Course Description

This course is designed to teach skills to develop apps for phones, tablets, and other devices that run on a variety of operating system. Students will learn core mobile development skills. Before taking this course, students should have solid foundational knowledge of the following topics: C#, Visual Studio, .NET, HTML5, SQLite, CSS, Javascript, ASP.NET MVC, Swift, and other phone operating system tools.

<table>
<thead>
<tr>
<th>Intended Grade Level</th>
<th>9-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Units of Credit</td>
<td>0.5</td>
</tr>
<tr>
<td>Core Code</td>
<td>35.02.00.00.048</td>
</tr>
<tr>
<td>Concurrent Enrollment Core Code</td>
<td>N/A</td>
</tr>
<tr>
<td>Recommended Prerequisite</td>
<td>Computer Programming, I, Computer Science Principles, Web Development, HTML5</td>
</tr>
<tr>
<td>Skill Certification Test Number</td>
<td>850</td>
</tr>
<tr>
<td>Test Weight</td>
<td>0.5</td>
</tr>
<tr>
<td>License Type</td>
<td>CTE and/or Secondary Education 6-12</td>
</tr>
<tr>
<td>Required Endorsement(s)</td>
<td>Web Development, or</td>
</tr>
<tr>
<td>Endorsement 1</td>
<td>Computer Programming (Historic), or</td>
</tr>
<tr>
<td>Endorsement 2</td>
<td>Computer Science Level 1, or</td>
</tr>
<tr>
<td>Endorsement 3</td>
<td>Computer Science Level 2</td>
</tr>
</tbody>
</table>

ADA Compliant: July 2018
MOBILE DEVELOPMENT FUNDAMENTALS

STRAND 1
Introduction to mobile devices

Standard 1
History of mobile technologies
- Describe how mobile technologies came to be
- Describe the current major mobile platforms
- Describe the effects upcoming mobile platforms may have on mobile technologies

Standard 2
Understand physical capabilities of the mobile device
- Identify the different device sensors
- Describe and define the camera capture
- Identify different built-in hardware
- Identify Motion API

Standard 3
Plan for physical interactions with the mobile device.
- Describe and define the differences among devices
- Describe and define features, APIs, number of touchpoints, and networking
- Account for screen size/real estate when planning layout

STRAND 2
Design and development methodologies

Standard 1
Implement project management: Student will be able to implement project management methodologies to streamline workflow.
- Create and analog or digital prototype version of their app
- Work in a team
- Utilize project management skills
- Develop a concept with considerations for plan, cost, and time
- Develop a design document detailing the problem the app solves and its core competencies

Standard 2
Creation
- Create appropriate art and text
- Develop audio for the application
- Write and comment code appropriately
- Create application animations
MOBILE DEVELOPMENT FUNDAMENTALS

STRAND 3
Develop mobile applications

Standard 1
Develop programming skills
- Begin to think like a programmer
- Understand why your app uses its language(s) for development
- Learn the basic tools necessary for programming
- Variables
- Methods
- Control structures
- Data structures
- User input
- Object-oriented programming (OOP);
- Build and run an application

Standard 2
Code for mobile applications
- Evaluate code
- Identify code errors
- Identify code to use to meet requirements
- Distinguish among programming languages and programs (e.g. C#, Objective-C, Java, Javascript, HTML5, CSS, Swift, etc.)

Standard 3
Manage the application lifecycle
- Preserve application state information and handle activate/deactivate functions
- Create a responsive application with feedback in response to user actions

Standard 4
Understand mobile device APIs
- Understand mapping/geolocation APIs, forms, and media APIs
- Describe and define manipulation events (user input)

Standard 5
Understand mobile device controls
- Use phone controls
- Arrange content appropriately
- Display collections of items
- Build custom controls
- Describe and define notification types and uses
- Use tasks and choosers to enhance application functionality
Standard 6
Build the user interface
- Create layout with appropriate design principles
- Design with system theme, accent color
- Design appropriate screen orientation options
- Design graphic layering (transparency, borders, resizing)
- Design the user experience to be clean, focused, and using UI standards and guidelines
- Integrate images and media in an application

STRAND 4
Design for deployment

Standard 1
Understand how to publish for mobile devices
- Describe and define marketplace submission rules;
- Describe and define mobile design concepts (for example, metro, button sizing, spacing).

Standard 2
Use the principles of user interface design
- Design and Organize the User Interface.
- Design should make simple common tasks easy.
- Options and materials for tasks visible without distracting the user
- Design should provide methods for feedback examples actions, changes of state or conditions, errors, in language familiar to users
- Design should be flexible and tolerant accounting for user mistakes.
- Design should maintain consistency reducing the need for users to rethink and remember.

Standard 3
Work with developer tools
- Use an appropriate IDE
- Create the deployment package and deploy the application (optional, suggested for more advanced students)
- Configure a test environment
- Test and debug mobile applications

STRAND 5
Students will be familiar with careers in mobile technologies and application development

Standard 1
Students will develop career awareness related to working in mobile apps
• Identify personal interests and abilities related to mobile applications, such as:
• Identify personal creative talents
• Identify organizational and leadership skills
• Identify special interest areas
• Investigate career opportunities, trends, and requirements related to mobile application jobs
• Survey educational opportunities (e.g. non-traditional) to determine programs, degrees and training availability to improve job prospects
• Develop employability competencies/characteristics: responsibility, dependability, ethics, respect, and cooperation
• Achieve high standards of personal performance with a positive work ethic and attitude

**Standard 2**

**Industry Guides**

• Teachers will invite, encourage, entice, and otherwise bribe individuals who work in mobile application technologies to come and interact with students

**Performance Skills**

Students will be able to properly identify the subtle differences of an app developed on different system platforms.

**Work Place Skills**

Communication, Problem Solving, Teamwork, Critical Thinking, Dependability, Accountability

**Skill Certificate Test Points by Strand**

<table>
<thead>
<tr>
<th>Test Name</th>
<th>Test #</th>
<th>Number of Test Points by Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Mobile Development Fundamentals</td>
<td>850</td>
<td>3</td>
</tr>
</tbody>
</table>