Course Code/Course Title:

FSW106 Mobile Apps and Responsive Design

Course Description: The Responsive Design course is intended to explore the principles and implementations of Responsive Design. Responsive Design is the practice of creating applications which seamlessly adapt to the size and capabilities of different devices (Desktop, Tablet, Phone). Students will learn the techniques and tooling required to enable web sites to be responsive.

Course Length:	**Prerequisites:**	**Proficiency Exam**	
40 hours	FSW103, FSW104, FSW105	☐Yes ☒ No	
Course Start Date: **Course End Date:**	**Meeting Days/Times**		

Required Resources:

Minimum: PC (Windows) or MacBook laptop. 4GB ram, 256GB HD, Core i5
Recommended: PC (Windows) or MacBook laptop. 8GB ram, 256GB SSD, Core i5

This will become your programming rig. Every student will need their own laptop. We will be downloading programming resources to your laptop, and it will also house your coding projects.

Additional Resources:

Students are expected to supply notebooks, pens, pencils, highlighters, folders, ring binders, calculators, USB storage devices and other general supplies as needed to aid in the collection and storage of information in their courses

B. For Classes Delivered in an Online Format (for approved courses and campuses). Online courses are delivered via **https://wozu.exeterlms.com** in an asynchronous format. Students enrolled in online courses/programs are expected to spend an equivalent amount of time on task, as campus-based students, in meeting course objectives. For Online Courses the total expected hours required for completion of course objectives are identified on the syllabus as **Total Contact Hours** and reflect the sum of theory, laboratory, and outside hours.

Educational Objectives:

Upon successful completion of this Program, students will be able to:

1. Utilize CSS to respond to screen formats of varying sizes
2. Identify the unique capabilities and constraints of devices
3. Use media queries to provide different views adapted to a device's format
4. Produce a mobile-first experience utilizing a device's unique capabilities

Course Outline

Responsive Design

Lessons:

Week 1

1. **Introduction to Responsive Design:** Includes What is Responsive Web Design, Browser Developer Tools, Why Go Responsive, Defining Usability, Designing for Usability, breakpoints
2. **Responsive Architecture:** Includes What is Responsive Architecture, core ingredients of Responsive Web Design, Viewport Setting, Flexible, Grid-based Layout, Flexible Images and Media, Media Queries, Responsive vs. Adaptive, Alternatives to Responsive Design, Apps, M-dot sites, Adaptive Solutions, Sustainable Detection, Assumptions to Avoid, Max-width, Ems, Broadly qualifying CSS application
3. **Introduction to Grid Systems:** Includes What is a Grid System, Benefits of Using a Grid System, A Designer's Guide to Grids, Adjusting Your Layout Grid for Your Binding Type, The Rule of Thirds, The Fibonacci Sequence and Golden Rule, Types of Grid Systems, Creating a Flexible Grid, Working with Modules, Using Flexbox, Pre-built Frameworks, Device Diversity

Week 2

4. **Responsive Navigation:** Includes Types of Responsive Navigation, Navigation Layout Patterns, toggle, hide, Flexible Typesetting, Flexible Images, Flexible Video, Flexible Backgrounds, Media Queries, features, Viewport, Maximizing the Viewport
5. **Planning for Performance:** Includes Anatomy of a Request, HTML Requests, Rendering and Blocking, Performance Tools to Use, Using Developer Tools, Chrome DevTools Tips and Tricks, Performance Measuring, Optimize Image Files, Concatenate Text Files, Compress Text Files, Automating, Responsive-specific CSS Frameworks, Flexbox, Bootstrap

Outline:

- **L3 Hands On:** Create a custom grid using a fluid 12 column grid structure. Then, use that grid to place some items on your page.
- **L5 Hands On:** Final Project
- **Exam:** Responsive Web Design Final Exam

Final Project:

Using Responsive design principals, modify a traditional web application to be responsive and displays consistently across various devices.

Mobile Apps

Lessons:

Week 2

1. **Introduction to Mobile App Development with Cordova and Ionic:** Includes setup, Java SDK, Android Studio, Android SDK - SDK Manager, Setting Up an Android Virtual Device / Emulator, Cordova, Ionic, Ionic and Visual Studio Code, Ionic Creator
2. **Cordova Architecture:** Includes Native vs Web vs. Hybrid Apps, Cordova Application Architecture, Cordova Event Handling, Cordova Plugins, config.xml Configuration File, Cordova CLI (Command Line Interface), Animated

Cube with Three.js Code, Calculator App Code, Cordova Initialization App Code, Orientation Change and Resize Events Code

Week 3

3. **Cordova Plugins:** Includes Obtaining Plugins, Geo-location Plugin and Google Maps Code, Device Orientation Plugin Code, StatusBar Plugin Code
4. **Ionic Architecture:** Includes Ionic Project Structure, Creating and Running an Ionic App, Ionic Components
5. **Ionic Tour of Heroes Examples:** Includes MyIonicTourHeroes Code Example

Outline:

- **L3 Hands on:** Create a camera app that can take and display pictures.
- **L5 Hands on:** Final Project
- **Exam:** Mobile Cordova Ionic Exam

Final Project:

Create a page-turner book app using Apache Cordova and Ionic that can be used to display a novel, or a sequence of children's stories, or a comic strip collection, or any book with a simple chapter structure.