



Regional Occupational Program

Website Design ICT 2026-2027

COURSE DESCRIPTION

This course is designed to teach the student about the Internet and World Wide Web, its protocols and concepts of accessibility and elements of design and use of page layout techniques, text formatting, graphics, and images. No prior knowledge of HTML or web design is required. The student will be able to demonstrate basic web surfing skills, describe common elements of HTML, CSS, and JavaScript used in modern web development, and plan, create, and maintain a website.

Course Information

Course Length:	1 Year
Prerequisite:	Computer Literacy
Course Level:	Concentrator
UC:	No
Articulated:	No
Industry Cert.:	No
Industry Sector:	Information & Communication Technologies
Pathway:	Software and Systems Development
CALPADS:	8134

O*Net SOC Codes

15-1254	Web Developer
15-1252	Software Developers
15-1255	Web & Digital Interface
15-1255	Designers

Legend

CTE - PS	CTE Pathway Standards
CRP	Career Ready Practices
CTE - AS	CTE Anchor Standards
CCSS	Common Core State Standards
ISTE	International Society for Technology in Education

*Includes updates from 25/26 ICT Advisory
Advisory Minutes*

Website Design

Course Orientation

- a. Discuss objectives for this course, including competencies, teacher expectations, classroom policies, and procedures.
- b. Identify and discuss the acquisition of transferable skills (communication, collaboration, creativity, and critical thinking) and their importance to being college and career ready and for future personal and professional success.
- c. Review objectives, competencies, and course syllabus.
- d. Discuss student and teacher expectations, including behavior, class rules, appropriate dress, pre-course knowledge, and grading policies, including enrollment and attendance requirements and procedures, and classroom/school safety and disaster procedures.
- e. Discuss next steps in course sequence related to the career pathway, the need for reinforcement of basic skills, transferrable skills, and postsecondary and career options.
- f. Discuss the Big Six: Career Ready Essentials and the Standards for Career Ready Practice as they relate to this course, all aspects of the industry sector, and being college and career ready.

Big Six: Career Ready Essentials

1. Effective Communication	CTE - PS	CRP	CTE - AS	CCSS	ISTE
<ol style="list-style-type: none"> a. Demonstrate effective verbal communication and conflict resolution skills. Use the writing process to develop written communication with the appropriate tone, organization, and format for the identified audience. b. Use the writing process to develop written communication with the appropriate tone, organization, and format for the identified audience. c. Explain the effect of interpersonal skills on one's ability to communicate effectively and develop relationships. d. Describe the impact of ineffective communication on business relationships. e. Analyze the impact of vocabulary, body language, and tone on verbal communication. f. Demonstrate active listening skills. g. Accurately interpret industry-specific written communication. h. Model responsible and effective use of various communication technologies. i. Identify valid and reliable digital reference and resource materials. j. Gather information from multiple digital sources to compare and contrast, synthesize, and summarize. k. Identify and use appropriate communication and collaboration technologies. l. Utilize technology to problem solve, accomplish tasks, and to produce or publish products. 		<u>1</u> <u>2</u> <u>11</u>	<u>2</u> <u>3</u> <u>4</u> <u>5</u> <u>7</u> <u>8</u> <u>9</u> <u>10</u> <u>11</u>	<u>LS</u> <u>9-10</u> <u>11-12.6</u> <u>SLS</u> <u>11-12.2</u> <u>9-10</u> <u>11-12.1</u> <u>11-12.1d</u> <u>WS</u> <u>11-12.7</u> <u>11-12.6</u>	<u>1b,c</u> <u>2c</u> <u>3b,c</u> <u>5c</u> <u>6b,c,d</u>
2. Collaboration, Creativity, and Critical Thinking	CTE - PS	CRP	CTE - AS	CCSS	ISTE
<ol style="list-style-type: none"> a. Demonstrate critical thinking skills for a variety of purposes and in different settings. Collaborate to reach consensus on an identical objective through the sharing of knowledge, tasks, and learning. 		<u>2</u> <u>4</u> <u>5</u>	<u>2</u> <u>3</u> <u>4</u>	<u>LS</u> <u>9-10</u> <u>11-12.6</u>	<u>1c</u> <u>3c,d</u> <u>4a-d</u>

