Intro to the web - Unit 1

The web started in 1991, adding a graphical UI to the internet
Began as a medium for sharing information via email
4.5 billion websites on the internet
Tim-Berners-Lee, working at CERN invented the world wide web in 1989
Developed to meet demand for information sharing between scientists
Info.cern.ch - address of the first website
WWW software released in 1991
First browser in 1993
10,000 servers and 10 million users by the end of 1994
16 million in 1995, 4.3 billion in march 2019
The web is managed by the world wide web consortium
Every second: 8,500 tweets, 921 photos posted to instagram, 74,000 gigabytes of traffic, 75,000 google searches, 2.8 million emails set, 4 million blog posts
Websites can be built for ecommerce, travels, blogging, information
Made up of a client-server model
Websites are built and maintained on a server
People access using a web browser (client)
Most web pages are comprised of one or more files that are downloaded, interpreted and rendered
Browsers are the client end of things, some are universal, others platform specific
Websites are not just virtual entities, they require hardware and an address to work
Remote hosting - stored on a central server, all files located in a central repository
Webspace - storage space required to host the website
Bandwidth - the amount of data transferred to and from a website
Database - storage on information, needed for shops or blogs
Domain name - web address that identifies a website
Most important part is planning
Search Engine Optimization - improving a sites ranking in a search
HTML and CSS - key site building tools
HTML - provides the building blocks and structure
-adds raw content, using a series of tags
CSS - provides the styling (cascading style sheets)
Language applied to an HTML tag to format it, defining its properties
Javascript - makes content interactive
Most sites rely on all 3
HTTP -HyperText Transfer Protocol, used to transfer web resources
Needs URL, verbs to specify what to do, status codes
Importance of ecommerce - broadens a brand, convenient, increases reach, marketing ops, scalability, data harvesting

Design & User Experience - Unit 2

Users judge websites as beautiful or not within 0.02-0.05 seconds

Design Guidelines

Simplicity:

Visually complex sites rated as less beautiful than simpler counterparts

Adding unnecessary elements should be avoided

Color - restrict color use and visually complex images

Fonts - use legible fonts, a max of three

Graphics - only use if it helps complete a task, perform a function or convey information

Visual Hierarchy:

Arrange and organize elements so most important elements draw focus first

Lead users to desired action, but do so naturally

Adjust position, color, size

Navigability:

A visitor should not think about where they have to click next

-simple structure of nav bar at top

Nav links in the footer

Breadcrumbs used so the user can follow their path

Search near the top

Keep all info near the top level

Keep labels on navbar and footer consistent between pages

Consistency:

Overall feel should be consistent between pages

Backgrounds, color schemes, typefaces

Groups of pages should look similar

Accessibility:

Designing for inclusion

Compatible with different devices

Flexible and responsive structure

Use IP data to increase functionality

Adding alternate options

Conventionality

Main nav at top of page

Logo top left or center, clickable to go back to homepage

Links change color on hover

Things to avoid:

Tiny clickable areas

Incorrectly splitting pages

Poorly written/laid-out text content

No contact information

No search function

Dead-end links

Usability
Learnability - how easy for new users to complete tasks
Memorability - how easy for someone to come back to a site after not using for some time
Efficiency - how quickly can users complete tasks
Satisfaction - does the user enjoy the design
Erros - how many errors a user can make on a site, how easy is recovery
Keep things simple, inform users when something changes, language settings, consistency, avoid making the user think, prevent user mistakes, help users recognize mistakes and recover, help or customer support that is easy to find, scales as the user learns more about the site
Accessibility
Designed for disabilities
Physical limitations
Visual - designed for use by screen readers or other tech
Auditory - audio and video are captioned or transcribed
Cognitive - tech to scroll or click works
Provide text alternatives to images and media
Allow users to traverse with their keyboard alone
Allow users to control text sizes
Design text with contrast
Easy to read and consume content
Content follows a logical focus order
User should never scroll horizontally
Page should load fast, people may leave site

