

**IDSN 530: Technology Essentials**  
**Units: 3.0**  
**Spring 2023–Wednesdays–5:30pm-6:50pm**

**Location:** Online

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### Course Description

Technology Essentials establishes a fundamental understanding of engineering and technology across a wide range of areas. Students build theoretical fluency in core concepts, methods, and technologies, and in some cases develop limited technical competencies. The purpose of this foundation is to create technological fluencies that will enable students to:

- Understand the technological aspects of projects, from their essence and goals to scopes and budgets
- Improve interactions and teamwork with engineers on projects and teams
- Better recognize technology opportunities for disruption and innovation in projects and start-ups.

### Learning Objectives and Outcomes

Students will acquire a degree of theoretical fluency in technology and engineering that enables them to understand:

- How computing technologies have disrupted and transformed businesses and industries
- The process of designing and developing a web-based application, from consumer user experience (UX) to back end, through hands-on experiences
- Capabilities of the cloud and its impact on (and opportunities for) technological development, capabilities, and businesses
- The purpose of storing and structuring data, such as in a database
- Core business, design, and development considerations for creating mobile applications and Internet-enabled devices
- The basics and uses of data analytics
- Security and performance considerations that impact all of the above.

**Recommended Preparation:** No prior technology knowledge is required or expected for this class. Those with extensive prior technology education or experience are encouraged to complete IDSN-525 Business Essentials or IDSN-520 Design Essentials in lieu of this course.

### Course Notes

This course will be conducted online, using a combination of synchronous and asynchronous methods.

### Technological Proficiency and Hardware/Software Required

Students must provide their own laptop. The laptop specifications take into consideration that students will be creating, streaming, and downloading audio and video, communicating using video-conferencing applications, and creating and storing large multimedia files.

	<b>Apple</b>	<b>Windows PC</b>
<b>Laptop (Minimum standards)</b>	<ul style="list-style-type: none"> <li>• 2.6 GHz dual-core Intel Core i5 or 2.0 GHz quad-core Intel Core i7</li> <li>• Minimum 13" display</li> <li>• 250 GB SSD or larger</li> <li>• 16 GB memory</li> </ul>	<ul style="list-style-type: none"> <li>• Intel Core i5 or Intel Core i7</li> <li>• Minimum 14" display</li> <li>• 250 GB SSD or larger</li> <li>• 16 GB memory</li> </ul>
<b>Warranty</b>	<ul style="list-style-type: none"> <li>• Manufacturer warranty or extended warranty coverage (Apple Care)</li> </ul>	<ul style="list-style-type: none"> <li>• Manufacturer warranty or extended warranty coverage</li> </ul>
<b>Operating System</b>	<ul style="list-style-type: none"> <li>• Mac OS X 10.13 or higher</li> </ul>	<ul style="list-style-type: none"> <li>• Windows 7, 10 operating system or higher</li> </ul>
<b>Peripherals</b>	<ul style="list-style-type: none"> <li>• HD webcam, speakers and microphone (Most newer laptops have built-in webcam, speakers and microphone)</li> <li>• Headset</li> <li>• Digital camera (Cameras on newer smartphones are acceptable)</li> <li>• External drive for cloud account for backup and storage</li> </ul>	
<b>Software</b>	<ul style="list-style-type: none"> <li>• Adobe Creative Cloud (Photoshop, Illustrator, and InDesign)</li> <li>• Adobe Acrobat Reader</li> <li>• Microsoft Office Suite</li> <li>• Sophos Endpoint Security (antivirus)</li> <li>• Browser: Most recent version of Firefox, Chrome, Safari, or Internet Explorer</li> </ul>	
<b>Network</b>	<ul style="list-style-type: none"> <li>• Cable modem, DSL, T1/T3 or higher</li> </ul>	

### USC Technology Rental Program

The university realizes that attending classes online and completing coursework remotely requires access to technology that not all students possess. If you need resources to successfully participate in your classes, such as a laptop or internet hotspot, you may be eligible for the university's equipment rental program. To apply, please submit an [USC Technology Rental Program Application](#).