<p>b. Collaborate to reach consensus on an identical objective through the sharing of knowledge, tasks, and learning.</p> <p>c. Discuss the importance of the critical thinking process to real-world applications.</p> <p>d. Evaluate the impact of creative thinking on problem solving and innovation in real-world applications.</p> <p>e. Compile work that demonstrates the process used to (elaborate, refine, analyze) evaluate original ideas and maximize creative efforts.</p> <p>f. Apply divergent and convergent thinking to the development of an original idea or solution.</p> <p>g. Examine real-world limits to adopting ideas.</p> <p>h. Demonstrate creative thinking (preparation, insight, evaluation, elaboration, and communication) to create a new idea or concept.</p> <p>i. Assume shared responsibility for collaborative work, and value the individual contributions made by each team member.</p> <p>j. Evaluate evidence, arguments, claims, and beliefs to identify connections.</p> <p>k. Identify bias, prejudice, propaganda, self-deception, distortion, and misinformation.</p> <p>l. Produce intellectual, informational, or material products that serve an authentic purpose.</p> <p>m. Work effectively and respectfully with those from diverse backgrounds or cultures.</p> <p>n. Demonstrate respect, trust, commitment, and the ability to compromise in collaborative projects.</p>		<u>7</u> <u>9</u> <u>10</u> <u>11</u>	<u>5</u> <u>7</u> <u>8</u> <u>9</u> <u>11</u>	<u>SLS</u> <u>9-10</u> <u>11-12.1</u> <u>11-12.1d</u> <u>11-12.2</u> <u>WS</u> <u>11-12.7</u> <u>11-12.6</u>	<u>5c,d</u> <u>6c</u> <u>7b,c,d</u>
<p>3. Leaders and Teams: Roles and Responsibilities</p>	<p>CTE - PS</p>	<p>CRP</p>	<p>CTE - AS</p>	<p>CCSS</p>	<p>ISTE</p>
<p>a. Determine the individual and team members' roles and responsibilities.</p> <p>b. Demonstrate leadership skills and qualities (i.e., reliability, negotiation skills, initiative, positive reinforcement, recognition of others' efforts, problem-solving skills, conflict resolution, and delegation).</p> <p>c. Explain the importance of technical, social, and communication skills to team success.</p> <p>d. Compare and contrast leadership styles and their effectiveness in various situations.</p> <p>e. Organize and delegate responsibilities in a team setting to encourage ideas, perspectives, and contributions from all team members.</p> <p>f. Develop a strong sense of team identity by brainstorming solutions, volunteering, assisting others, practicing respect and courtesy, and taking initiative.</p> <p>g. Examine situations in which a follower becomes the leader.</p> <p>h. Describe twenty-first-century skills required across all occupations.</p> <p>i. Identify and discuss the characteristics of a successful team (i.e., leadership, cooperation, and effective decision-making).</p> <p>j. Leverage social and cultural differences to increase innovation and quality of work.</p>		<u>7</u> <u>8</u> <u>9</u>	<u>3</u> <u>7</u> <u>8</u> <u>9</u> <u>11</u>	<u>SLS</u> <u>11-12.2</u> <u>9-10</u> <u>11-12.1</u> <u>11-12.1d</u> <u>WS</u> <u>11-12.6</u>	<u>7a,c</u>

