible to take the IT Clinical Internship if they have successfully completed all the prerequisites in the Networking Systems program of study. The internships are designed to be completed in an IT Support environment, such as the student's school, a community-based shop that provides IT Support, or the IT Support department of a local business. This course puts to practical use all of the skills attained in previous courses, and provides the student with valuable hands-on experience.	110101
Level 4	Capstone	This course allows for individualized, advanced, and/or cumulative work in a program of study. This work is individualized to the student within a specific program of study to allow for specialized study. It may include problem-/project-based learning or preparation for industry certification. The specific content and course design is determined by the instructor, in collaboration with the individual student.	110101

<i>Sub-Pathway Name (if applicable):</i>	Web Design
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<i>Level:</i>	<i>State Approved Course Name:</i>	<i>State Approved Description:</i>	<i>CIP Code</i>
Level 1	Computer Science Foundations A & B	Computer Science Foundations (CSF) is a course intended to provide students with exposure to various information technology occupations and pathways such as Networking Systems, Coding, Web Design,	110101

		and Cybersecurity. Upon completion of this course, proficient students will be able to describe various information technology (IT) occupations and professional organizations. Moreover, they will be able to demonstrate logical thought processes and discuss the social, legal, and ethical issues encountered in the IT profession. Depending on the focus area, proficient students will also demonstrate an understanding of electronics and basic digital theory; project management and teamwork; client relations; causes and prevention of Internet security breaches; and writing styles appropriate for web publication. Upon completion of the CSF course, students will be prepared to make an informed decision about which Information Technology program of study to pursue.	
Level 1	Intro to PC Applications	This course introduces basic computer terminology, file management, and PC system components. Provides an overview of office application software including word processing, spreadsheets, databases, and presentation graphics. Includes the use of a web browser to access the Internet.	110101
Level 2	Web Design Foundations (A & B)	This course is intended to develop fundamental skills of the basic web design and development process, project management and teamwork, troubleshooting and problem solving, and interpersonal skill development.	110101
Level 2	Introduction to Multimedia	This course is designed to introduce students to multimedia as it is the field concerned with the computer controlled integration of text, graphics, drawings, still and moving images (Video), animation, audio, and any other media where every type of information can be represented, stored, transmitted and processed digitally.	110101
Level 3	Website Development (A & B)	Web Site Development builds on the skills and knowledge gained in Web Design Foundations to further prepare students for success in the web design and development fields. Emphasis is placed on applying the design process toward projects of increasing sophistication, culminating in the production of a functional, static website. As students work toward this goal, they acquire key skills in coding, project management, basic troubleshooting and validation, and content development and analysis. Artifacts of the work completed in this course will be logged in a student portfolio demonstrating mastery of skills and knowledge. Upon completion of this course, proficient students will be prepared to pursue a variety of postsecondary programs in the computer sciences, sit for industry certification, or apply their	110101


		skills in a capstone Web Design Practicum.	
Level 3	Mobile App Development (A & B)	Mobile App Development is a course intended to teach students the basic concepts and skills of mobile app design. The course places an emphasis on the history of mobile technologies, design and development methodologies, code for mobile applications, application life cycles, APIs, mobile device controls, user interfaces, deployment, publishing for mobile devices, developer tools, and career development. Upon completion of this course, proficient students will demonstrate an understanding of mobile app development concepts.	110101
Level 4	Work-based Learning (WBL)	Students build on prior knowledge and skills in the program of study to further develop and apply employability and technical skills that prepare them for success in future career and postsecondary education, as deemed developmentally appropriate.	110101
Level 4	Capstone	This course allows for individualized, advanced, and/or cumulative work in a program of study. This work is individualized to the student within a specific program of study to allow for specialized study. It may include problem-/project-based learning or preparation for industry certification. The specific content and course design is determined by the instructor, in collaboration with the individual student.	110101

Signature Page


Does the Career and Technical Education (CTE) Coordinator approve adoption of this program?
*** Your signature below indicates your approval of the program.*

Signature  _____
Joy Griffin (Jan 31, 2021 08:00 MST)


Does the Director of CIPG approve adoption of this program?
*** Your signature below indicates your approval of the program.*

Signature  _____
Erica Mason (Jan 31, 2021 08:14 MST)

Does the Chief Assessment Officer approve adoption of this program?
*** Your signature below indicates your approval of the program.*

Signature  _____
Matt Reynolds (Jan 31, 2021 13:21 MST)

Does the Assistant Superintendent approve adoption of this program?
*** Your signature below indicates your approval of the program.*

Signature  _____

Does the Board of Education approve adoption of this program?	Yes	No
Date of BOE Meeting _____		
Signature _____		

Superintendent File: IGA-E-2

Office use: The following information is required to build individual courses into Infinite Campus.

Credit Type: (FNA, PRA, MAT, etc)	
Department Code:	
Course Number:	
Course entered in NCAA database if applicable.	
Update Graduation Competencies course document if applicable for Math and English courses.	
VIP Code:	
CIP Code:	
Add to HEAR list, if applicable.	
Course Mapping SCED code:	
Date entered into Infinite Campus	
Credit amount:	