### Required Readings and Supplementary Materials

Required reading will be drawn from textbooks, articles, papers, cases, and online publications (e.g., articles, op-ed essays) available through a host of available outlets; in all instances, the material will be delivered via computer. Students will also be required to view online videos; complete web-based, interactive exercises; and respond to peer and faculty comments (within an online discussion forum or group discussion). Lectures, readings, and viewings will be supplemented with current articles and audio/video content.

### Grading Breakdown

<b>Assignment</b>	<b>Points</b>	<b>% of Grade</b>
Assignments	675	71.05%
Labs	125	13.16%
Section Attendance and Asynchronous Exercises	150	15.79%
<b>TOTAL</b>	<b>950</b>	<b>100%</b>

<b>Assignments</b>	<b>Assigned</b>	<b>Due</b>	<b>Points</b>
Assignment 1: Interests and Hobbies Website	Week 2	W4	100
Assignment 2.1: Interactive Website, <i>Proposal and Wireframes</i>	Week 4	W5	50
Assignment 2.2: Interactive Website (GROUP), <i>FrontPage and Style Sheet</i>	Week 5	W7	100
Assignment 2.3: Interactive Website (GROUP), <i>Final Build With Video and jQuery</i>	Week 7	W9	150
Assignment 3: Database Commission	Week 8	W9	50
Assignment 4.1: Mobile Project, App Idea (GROUP)	Week 9	W10	25
Assignment 4.2: Mobile Project, Pitch Deck (GROUP)	Week 10	W12	150
Assignment 5: Analytics Paper	Week 13	W15	50
<b>TOTAL</b>			<b>675</b>
<b>Labs</b>	<b>Assigned</b>	<b>Due</b>	<b>Points</b>
Lab 1: Edit Student Information File, Post to Web	Week 1	W2	10
Lab 2: Web Page on Past Projects	Week 2	W3	25
Lab 3: Web Page That Is Mobile Responsive	Week 4	W5	15
Lab 4: jQuery Exercise	Week 6	W7	15
Lab 5: Research on Implementing an API, Plug-in or Library	Week 7	W8	15
Lab 6: Web Page Build in Bootstrap	Week 8	W9	15
Lab 7: Research Into Server Scoping	Week 9	W10	15
Lab 8: AR/VR Proposal	Week 12	W13	15
<b>TOTAL</b>			<b>125</b>

## Assignments

### Assignment 1: Interests and Hobbies Website

**Deliverable:** Link to completed website

**Details:** Website with a minimum of three pages (homepage plus 2+ inner pages).

You will create an "interests and hobbies" website containing content (text, images, layouts, design) focusing on your personal interests and hobbies. Your final site is to contain:

- At least one external css stylesheet.
- Landing page that includes header title, introduction, summary information about subpages, and navigation. You should use the semantic HTML tags matching these sections when possible.
- A minimum of two subpages. Each inner page should contain header, navigation, and focus on one topic/area in depth.
- All pages should have a uniform design, color scheme, and look and feel.
- Overall site shall contain *at least seven* images (among all of the pages).

### Assignment 2.1: Interactive Website, Proposal and Wireframes

**Deliverable:** Document (proposal), including screenshots/wireframes

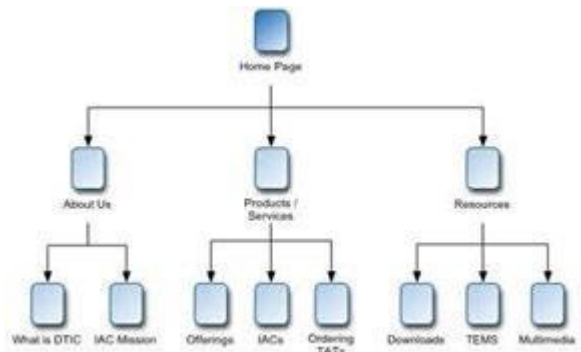
**Details:** Written (text, narrative) proposal of the website, as well as mock-ups, wireframes, and/or screenshots of a version of the landing page.