4. Legal, Ethical, and Environmental Considerations	CTE - PS	CRP	CTE - AS	CCSS	ISTE
<ul style="list-style-type: none"> a. Demonstrate industry specific ethical and legal practices. b. Identify eco-friendly industry specific practices and resources. c. Identify local, state, and federal regulatory agencies, entities, laws, and regulations. d. Identify discrimination based on race, nationality, religion, gender, age, disability, or sexual orientation. e. Summarize the ethical and legal implications of workplace discrimination and harassment. f. Explain the concept of corporate citizenship. g. Examine an employer's role in protecting the health and welfare of employees, the community, and the environment. h. Analyze current environmental laws and regulations and their impact on industry. i. Compare and contrast both society's and industry's impact on the environment. 		<u>5</u> <u>7</u> <u>8</u> <u>12</u>	<u>3</u> <u>5</u> <u>7</u> <u>8</u> <u>9</u> <u>11</u>	<u>WS</u> <u>11-12.6</u> <u>11-12.7</u> <u>SLS</u> <u>9-10</u> <u>11-12.1</u> <u>11-12.1d</u> <u>11-12.2</u>	<u>2a,b</u> <u>3a,b</u> <u>5c</u> <u>6c</u>
5. Personal Growth and Career Planning	CTE - PS	CRP	CTE - AS	CCSS	ISTE
<ul style="list-style-type: none"> a. Demonstrate continued personal development and growth. b. Develop and manage a personal growth and career plan. c. Explain the relationship between sound financial habits and financial security. d. Create and manage a personal financial plan. e. Demonstrate initiative in achieving personal and professional goals. f. Apply time management strategies to meet deadlines. g. Demonstrate a growth mindset through flexibility and a positive attitude. h. Select and demonstrate appropriate job-search and retention techniques. i. Demonstrate strategies to prepare for employment. j. Demonstrate interpersonal skills appropriate for the workplace. k. Elaborate on the importance of perseverance to personal and professional success. l. Discover personal career interests, aptitudes, and skills. 		<u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>6</u>	<u>2</u> <u>3</u> <u>4</u> <u>7</u> <u>8</u> <u>11</u>	<u>LS</u> <u>9-10</u> <u>11-12.6</u> <u>SLS</u> <u>9-10</u> <u>11-12.1</u> <u>11-12.1d</u> <u>11-12.2</u> <u>WS</u> <u>11-12.6</u>	<u>1a</u> <u>3a,c</u> <u>4d</u> <u>6a,d</u> <u>7b</u>
6. Workplace Safety and Personal Wellness	CTE - PS	CRP	CTE - AS	CCSS	ISTE
<ul style="list-style-type: none"> a. Demonstrate proper industry specific safe work practices to prevent injury or illness. b. Assess the potential impact of goal setting on personal and professional success. c. Describe the role of security and emergency procedures in workplace safety. d. Describe the effect of preventative measures on emergencies in the workplace. e. Identify and describe the causes, prevention, and treatment of common accidents. f. Identify local, state, and federal agencies that regulate workplace safety. g. Explain the role of the California Occupational Safety and Health Administration (Cal-OSHA) and the Environmental Protection Agency (EPA). h. Discuss the basics of system operations. i. Demonstrate the proper use of personal protective equipment (PPE). j. Explain the purpose of and accurately interpret a Safety Data Sheet (SDS). 		<u>2</u> <u>5</u> <u>6</u> <u>8</u> <u>12</u>	<u>2</u> <u>5</u> <u>6</u> <u>7</u> <u>8</u> <u>10</u> <u>11</u>	<u>LS</u> <u>9-10</u> <u>11-12.6</u> <u>WS</u> <u>11-12.7</u> <u>11-12.6</u> <u>SLS</u> <u>9-10</u> <u>11-12.1</u>	<u>1a,d</u> <u>2a,d</u> <u>5b</u>

<ul style="list-style-type: none"> k. Identify hazardous materials and chemicals. l. Demonstrate proper procedures to respond to work-related accidents and injuries. m. Describe how ergonomics, housekeeping, and maintenance are related to accidents and injuries. n. Demonstrate cyber ethics, cyber safety, and cybersecurity. o. Assess the potential impact of preventative physical and mental health measures on workplace safety. 				11-12.1d	
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Website Design Units of Instruction

