

STRANDS AND STANDARDS

MOBILE DEVELOPMENT FUNDAMENTALS



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 one or more the following topics: HTML5, SQLite, CSS, Javascript, Swift, Java, and other phone operating system tools.

Intended Grade Level	9-12
Units of Credit	0.5
Core Code	35.02.00.00.048
Concurrent Enrollment Core Code	N/A
Prerequisite	Computer Programming, Computer Science Principles, Web Development
Skill Certification Test Number	850
Test Weight	0.5
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Web Development
Endorsement 2	Programming & Software Development
Endorsement 3	N/A

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 capabilities
- Identify different built-in hardware

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

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. Java, Javascript, HTML5, CSS, Swift, AppInventor, Kotlin, 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 encourage individuals who work in mobile application technologies to come and interact with students

Performance Skills

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

Workplace Skills

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

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		