Each student will present their proposal in class in week 5. Following the presentations, each student will have 2 days to choose their top three proposals that they would prefer to work with. This will be the basis for the assigned groups for assignments 2.2 and 2.3. The class professor will assign groups. Group sizes will preferably be three students depending on class size.

Your proposal is to contain:

- A graphically rendered or hand-drawn **Site/Flow Chart** for your project (see sample).

- Text/narrative description or declaration of the **Focus/Mission** of the site.



- Text/narrative description about the **Audience/s** for the site.
- Notes about the origin of the **Text and Graphic Content** for the site. Will you scrape news sites, reviews, blogs, image archives? Will your team be writing and shooting the content itself? Etc.
- **Team Roles:** For each group member notes on what roles, they are expected to serve, such as project management, HTML or CSS production, design or graphic production, JavaScript, etc.
- **Wireframes/Mock-Ups** or screenshots of one page of the site. This is meant to provide an example of the general look and feel (or design) and layout approach that your team intends for the site.

### Assignment 2.2: Interactive Website (GROUP), Landing Page and Style Sheet

**Deliverables:** Link to the homepage/landing page of the site, document with a site style guide

**Details:** This build is your initial landing page (no inner pages required), including a navigation with content (labels) indicating the inner pages, as well as a general site style guide. There are many examples of website style guides on the Internet.

Your group will build the front page of your site, with text, graphic content, html and css, and a Style Guide (document) that lays out general design elements of the site such as common font, color, and dimensions of elements. See sample style guides for reference/suggestions.

This build represents a fairly mature version of your homepage (but without any video or scripting).

### Assignment 2.3: Interactive Website (GROUP), Final Build With Video and jQuery

**Deliverables:** Link to completed website

**Details:** Final website with landing page, a minimum of three inner pages, and all content including scripting (jQuery recommended), user interactivity, and at least one embedded video.

Having previously completed a build of your landing page for the site, the final build includes the landing and all inner pages.

Final site requirements:

- Consistent design / look and feel across all pages
- Clear navigation and narrative paths through the site
- Real, substantive text and graphic content
- User interactivity implemented through client-side scripting such as jQuery. These should be more sophisticated than plain rollover image behaviors. Better interactions would be hidden regions that animate upon scripted user interactions, interactive menus, etc. You are to have at least three different jQuery interactions.
- At least one embedded video. Embedded audio is good too, especially if triggered by user interactions through scripting.
- Not using semantic HTML tags instead of div tags will cause a deduction in your score

### **Assignment 3: Database Commission**

**Deliverables:** Submitted document

**Details:** Create a scope document to be submitted to a DBA to commission a database for a web project. Include sketch of data structures and all relevant information for DBA to design database for commissioned project.

Requirements:

- General description of data set and how it will be used (on which specific website)
- Rough data sketch that includes at least five tables. Each table should have partial list of fields. Note: You could list the tables and fields as an Excel doc, Word doc, hand sketch, etc.
- Notes and ideas about how the data might need to be analyzed, totaled, converted into statistics, etc.
- Is there *existing* data that might need to be imported (starting posts, stats, game scores, course listings, photo galleries, etc.)? Where might it be coming from? Any particular format?
- You get to choose the domain for the database that you are “commissioning”

### **Assignment 4.1: Mobile Project, App Idea (GROUP)**

**Deliverables:** Submitted document

**Details:** Pitch a mobile application project. Write up thoughts about what, why, etc.

You will stay in the same groups that you had for assignments 2.2 and 2.3. Your app idea will be a continuation of your website from assignments 2.2 and 2.3.