7. Introduction to Website Design	CTE - PS	CRP	CTE- AS	CCSS	ISTE
<ul style="list-style-type: none"> a. Identify and describe Website Design career opportunities. b. Explain how the development of large- and small-scale websites differ. c. Compare and contrast large- and small-scale website designs. d. Describe the responsibilities of an Information Architect/Designer. e. Explain the design disciplines of Interaction Design (IxD), User Interface Design (UI), and User Experience Design (UX). f. Describe the development disciplines of authoring/markup, styling, and scripting/programming. g. Describe the responsibilities of a Multimedia Developer. h. Identify and describe Website design careers available in E-commerce, Consulting, and Distance learning. i. Identify and describe education, training, and industry certifications. j. Define and use terminology common to the industry. 		<u>1</u> <u>2</u> <u>3</u> <u>5</u> <u>11</u>	<u>1</u> <u>2</u> <u>3</u> <u>5</u> <u>11</u>	<u>LS</u> <u>9-10</u> <u>11-12.6</u> <u>SLS</u> <u>11-12.2</u> <u>WS</u> <u>11-12.7</u>	
8. The Internet and WWW	CTE - PS	CRP	CTE - AS	CCSS	ISTE
<ul style="list-style-type: none"> a. Describe the relationship of the Internet to the World Wide Web. b. Explain the purpose of Internet protocols. c. Identify the hardware and software required for web hosting and other services. d. Briefly explain the history of the Internet. e. Define web hosting and services. f. Compare and contrast the Internet to the World Wide Web (WWW). g. Describe and contrast the differences between various Internet protocols, including HTTP, HTTPS, FTP, and SMTP, with an emphasis on secure communication practices and the role of HTTPS in protecting data. h. Describe the services Internet Service Provider (ISP) companies may provide. i. Compare and contrast search engines. j. Identify parts of a Uniform Resource Locator (URL) and describe its function. 	<u>C7.1</u>	<u>1</u> <u>2</u> <u>5</u> <u>11</u>	<u>1</u> <u>2</u> <u>5</u> <u>11</u>	<u>LS</u> <u>9-10</u> <u>11-12.6</u> <u>WS</u> <u>11-12.7</u>	

9. Legal and Ethical Issues	CTE - PS	CRP	CTE - AS	CCSS	ISTE
<ul style="list-style-type: none"> a. Describe legal and ethical issues related to the Internet and World Wide Web. b. Explain copyright laws in reference to the website content. c. Follow laws, regulatory guidelines, policies, and procedures to ensure the security and integrity of information systems. d. Describe the 1976 and 1978 Copyright Acts. e. Explain “fair use” guidelines for website content. f. Identify possible issues involving Domain Names. g. Identify cybercrimes and prevention methods. h. Describe procedures to ensure appropriate website content such as firewalls, preference controls, and censoring programs. i. Explain the concept of propriety. j. Explain how Federal Statutes such as Security Fraud, Fair Housing Act, and USA Patriot Act can influence website content. k. Review ethics pertaining to the development and maintenance of Websites. l. Describe evolving issues including political sites, censorship, intellectual/artistic property, and constitutional and international issues. 	<u>C2.2</u> <u>C4.9</u>	<u>1</u> <u>2</u> <u>5</u> <u>8</u> <u>11</u>	<u>1</u> <u>2</u> <u>5</u> <u>8</u> <u>11</u>	<u>LS</u> <u>9-10</u> <u>11-12.6</u> <u>SLS</u> <u>11-12.1d</u> <u>WS</u> <u>11-12.7</u>	
10. Website Accessibility	CTE - PS	CRP	CTE - AS	CCSS	ISTE
<ul style="list-style-type: none"> a. Describe the concepts of website accessibility, including current standards-based practices such as WCAG guidelines, keyboard navigation, visible focus, accessible forms, and inclusive design. b. Identify and explain the characteristics of a high-quality, well-designed website. c. Compare and contrast internet connections such as modems, DSL/cable modem, broadband, Wi-Fi, satellite, and other high-speed connections. d. Identify local Internet Service Providers (ISP) and compare and contrast their services. e. Summarize the control the Federal Communications Commission (FCC) has over website accessibility. f. Demonstrate proficient Web surfing skills. g. Evaluate a website based on ease of use, navigation, accessibility, appearance, performance, and clarity of purpose. h. Compare and contrast how different browsers, platforms, and assistive technologies impact website accessibility for diverse users. i. Identify and describe the hardware typically used to design websites. j. Identify current popular professional web design software. k. Identify and describe the functions of internet tools necessary for website design. 	<u>C3.3</u> <u>C6.1</u> <u>C7.1</u>	<u>1</u> <u>2</u> <u>4</u> <u>5</u> <u>11</u>	<u>1</u> <u>2</u> <u>4</u> <u>5</u> <u>11</u>	<u>LS</u> <u>9-10</u> <u>11-12.6</u> <u>WS</u> <u>11-12.6</u> <u>11-12.7</u>	
11. HTML, CSS, and JavaScript Fundamentals	CTE - PS	CRP	CTE - AS	CCSS	ISTE
<ul style="list-style-type: none"> a. Define HTML, CSS, and JavaScript using industry appropriate terminology. 	<u>C4.0</u>	<u>1</u>	<u>1</u>	<u>LS</u>	

