CodeHS

Introduction to the Internet Course Syllabus
1 semester for middle school (55 contact hours)

Course Overview and Goals

Introduction to the Internet explores HTML, CSS, and web design principles as students create their own homepage and a multi-page website. Students also examine how information is represented digitally, including number systems and pixel images, while learning about network protocols and online security strategies.

With a unique focus on creativity, problem solving and project based learning, Introduction to the Internet gives students the opportunity to explore several important topics of computing using their own ideas and creativity to develop an interest in computer science that will foster further endeavors in the field.

Learning Environment: The course utilizes a blended classroom approach. The content is a mix of web-based and physical activities. Students will write and run code in the browser, create websites and digital presentations, and engage in in-person collaborative exercises with classmates. Teachers utilize tools and resources provided by CodeHS to leverage time in the classroom and give focused 1-on-1 attention to students.

Programming Environment: Students write and run programs in the browser using the CodeHS online editor. Students will also create several webpages using HTML and CSS. These webpages will be hosted on the CodeHS website so that they can keep a running portfolio of their creative projects, and easily share their programs with the world.

Quizzes: At the end of each unit, students take a summative multiple choice unit quiz that assesses their knowledge of the concepts covered in the unit.

Prerequisites: The Introduction to the Internet course is designed for complete beginners with no previous background in computer science. The course is highly visual, dynamic, and interactive, making it engaging for those new to computer science.

More information: Browse the content of this course at https://codehs.com/course/25862

Course Breakdown

Unit 1: Web Design 1 (2-3 weeks/10-15 hours)
Students explore HTML and CSS styling as they work to create their homepage.

Browse the full content of this unit at https://codehs.com/library/course/25862/module/35877

Objectives / Topics Covered	• Creating Webpages using HTML • Structure of an HTML Page • Formatting Text • Creating Links • Images • Lists • Styling Webpages with CSS

Example Assignments / Labs	• Creating Links
	  ○ Example Exercise: *Wiki Page*
	  In this activity, you are going to create a short Wiki article. It can be on any topic you want, but you need to include at least three links integrated into your article. Your article should be one to two paragraphs long and use well-constructed sentences.
	• Incorporating Images
	  ○ Example Exercise: *Your Favorite Image*
	  For this activity, you are going to select any school appropriate image that you like and display it with a short caption.
	• Introduction to CSS Styling
	  ○ Example Exercise: *Adding CSS Styling*
	  In this exercise, you are going to take an article and apply CSS styling inside a `style` tag placed in the head.
	• Complete Your Homepage
	  ○ Example Exercise: *Complete Your Homepage*
	  In this project, you'll complete your own homepage. Remember, you will find your homepage in your Sandbox. Make sure your homepage has the following: A profile image, your name, a short bio about yourself, and at least two links to some of your favorite websites!

Unit 2: Web Design 2 (2-3 weeks/10-15 hours)
Students will learn the basics of web aesthetics and design principles which will allow them to take their web design skills to the next level. This module culminates in a project that will guide them through the web planning process and create a multi-page website.

Browse the full content of this unit at https://codehs.com/library/course/25862/module/35878

Objectives / Topics Covered	• Webpage Aesthetics • Webpage Design • Contrast • Multipage Sites • Citing Sources • Sitemaps • Wireframing • Proximity using CSS

Example Assignments / Labs	• Webpage Design
	  ○ Example Exercise: *Fix the Contrast*
	  This site in this exercise has a poor use of contrast. Let's improve the contrast by changing the CSS in the `<style>` tag.
	• Citing Image Sources
	  ○ Example Exercise: *Make a Collage*
	  Now that you know how to find and cite images you can use, create a collage containing six images that you find on the internet. Put the citation in a `<p>` tag under each image.
	• Lets Add Pages!
	  ○ Example Exercise: *Dividing the Site*
	  This website only has a homepage! Your job is to add the following three files: `compiled.html`, `scripting.html`, and `style.css`. Make sure every html page has a title, and the stylesheet is linked.
	• Wireframing
	  ○ Example Exercise: *Your Wireframe*
	  Now, it's your turn to create a wireframe for your website! You will want to create a wireframe for each page of your site.

Unit 3: Digital Information (3 weeks/15 hours)
Students learn about the various ways we represent information digitally including number systems, encoding data, and creating pixel images.

Browse the full content of this unit at https://codehs.com/library/course/25862/module/35880

Objectives / Topics Covered	• How Digital Data is Represented • Encoding Data • Encoding Text • Binary • Hexadecimal • RGB encoding • Manipulating Images

Example Assignments / Labs	● Encoding Text with Binary ○ Example Exercise: *Create Your Own Encoding* In this exercise you'll develop your own text encoding scheme with a partner. If you and your partner agree on the same encoding scheme, then you will be able to transmit binary messages to each other, and only you will be able to correctly interpret them! ● Hexadecimal ○ Example Exercise: *Binary to Hex Game* This exercise is a visual game to practice making hexadecimal numbers from bits. Clicking on each bit toggles the value from a 0 to a 1, or vice versa. The hexadecimal target value is shown in the bottom of the window. Flip the bits of the binary number until you successfully create the binary value that represents the given hexadecimal value. ● Pixel Images ○ Example Exercise: *Checkerboard* Using the pixel tool, type out the binary encoding for a black and white checkerboard. ● Pixel Colors! ○ Example Exercise: *Create a Color Image* Now that you can encode color images with binary and/or hexadecimal, type out the pixel encoding for any image you wish! You have a blank canvas to create whatever you'd like.

Unit 4: The Internet (2 weeks/10 hours)
Students are introduced to network protocols and different strategies used to protect online information.

Browse the full content of this unit at https://codehs.com/library/course/25862/module/35879

Objectives / Topics Covered	● Introduction to the Internet ● Networking Basics ● Protocols ● Impact of the Internet ● The Internet of Things ● The CIA Triad ● Encryption Basics ● Steganography
Example Assignments / Labs	● Impact of the Internet ○ Example Exercise: *Internet in My Daily Life* Envision a normal day, from the time you wake up to the time you go to sleep. In what ways do you use the

	Internet during your day? For what purposes do you use the Internet? As you go through a normal day in your mind, write down all the ways you use the Internet. Include the device you use and the purpose. ● Cybersecurity ○ Example Exercise: *Phishing Simulator* Malware is a program that can damage a computing system. These programs can be downloaded due to user error when someone clicks on a dangerous link or downloads a malicious file. Explore this simulation. Examine the emails and decide whether they are legit or malicious. ● Project: Steganography ○ Example Exercise: *Hidden Message* Look at the picture and the corresponding color codes associated with the pixels. There is a message hidden in the first 12 pixels! Below is the method used to hide the message. Can you reverse the process and find the secret message?