Your group will be presenting your idea to class in the week it is due. Your document/presentation is to include at least the following:

- Market
- Audience
- A Lean Canvas business plan and monetization strategy
- Challenges
- Layout changes from the website

### **Assignment 4.2: Mobile Project, Pitch Deck (Group)**

**Deliverables:** Submitted document

**Details:** Presentation "pitch" deck for a mobile app to be developed, which would theoretically be pitched to a VC.

The pitch "deck" should weave together all of the following elements (some of which you may choose to summarize in the deck and offload the details to an appendix or attached doc). It might be most beneficial to have your group start by collaboratively working up the Lean Canvas on the idea:

- Overall pitch for app:
  - Core idea (problem and solution)
  - Originality, uniqueness
  - Core audience/s (including analysis/arguments about demographics, income levels, other relevant factors)
  - Monetization
  - Competition
- Mock-ups and/or screenshots of the app
- Development cost estimates for:
  - App creation (iOS, Android, hybrid, mobile?)
  - Back-end requirements (server, database, etc.)
  - Other—transactions, special APIs, etc.
- Lean Canvas plan

Your group will be presenting your work to class in week 11.

### **Assignment 5: Analytics Paper**

**Deliverables:** Submitted document

**Details:** Minimum of three written pages single spaced with sample/existing data visualizations.

You are to select a domain and data area. An example domain is the medical field. A data area example would be COVID-10 data.

You are to research and think about the nature of the data that domain would use. The final paper should:

- Describe some of the types of data the domain/organization would have.
- List a series of ways the organization would use analytic data and why (motivation). For decision making? For evaluating ROI? To define metrics of success? Etc.
- Describe and explore how analytics would be used to fulfill the organization's data goals. Would they be using predictive, diagnostic, prescriptive, or descriptive analytics (or more than one)?
- Theorize some analytic plans, campaigns, etc.
- Cite some real-world (parallel) examples to the above (i.e., excerpt from and point to studies, articles, papers, etc., where an org had similar(ish) goals to yours in which they used data and analytics to fulfill/inform).
- Define some data visualizations that would be useful (based on the data, organization's goals, analytic output, etc.).
- Finally, give some examples of what you consider effective data visualizations (anything from data dashboards to infographics) from real/past analytic campaigns (do not have to be from the same domain). Obviously, these examples should have parallels or work as effective illustrations of what you would want.

### **Labs**

#### **Lab 1: Edit Student Information File, Post to Web**

**Deliverable:** Edit and upload studentinfo.txt file to your web.iyaclasses.com web space in your public\_html folder and also post it to the LMS for lab 1.

To complete this lab, you need to follow the instructions on the Wall for how to Download and install the FileZilla FTP program. After downloading and installing, if you cannot connect, then you will also need to download and install the VPN (Virtual Private Network) software, as well. Instructions for this are also posted to the Wall. If you already have an FTP client installed on your computer, then you can use that.

To help with the use of FileZilla and VPN (if needed) software, we will make time in the week 1 class for students to download and use this software. The professor will lead all students through this process. The goal is to ensure all students are able to access their web account on the web.iyaclasses.com web server.

#### **Requirements:**

1. Create a studentinfo.txt file. You can put whatever information about yourself that you would like to. You should include things such as your name, perhaps a picture, where you work and your title, hobbies, interests, etc. It is pretty much up to you.
2. Using FileZilla use the following connection information
  - a. Host: web.iyaclasses.com
  - b. Protocol: SFTP (secure FTP)
  - c. Username: Your USC userid that you use to get to USC email
  - d. Password: Idsn530\_Firstname\_USCID, so mine might be Idsn530\_Michael\_1234567890
3. Once you are logged in, double click on the public\_html folder
4. Upload your studentinfo.txt file into the public\_html folder.

5. You can verify that it worked by going to a browser and entering the following URL:  
web.iyaclasses.com/~YOURUSCUSERNAME. For me, this would be: web.iyaclasses.com/~crowley.