<ul style="list-style-type: none"> b. Describe the elements of HTML documents and the roles of CSS and JavaScript in web development. c. View a HTML file in a web browser. d. Describe the evolution of web standards, including the role of HTML5 and the relationship between HTML, CSS, and JavaScript. e. Describe the three contemporary layers of web design (structure layer, presentation layer, behavior layer). f. Identify the functions of HTML tags and demonstrate how to manipulate them. g. Use proper programming language syntax. h. Demonstrate document organization. i. Describe how HTML, CSS, and JavaScript work together to create and enhance modern web pages. 	C4.6 C4.7 C8.2	2 5 11	2 5 11	9-10 11-12.6 WS 11-12.7	
12. Web Page Design and Support Software	CTE - PS	CRP	CTE - AS	CCSS	ISTE
<ul style="list-style-type: none"> a. Compare and contrast current popular professional web design software. b. Demonstrate Web design and support software. c. Explain how JavaScript can manipulate web page elements. d. Demonstrate the use of text editors. e. Compare and contrast low and high-end WYSIWYG software. Evaluate commercial free site templates. f. Show how to create a website using other programs such as Word, spreadsheets, and presentation. g. Use support software such as graphics, multimedia, secure file transfer methods, plug-ins and players, and server/site protection. 	C6.2 C6.3 C6.6 C8.2	1 2 4 5 10 11	1 2 4 5 11	LS 9-10 11-12.6 WS 11-12.6 11-12.7	
13. Website Creation and Development	CTE - PS	CRP	CTE - AS	CCSS	ISTE
<ul style="list-style-type: none"> a. Create a website for a web-based business, and an e-portfolio. b. Apply the elements of design to a website design that targets a specific audience. c. Plan a website addressing its purpose, theme, navigation, organization, and audience. d. Evaluate, identify, and utilize appropriate web design software and internet tools. e. Design a website that includes the elements of design (color, contrast, layout, graphics) and multimedia features. f. Demonstrate storyboarding and outlining. g. Enable e-commerce capabilities to sell products, create a shopping cart, and handle secure online transactions using appropriate security practices. h. Apply suitable file-naming conventions and organize files within a site by directory/folder. i. Optimize the delivery and retrieval of website content for performance and efficiency. j. Summarize the importance of evaluation and refinement in website design. 	C3.0 C3.2 C4.9 C4.10 C5.4 C6.0 C6.1 C6.2 C6.3 C6.4 C7.4 C7.5	1 2 4 5 10 11	1 2 4 5 11	LS 9-10 11-12.6 WS 11-12.6 11-12.7	

k. Design and develop websites using responsive web design principles to ensure usability across multiple devices, screen sizes, and platforms.					
14. Site Publication	CTE - PS	CRP	CTE - AS	CCSS	ISTE
<p>a. Publish and upload the website, register the site with search engines/directories, perform revisions, and maintain the site.</p> <p>b. Describe the full process of online content delivery, registering domain names, setting up hosting, and setting up e-mail addresses.</p> <p>c. Compare the different methods of hosting (commercial, free sites, in-house).</p> <p>d. Identify the hardware (server) and software required for web hosting and other services.</p> <p>e. Determine essential services, support, and costs of a website host.</p> <p>f. Select an original domain name to register on the internet or host computer.</p> <p>g. Prepare for uploading by using correct file organization, naming conventions, editing extraneous files, and testing.</p> <p>h. Publish site by uploading to a host using secure file transfer methods or the host's file management tools.</p> <p>i. Confirm transfer, make corrections, and re-upload.</p> <p>j. Update and link new additions to maintain the website.</p> <p>k. Utilize promotional strategies such as registering websites with search engines, directories, cross-marketing, keywords, and meta tags.</p>	<p>C7.0</p> <p>C7.1</p> <p>C7.2</p> <p>C7.3</p>	<p>1</p> <p>2</p> <p>4</p> <p>5</p> <p>11</p>	<p>1</p> <p>2</p> <p>4</p> <p>5</p> <p>11</p>	<p>LS</p> <p>9-10</p> <p>11-12.6</p> <p>WS</p> <p>11-12.6</p> <p>11-12.7</p>	