Basics of HTML - Unit 3
Provides structure, content and connection between pages allowing web designers to create experiences
HyperText - the links between documents on the web
HTML 5 is the current version of HTML
Supports <video> tag, <nav>, <header>
Markup language - annotates text so the browser can manipulate it <> tags are markup
Html elements usually have opening and closing tags
<html> <html/> - an HTML element tag
Attributes - declare additional info for an element, exist in the opening tag of an element
<!DOCTYPE html> - tells the browser what type of content to expect
<html lang=”en”> - default language of a website determined here
<head> - contains page metadata, page title, stylesheets and anything needed to render
<body> - contains headings paragraphs and content, page visible content here
Character set - digital alphabet to show special characters
<meta> - no closing tag
<!-- --> completely ignored by the browser
<title> - the displayed title at the top of the browser window, displayed in search results
<p> - paragraph
<h1-6> header, largest being 1

Unordered list - tag, add items with
Ordered list - tag, add items with
Lists can be nested within each other
 - emphasis tag for text, italics
 - bold for text

 - line break for text
Reserved characters - <> & arent allowed to be inserted without being encoded
Double quotes: “ ”
Single quotes: ‘ ’
<a> - adds a link, stands for anchor
Relative links - link on the same site
Absolute links - link to other sites
<article> - group of content as one story, headers, paragraph etc
<section> - can contain single item of collections of related items
<aside> - marks content as not wholly related (sidebars)
<header> - marks items as contained in the header
<nav> - marks area as responsible for page navigation
<img> - allows insertion of images
 - division, used for CSS styling
<small> - smaller text
<mark> - highlighted text
<sub> - subscripted text
<sup> - superscript text
<q> - quote
<blockquote> - quote indented with a line above and below
<abbr> - defines abbreviation or acronym

Aspects of Design - Unit 4
Good design caters to the needs of the user
Clearly define the websites purpose
Info should be clear and easy to read
Sans serif fonts are easier to read online
Color palette should be well thought out to create balance
Contrast between text and background makes for easier reading
Contrast shouldn't be too high or too low
Proper images are more expressive than text
Navigation must be intuitive and effective, use buttons, bread crumbs
Three Click Rule - user should be able to find info they're after in 3 clicks
People scan websites in an F pattern, most of what is seen is on the top and left
Design sites for natural viewing behavior
Poor load times lose out on potential users
47% of people expect a page to load in under 2 seconds
40% abandon a site that takes 3 seconds to load
2 second bounce rate - 9%

5 second bounce rate - 38%
79% of shoppers won't return to a site with poor performance
White space prevents clutter and improves focus on important objects
Repetition makes a strong impact on the mind (font, color, shapes)
Break the flow to force a user to renew their attention, motion is a good way
Golden Ratio - 1.618 believed to be aesthetically pleasing
Golden Rectangle - rectangle whose length is 1.618 times its width
Hicks Law - every additional choice increase time required to decide logarithmically
Categorize choices to not overwhelm
Limit the number of choices
Divide information into chunks to make the process seem shorter
Hide complex things from all but the users who can properly use them
Fitts' Law - the bigger an object and closer it is, the easier it is to use
Size of an object should be proportional to its use
Gestalt design laws - eyes see objects in their entirety before their individual components
Emergence - we recognize simple well defined objects faster than detailed ones
Reification - people can recognize objects even with missing parts
Multi-Stability - people interpret ambiguous objects in more than one way
Invariance - people recognize objects regardless of their size or orientation
Proximity - when objects are grouped together, they become a single perceived object
Similarity - group similar things together
Closure - humans see completeness, our minds fill in the gaps of missing parts
Symmetry - perceptually pleasing to divide objects into symmetrical parts
Common Fate - humans group objects with the same trend of motion
Continuity - people perceive a line to continue in it's established direction
Occam's Razor - the simplest solution is usually best
Hero Image - large web page banner, front and center, tells a story without text
Background videos - reduces amount of content needed to explain key points of a site
Hamburger menus - allow for a minimalistic view, obscures info from users
Card Design - A small rectangular module with text and images
404 - can include a search, bestselling items, coupon code, text explaining what happened, branding, link building, social media traffic, connecting positive thoughts to a brand
Storytelling - provides order and meaning, make material more memorable, elicit feelings, persuade users
Visuals should add to the story, not fill empty space
Interactivity helps enhance content and user experience