Lastly, don't forget the tilde (~) in the URL. Once connected you should see your studentinfo.txt file displayed in a list. If you double click on it, you should see the contents of the file you uploaded. If you created a file with a different name, then double click on that file.

If you don't see your file in the list of files, then you may not have double clicked on the public\_html folder from step 3 above when uploading your file.

### **Lab 2: Web Page on Past Projects**

**Deliverable:** Link to web page you created that lists past projects

To complete this lab, you need to compose a web page that lists some of the past projects you have completed, including hyperlinks to select samples. *Note: The samples can be PDFs (of essays, illustrations, etc.), graphics (TIFF, PNG, etc.), html (web pages/sites), etc.*

You can base this page on sample html pages/templates from previous assignments, demos, and labs, or you can create one from scratch.

Page requirements:

- Header/title section
- General layout region and color scheme
- At least two sections of work (web pages, published research, design layouts, illustrations, code development projects, etc.). Each section should have text title and description. *At least three of the overall samples **must have** hyperlinks to samples/references/actual work.*

### **Lab 3: Web Page That Is Mobile Responsive**

**Deliverable:** Link to published web page

For this lab, you are going to take the front page of your Interests and Hobbies website (Assignment 1), and create a new version of that page (just the front, not the internal pages) that features an *adaptive layout*, that changes to fit a small mobile device.

Start by saving a copy or new version of your page – do not change your assignment 1 page. In this new version, write CSS media queries that target devices 768 pixels and under, and another for devices above 768 pixels. Transform your page layouts to display differently, better, or optimally for small or narrow mobile screens.

For this lab, you are welcome to edit or tweak your original layout if that helps to reorganize your layout objects in such a way that they work better on both normal/large devices and your targeted small device.

Your lab is to have two media queries: One for 768 pixels and under and another media query for more than 768 pixels. Put all CSS directives for a specific media query in a single media query. You are to have at least 10 different CSS directive changes across the two media queries. You don't need to have 5 media queries in each - you can more than 5 in one media query and less than 5 in the other media query. Also, you are not allowed to change the same 5 CSS directives across the two media queries. You must have 10 different CSS directives that change.

Make sure to include a viewport tag in your header such as:

```
<meta name="viewport" content="width=device-width, initial-scale=1">
```

### **Lab 4: jQuery Exercise**

Deliverable: URL of completed jQuery in web page

You are to add jQuery to your assignment 1 page. You are to add at least 5 jQuery interactions. As in lab 3, don't change your assignment 1, or lab 3 submission. Create a new HTML document as a copy of either assignment 1 or lab 3. As in lab 3, duplicate jQuery interactions only count as one interaction.

### **Lab 5: Research on Implementing an API, Plug-in, or Library**

**Deliverable:** A PDF document

Choose an API, Plug-in, or Library to research.

For this lab, your API, plug-in, or library write-up is to include:

- Name, description, primary use
- Stats on how many sites use it
- Cost and any limitations such as X use or transactions per month, no license for nonprofit use, etc.
- Technical requirements—must be able to script in X language, only for use in Y CMS, etc.
- Any requirements to implement—from technical skills (knowledge of JS, etc.) to software requirements (must have X library installed, must have Y language)
- Links to:
  - How-to/implementation docs
  - Three sites that use the plug-in/API
  - Forum or site that has discussions about the software, from troubleshooting problems to pro/cons of using it.
- Quote from someone (can be from the web, from a forum) arguing the advantage of using (arguing for) the software—but NOT the author/developer

Examples of APIs:

- Google mapping (and geocoding) API, Slack
- Twitter, Facebook (login and pulling feed/data from site), YouTube, Vimeo
- Tumblr, Instagram, Pinterest, Imgur
- Accuweather, Kayak (travel), Yelp
- FullContact, Stripe, Mailchimp
- ACR Cloud, Apple MusicKit, Spotify
- Amazon S3 (storage), PayPal, FedEx
- Bootstrap
- jQuery
- NextGen Gallery, Jetpack, Yoast SEO, WP Forms, WordFence Security, Askismet Anti Spam
- IMCE, View Bulk Operations (VBO)
- Two-Factor Authentication