Standards Alignment

The curricula have been aligned with the CTE Model Curriculum Standards released in 2013. Each industry sector was updated to meet the increased rigor and relevancy requirements of the Common Core State Standards. The curriculum also includes the new Standards for Career Ready Practices.

Standards for Career Ready Practice

1. *Apply appropriate technical skills and academic knowledge.*
2. *Communicate clearly, effectively, and with reason.*
3. *Develop an education and career plan aligned with personal goals.*
4. *Apply technology to enhance productivity.*
5. *Utilize critical thinking to make sense of problems and persevere in solving them.*
6. *Practice personal health and understand financial literacy.*
7. *Act as a responsible citizen in the workplace and the community.*
8. *Model integrity, ethical leadership, and effective management.*
9. *Work productively in teams while integrating cultural and global competence.*
10. *Demonstrate creativity and innovation.*
11. *Employ valid and reliable research strategies.*
12. *Understand the environmental, social, and economic impacts of decisions.*

CTE Anchor Standards—Common Core English Language Arts Alignment

Anchor Standard 1: Academics

Analyze and apply appropriate academic standards required for successful industry sector pathway completion leading to postsecondary education and employment. Refer to the industry sector alignment matrix for identification of standards. Note: alignment listed within each sector.

Anchor Standard 2: Communications

Language Standard: Acquire and accurately use general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the (career and college) readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression. LS 9-10, 11-12.6

Anchor Standard 3: Career Planning and Management

Speaking and Listening Standard: Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data. SLS 11-12.2

Anchor Standard 4: Technology

Writing Standard: Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments and information.

Anchor Standard 5: Problem Solving and Critical Thinking

Writing Standard: Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem, narrow or broaden the inquiry when appropriate, and synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation. WS 11-12.7

Anchor Standard 6: Health and Safety

Reading Standards for Science and Technical Subjects: Determine the meaning of symbols, keywords, and other domain-specific words and phrases as they are used in a specific scientific or technical context. RSTS 9-10, 11-12.4

Anchor Standard 7: Responsibility and Flexibility

Speaking and Listening Standard: Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners, building on others' ideas and expressing their own clearly and persuasively. SLS 9-10, 11-12.1

Anchor Standard 8: Ethics and Legal Responsibilities

Speaking and Listening Standard: Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the work. SLS 11-12.1d

Anchor Standard 9: Leadership and Teamwork

Speaking and Listening Standard: Work with peers to promote civil, democratic discussions and decision making; set clear goals and deadlines; and establish individual roles as needed. SLS 11-12.1b

Anchor Standard 10: Technical Knowledge and Skills

Writing Standard: Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information. WS 11-12.6

Anchor Standard 11: Demonstration and Application

Demonstrate and apply the knowledge and skills contained in the industry-sector anchor standards, pathway standards, and performance indicators in the classroom, laboratory, and workplace settings, and the career technical student organization. Note: no alignment evident for this standard. WS 11-12.6