Working with Images - Unit 5
Pixels - square elements of an image with a color value between 0 and 255
Megapixels - number of pictures in a camera sensor in millions of pixels
Resolution - level of visual detail in an image, measured in PPI
Bits - an 8 bit image has 2^8 colors, 24 bit image is full rgb
Compression - two types, lossy and lossless
Lossy -when a file is saved, there is a loss of quality

Lossless - when an image is saved, there is no loss of quality
Full Transparency - when part of a graphic is invisible
Partial Transparency - a translucent effect, where part of an image appears opaque
JPG - most common image format, small file size, high compatibility, usually 24-bit
PNG - lossless graphic that supports transparency and doesn't produce artifacts but has larger file sizes
GIF - supports lossless compression and multiple frames for simple animation
TIFF - very high quality and shouldn't be used on the web
WEBP - designed by google to provide lighter images than JPEG without a loss in quality
Supports lossless compression and allows transparency and animations, lacks universal support
HEIC/HEIF - high efficiency image file format for storage and sharing of images and image sequences, debut with IOS 11
SVG - scalable vector graphics, XML based format for 2d graphics with interactivity and animation
Common Problems:
Slow site due to image size, Images dont look right, focal point is off, the image is composed poorly, looks distorted, isn't accessible, boring, colors aren't right, generic stock photography

Basics of CSS - Unit 6
CSS first proposed in 1994
CSS1 released in 1996
When a browser reads a CSS stylesheet, it will format the HTML document according to the stylesheet specifications
External stylesheets use a .css extension
Internal style sheets embed style directly into the HTML document using <style> tags
CSS selectors - can select all HTML elements based on element name, id, class, attribute
Color can be specified with HEX, HSL, RGBA or HSLA
Padding generates space around an element
Margins create space around elements
All HTML elements are considered boxes, the CSS box model is a box that wraps every HTML element, consisting of margins, borders, padding and actual content
Links can be styles based on the state they are in (active, visited, hover)

Creating a Basic Website - Unit 7
No notes

Website Design Elements - Unit 8
Grid system - a system designers can work with to structure, position and present content in a manageable way, made up of columns
Colors allow us to associate with specific thoughts, moods, emotions
Monochromatic - using a single color - hard to pull off
Primary colors - red, yellow, blue
Secondary - green orange purple, made by mixing primaries

Tertiary - made by mixing a primary and a secondary
Colors have meanings and are associated with feelings
Color is very important for branding, using a single color
Typography - appearance of text on a website
Text should be legible and readable
Horizontal scrolling should be avoided
Long scrolling - consolidates all content in one place, usually for storytelling purposes, works well with mobile users
Infinite scrolling - content is loaded as needed, useful for sites with large quantities of content
Parallax scrolling - the layers of a 2d image moving at different speeds when scrolling, may be a drain on loading times and make a page look busy
Fixed Navigation - the top menu is affixed to the top of the screen and leaves view as you scroll
Sticky Navigation - menu bar follows as you scroll down

Intermediate HTML - Unit 9
<code> represents computer code
<address> used for contact details
<cite> used to define the title of a piece of work
<table> - starts a table
<tr> - defines a table row
<th> - table header
<td> - table data
Description lists - list of terms with descriptions below
<dl> - defines description list
<dt> - defines the name
<dd> describes each term
By default, lists start counting at 1
<ol start="42"> - modifies the count start to 42
Every HTML element has a default display type based on what the element is (block, inline)
Block - always starts on newline and takes up full width (div, footer, section, header, video)
Inline - does not start on newline and only takes up width needed (a, img, br, span)
<figure> - adds images, infographics to articles <figcaption> for caption
Metadata is important for search engines <meta>
Three supported video formats in HTML - MP4, webM, OGG
Videos can be autoplayed, looped or display player controls
Three supported audio formats in HTML - MP3, WAV, OGG

Web Publishing and E-Commerce - Unit 10
CMS - content management system that enables the creation and storage of digital content
Allows people to publish digital content, work with others online
56% of all websites use CMS and wordpress has a 61% market share
Useful for website management, lowers dev time, easier customization options, allows previews and testing
E-commerce design tips: tell a story of the brand, good nav, color, photos, think like a visitor

SEO - meta data should be optimized, page titles, sub headings, internal links, image name, content, phrases/keywords

Intermediate CSS - Unit 11
No real info, all on google

The Mobile Web - Unit 12
Stupid unit waste of time, basic sense