### **Lab 6: Web Page Build in Bootstrap**

**Deliverable:** Link to published web page

For this lab, you will take one starter bootstrap template (from [getbootstrap.com](http://getbootstrap.com) or Dreamweaver) and create a web page with "real" content. (You do not have to write/create the content; you can use existing text and images from wikis, existing sites, etc.) *Note: You can choose to "remove" the navigation from the template since you are not creating more than one page.*

The type of content you need will of course depend on the nature of the bootstrap page you create. A bootstrap page with an image carousel, or one with an image gallery grid, will obviously necessitate more graphics, a different layout will require more narrative text and items.

Note the mention of 'real' content. Some templates have boilerplate text. If you leave that text in your submission, you will lose points.



### Lab 7: Research Into Server Scoping

**Deliverable:** A PDF document

Research an existing website to scope out its general traffic levels, technology platform, and some range of what hosting might cost.

Your document is to include your research results in the following areas, INCLUDING reference URLs:

- Approximate monthly users and visits
- Technologies/platform site is built/based on List
- "Rough" hosting cost range, and pros and cons, between hosting through at least two of the following:
  - Traditional shared-environment hosting
  - Dedicated server hosting
  - Co-location hosting
  - AWS
- Some general variables that could affect the hosting cost

*Note:* There are a number of websites that provide traffic information about other websites. An Internet search for 'website traffic', or similar search, will display a number of choices that you can use for this lab.

### Lab 8: AR/VR Proposal

**Deliverable:** A PDF document

Write a proposal to use virtual and/or augmented reality to transform an existing app or mobile game.

Requirements:

- Name of application or mobile game. URLs to docs/description.
- Description of *original* VR/AR component to add to the app. What are the primary arguments/advantages/value added?
- Development requirements, challenges: What are some technical requirements (dev platform, o/s restrictions, APIs) to implement? List three major technical challenges/implementations.

### Grading Scale

Course final grades will be determined using the following scale:

A	95-100
A-	90-94
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	67-69
D	63-66
D-	60-62
F	59 and below

### Assignment Submission Policy

All assignments and labs must be delivered, per instructor guidelines to be distributed, by **noon Pacific Time** on the date (of that section's live session) that deliverable is listed as due. No exceptions. (Early submissions are, of course, encouraged!)

## Late Submissions

Assignments will be accepted after the deadline with the following grade penalties. Do not ask for extensions.

- Submission in the 24 hours after the deadline 20% deduction
- Submission between 24 and 48 hours after the deadline 50% deduction
- Submission more than 48 after the deadline 100% deduction

## Grading Timeline

We will do our best to have everything graded within one week of the due date.

## Correcting a Grading Error or Disputing a Grade

If you don't inform the instructor of missing or incorrect grades within two weeks of those grades being posted, the grades will be assumed correct. Do not wait until the semester's end to check or appeal any grades. If you feel a grade merits re-evaluation, you are encouraged, within one week of the instructor providing a grade and initial feedback, to send the instructor a memo in which you request reconsideration. The memo should include a thoughtful and professional explanation of your concerns. Be aware that the re-evaluation process can result in three types of grade adjustments: positive, none, or negative. (Note: Complaints on the date of a graded assignment's return to you will not be addressed; it is essential to wait one full day prior to raising a concern.)

## Academy Attendance Policy

The Academy maintains rigorous academic standards for its students and on-time attendance at all class meetings is expected. Each student will be allowed two excused absences over the course of the semester for which no explanation is required. Students are admonished to not waste excused absences on non-critical issues, and to use them carefully for illness or other issues that may arise unexpectedly. Except in the case of prolonged illness or other serious issue (see below), no additional absences will be excused. Each unexcused absence will result in the lowering of the final grade by  $\frac{1}{3}$  of a grade (e.g., an A will be lowered to A-, and A- will be lowered to a B+, etc.). In addition, being tardy to class will count as one-third of an absence. Three tardies will equal a full course absence.