CTE Model Curriculum Standards—Industry Sectors and Pathways

Information and Communication Technologies

C. Software and Systems Development

- C2.2 *Recognize and prevent unintended consequences of development work: programming errors, security issues, health and environmental risks, and privacy concerns.*
- C3.0 *Create effective interfaces between humans and technology.*
- C3.2 *Design effective and intuitive interfaces using knowledge of cognitive, physical, and social interactions.*
- C3.3 *Support methods of accessibility for all potential users, including users with disabilities and non-English-speaking users.*
- C4.0 *Develop software using programming languages.*
- C4.6 *Use proper programming language syntax.*
- C4.7 *Use various data structures, arrays, objects, files, and databases.*
- C4.9 *Create programs using control structures, procedures, functions, parameters, variables, error recovery, and recursion.*
- C4.10 *Create and know the comparative advantages of various queue, sorting, and searching algorithms.*
- C5.4 *Test software and projects.*
- C6.0 *Integrate a variety of media into development projects.*
- C6.1 *Identify the basic design elements necessary to produce effective print, video, audio, and interactive media.*
- C6.2 *Describe the various encoding methods of media and trade-offs: vector graphics vs. bitmaps, and bit depth.*
- C6.3 *Use media design and editing software: keyframe animation, drawing software, image editors, and three-dimensional design.*
- C6.4 *Develop a presentation or other multimedia project: video, game, or interactive Web sites, from storyboard to production.*
- C6.6 *Integrate media into a full project using appropriate tools.*
- C7.0 *Develop Web and online projects.*
- C7.1 *Identify the hardware (server) and software required for Web hosting and other services.*
- C7.2 *Describe the full process of online content delivery, registering domain names, setting up hosting, and setting up e-mail addresses.*
- C7.3 *Attract Web-site visitors through search engine optimization using various strategies like keywords and meta-tags.*
- C7.4 *Enable e-commerce capabilities to sell products, create a shopping cart, and handle credit card transactions.*
- C7.5 *Create an online project, Web-based business, and e-portfolio.*
- C8.2 *Identify and use the basic structures of databases, fields, records, tables, and views.*

ISTE Standards for Students

1. Empowered Learner- Students leverage technology to take an active role in choosing, achieving, and demonstrating competency in their learning goals, informed by the learning sciences.

- a) Students articulate and set personal learning goals, develop strategies leveraging technology to achieve them, and reflect on the learning process itself to improve learning outcomes.
- b) Students build networks and customize their learning environments in ways that support the learning process.
- c) Students use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways
- d) Students understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies.

2. Digital Citizen- Students recognize the rights, responsibilities, and opportunities of living, learning, and working in an interconnected digital world, and they act and model in ways that are safe, legal, and ethical.

- a) Students cultivate and manage their digital identity and reputation and are aware of the permanence of their actions in the digital world.
- b) Students engage in positive, safe, legal, and ethical behavior when using technology, including social interactions online or when using networked devices.
- c) Students demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.
- d) Students manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.

3. Knowledge Constructor- Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts, and make meaningful learning experiences for themselves and others.

- a) Students plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.
- b) Students evaluate the accuracy, perspective, credibility, and relevance of information, media, data, or other resources.
- c) Students curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions.
- d) Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories, and pursuing answers and solutions.

4. Innovative Designer- Students use a variety of technologies within a design process to identify and solve problems creating new, useful, or imaginative solutions.

- a) Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts, or solving authentic problems.
- b) Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.
- c) Students develop, test, and refine prototypes as part of a cyclical design process.
- d) Students exhibit a tolerance for ambiguity, perseverance, and the capacity to work with open-ended problems.

5. Computational Thinker- Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.

- a) Students formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models, and algorithmic thinking in exploring and finding solutions.
- b) Students collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.
- c) Students break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.

d) Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

6. Creative Communicator-*Students communicate clearly and express themselves creatively for a variety of purposes using platforms, tools, styles, formats, and digital media appropriate for their goals.*

a) Students choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.

b) Students create original works or responsibly repurpose or remix digital resources into new creations.

c) Students communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models, or simulations.

d) Students publish or present content that customizes the message and medium for their intended audiences.

7. Global Collaborator-*Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.*

a) Students use digital tools to connect with learners from a variety of backgrounds and cultures, engaging with them in ways that broaden mutual understanding and learning.

b) Students use collaborative technologies to work with others, including peers, experts, or community members, to examine issues and problems from multiple viewpoints.

c) Students contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal.

d) Students explore local and global issues and use collaborative technologies to work with others to investigate solutions.