

Information Technology Career Cluster
Foundations of Interactive Design (MS-CS-FID)
Course Number: 11.01300

Course Description: This course will provide an exploratory foundation in design and development of websites and games. It is designed to be taught in a 9-week rotation in 45-minute daily classes. Standards should be taught in the order presented with the exception of Standard 1 being an embedded standard with ongoing learning regarding employability and career opportunities. Through integrated instructional activities, students will have opportunities to apply employability skills and to research possible career options in the information technology area. They will also complete many hands-on activities to build a strong foundation in designing interactive programs. Capstone projects should be incorporated at the completion of all standards as time allows. Students who successfully complete this course will be prepared for the following pathways upon entering high school: Web & Digital Design, Web Development, and Game Design. This course may be taught in 6th, 7th, or 8th grade.

Requirements for teaching this and other computer science courses: This course should be taught in a lab setting with a 1:1 ratio of student to personal computer. Additional devices, such as tablets, robots, Raspberry pi computers, and drones will enhance the program and can be shared in groups of 2-3 students. All devices should be current technology with strong connectivity capabilities. To further enhance student learning, the lab should contain at least one personal computer that students can disassemble and reassemble to learn the working parts within the computer.

Course Standard 1

MS-CS-FID-1

Demonstrate employability skills required by business and industry and explore, research, and present careers in information technology.

- 1.1 Communicate effectively through writing, speaking, listening, reading, and interpersonal abilities.
- 1.2 Demonstrate an understanding of collaborative interactions in the digital world.
- 1.3 Model work-readiness traits required for success in the workplace including integrity, honesty, accountability, punctuality, time management, and respect for diversity.
- 1.4 Exhibit critical thinking and problem-solving skills to locate, analyze, and apply information in career planning and employment situations.
- 1.5 Present a professional image through appearance, behavior and language.
- 1.6 Investigate educational requirements, job responsibilities, employment trends, and opportunities within information technology career pathways using credible sources.

Course Standard 2

MS-CS-FID-2

Develop a plan to create, design, and build a website with digital content to a specific target market.

- 2.1 Identify the objectives (e.g., increase sales, promote new products, increase company awareness, target new customers) for the website's target market.
- 2.2 Specify website requirements, including timeline and resources, and organize them into a requirements document.
- 2.3 Find and evaluate similar websites (in terms of overall function and layout) using an evaluation instrument for side-by-side comparison. Consider major design elements (ease of use, responsiveness, adaptability to mobile, tablet and desktop, etc.).
- 2.4 Evaluate a variety of web design tools and development platforms using an evaluation instrument and choose the appropriate platform.
- 2.5 Create a plan on paper or in a word processing document that outlines the content of the website.

Course Standard 3

MS-CS-FID-3

Design digital products that reveal a professional layout and look by applying design principles to produce professional quality digital products.

- 3.1 Identify graphical elements and the appropriate use of elements on a web site.
- 3.2 Explore and apply color principles to digital products.
- 3.3 Establish a brand through consistent use of graphics, color, layout and text.
- 3.4 Analyze the look and layout of a website based on the first impression of content and page elements. Get feedback from independent users and incorporate where appropriate.

Course Standard 4

MS-CS-FID-4

Create a single functional web page using a web development platform based on a design mockup and user requirements.

- 4.1 Create and edit images and graphics for website publication.
- 4.2 Plan, produce, and edit digital audio for website publication.
- 4.3 Plan, produce, edit, and post a multimedia-rich video project to a website.
- 4.4 Plan, produce, and edit animations for website publication.

Course Standard 5

MS-CS-FID-5

Develop and use a test plan to debug each new website version to ensure it runs as intended and meets the end-user requirements for a responsive site.

- 5.1 Create a test and debug plan. Resolve issues and fix any errors that surface during the test and debug process.
- 5.2 Create an end user testing plan, get user feedback, and incorporate feedback into the final website.
- 5.3 Prepare website for publishing and promotion.

Course Standard 6

MS-CS-FID-6

Develop a plan to create, design, and build a game with digital content for a specific target market.

- 6.1 Explore various game types, including role-playing games (RPG), real-time strategy (RTS), simulations, puzzles, educational, massively multiplayer online (MMO), and others.
- 6.2 Create a Game Design Document (GDD), which includes, characters, story, theme, and gameplay mechanics.

Course Standard 7

MS-CS-FID-7

Develop a visual model of a game using the Game Design Document (GDD).

- 7.1 Create storyboards from the GDD that demonstrate game progression and consistent use of a theme.
- 7.2 Use the GDD to design the wireframes and comprehensive layout for the user experience (UX).

Course Standard 8

MS-CS-FID-8

Create a functional game, using a game development platform, based on the storyboards, wireframes, and comprehensive layout.

- 8.1 Create game elements, backgrounds, and characters.
- 8.2 Use scripting languages to create desired game mechanics, and to control the environment, user interface (UI), and character behaviors.
- 8.3 Plan, produce, and edit graphics and animations for game publication.
- 8.4 Plan, produce, and edit digital audio for game publication.

Course Standard 9

MS-CS-FID-9

Develop a test plan to debug and use each time a version of the game is released to ensure it runs as intended and meets the end-user requirements.

- 9.1 Create a test and debug plan. Resolve any issues and fix any errors that surface during the test and debug process.
- 9.2 Create an end user testing plan, get user feedback, and incorporate feedback into the final game.
- 9.3 Prepare final game for publishing prior to publishing to the target audience.