Students remain responsible for any missed work from excused or unexcused absences. Immediately following an absence, students should contact the instructor to obtain missed assignments or lecture notes and to confirm new deadlines or due dates. Extensions or other accommodations are at the discretion of the instructor.

Automatically excused absences normally may not be used for quiz, exam or presentation days. Using an excused absence for a quiz, exam or presentation, such as in the case of sudden illness or other emergency, is at the discretion of the instructor.

In the case of prolonged illness, family emergencies, or other unforeseen serious issues, the student should contact the instructor to arrange for accommodation. Accommodation may also be made for essential professional or career-related events or opportunities. All accommodations remain at the discretion of the instructor, and appropriate documentation may be required.

## Additional Policies

Add any additional policies that students should be aware of: late assignments, missed classes, use of technology in the classroom, etc.

**Class notes policy:** Notes or recordings made by students based on a university class or lecture may only be made for purposes of individual or group study, or for other non-commercial purposes that reasonably arise from the student's membership in the class or attendance at the university. This restriction also applies to any information distributed, disseminated, or in any way displayed for use in relationship to the class, whether obtained in class, via e-mail or otherwise on the Internet, or via any other medium. Actions in violation of this policy constitute a violation of the Student Conduct Code, and may subject an individual or entity to university discipline and/or legal proceedings. Again, it is a violation of USC's Academic Integrity Policies to share course materials with others without permission from the instructor.

**No recording and copyright notice:** No student may record any lecture, class discussion or meeting with the instructor without his/her prior express written permission. The word "record" or the act of recording includes, but is not limited to, any and all means by which sound or visual images can be stored, duplicated, or retransmitted whether by an electro-mechanical, analog, digital, wire, electronic or other device or any other means of signal encoding. The instructor reserves all rights, including copyright, to his/her lectures, course syllabi and related materials, including summaries, slides (e.g., Keynote, PowerPoint), prior exams, answer keys, and all supplementary course materials available to the students enrolled in the class whether posted to the LMS or otherwise. They may not be reproduced, distributed, copied, or disseminated in any media or in any form, including but not limited to all course note-sharing websites. Exceptions are made for students who have made prior arrangements with The USC Office of Disability Services and Programs and the instructor.

**Participation:** Students are expected to actively participate in this course. In an online forum, participation includes:

- Careful reading and viewing of assigned materials by the date due
- Regular, substantive contributions to discussions
- Active engagement with online content
- On-time attendance and full attention in synchronous sessions
- Significant collaboration with classmates and teammates

Course grades may be affected for students who do not contribute to the course through active participation. Students should notify the instructor in advance if they are unable to attend class. Those unable to attend will be required to review the online recording for the session missed, and submit thoughtful feedback to the Instructor.

### **Contact Hours**

This 3-unit course requires 1125 minutes of instructional time per semester, which equals 75 minutes of instructional time each week. Instructional time may be further broken down into 37.5 minutes of asynchronous time and 37.5 minutes of synchronous time. In addition, it is expected that students will work, on average, an additional 300 minutes per week outside of class — on readings/viewings, homework assignments, field experiences, and individual or team projects. Synchronous class sessions will be offered as regularly scheduled evening or weekend classes, once each week.

## Course Schedule: A Weekly Breakdown

	Topic
<b>Week 0</b>	<b>Course Overview</b> Importance of Technology
<b>Week 1</b>	<b>Unit 1</b> Course Introduction, Role of Engineering and Technology Over Time, Information Systems as the Enabling Technology of Today
<b>Week 2</b>	<b>Unit 2</b> Web Objects, Hypertext Markup Language (HTML)
<b>Week 3</b>	<b>Unit 3</b> Web Design, Cascading Stylesheets (CSS)
<b>Week 4</b>	<b>Unit 4</b> Responsive Web Design and Search Engine Optimization
<b>Week 5</b>	<b>Unit 5</b> Web Experiences, Interactivity, JavaScript
<b>Week 6</b>	<b>Unit 6</b> Server-Side Scripting, Templates, APIs
<b>Week 7</b>	<b>Unit 7</b> Libraries, Frameworks, Content Management Systems
<b>Week 8</b>	<b>Unit 8</b> Data Structures, Database Fundamentals, Structured Query Language (SQL)
<b>Week 9</b>	<b>Unit 9</b> Servers, Domains, Cloud
<b>Week 10</b>	<b>Unit 10</b> User Interface Design for Mobile Applications
<b>Week 11</b>	<b>Unit 11</b> Mobile Development, Internet of Things, IoT Dev
<b>Week 12</b>	<b>Unit 12</b> Software Development, Video Games, AR, VR, and Next Generation Media
<b>Week 13</b>	<b>Unit 13</b> Artificial Intelligence, Machine Learning (ML)
<b>Week 14</b>	<b>Unit 14</b> Data Analytics, Data Science
<b>Week 15</b>	<b>Unit 15</b> Security, Performance, Legal Issues

## Statement on Academic Conduct and Support Systems

### Academic Conduct:

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, “Behavior Violating University Standards” [policy.usc.edu/scampus-part-b](http://policy.usc.edu/scampus-part-b). Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on [Research and Scholarship Misconduct](#).

### Students and Disability Accommodations:

USC welcomes students with disabilities into all of the University’s educational programs. The Office of Student Accessibility Services (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at [osas.usc.edu](http://osas.usc.edu). You may contact OSAS at (213) 740-0776 or via email at [osasfrontdesk@usc.edu](mailto:osasfrontdesk@usc.edu).

### Support Systems:

**Counseling and Mental Health** - (213) 740-9355 – 24/7 on call  
[studenthealth.usc.edu/counseling](http://studenthealth.usc.edu/counseling)

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

**National Suicide Prevention Lifeline** - 1 (800) 273-8255 – 24/7 on call  
[suicidepreventionlifeline.org](http://suicidepreventionlifeline.org)

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

**Relationship and Sexual Violence Prevention Services (RSVP)** - (213) 740-9355(WELL), press “0” after hours – 24/7 on call

[Studenthealth.usc.edu/sexual-assault](http://Studenthealth.usc.edu/sexual-assault)

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

**Office for Equity, Equal Opportunity, and Title IX (EEO-TIX)** - (213) 740-5086  
[eeotix.usc.edu](http://eeotix.usc.edu)

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

**Reporting Incidents of Bias or Harassment** - (213) 740-5086 or (213) 821-8298  
[usc-advocate.symplicity.com/care\\_report](http://usc-advocate.symplicity.com/care_report)

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity, Equal Opportunity, and Title for appropriate investigation, supportive measures, and response.

***The Office of Student Accessibility Services (OSAS) - (213) 740-0776***

[osas.usc.edu](http://osas.usc.edu)

OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.

***USC Campus Support and Intervention - (213) 821-4710***

[campussupport.usc.edu](http://campussupport.usc.edu)

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

***Diversity, Equity and Inclusion - (213) 740-2101***

[diversity.usc.edu](http://diversity.usc.edu)

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

***USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call***

[dps.usc.edu](http://dps.usc.edu), [emergency.usc.edu](http://emergency.usc.edu)

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

***USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call***

[dps.usc.edu](http://dps.usc.edu)

Non-emergency assistance or information.

***Office of the Ombuds - (213) 821-9556 (UPC) / (323-442-0382 (HSC)***

[ombuds.usc.edu](http://ombuds.usc.edu)

A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

***Occupational Therapy Faculty Practice - (323) 442-3340 or [otfp@med.usc.edu](mailto:otfp@med.usc.edu)***

[chan.usc.edu/otfp](http://chan.usc.edu/otfp)

Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.