



# Mobile Development Fundamentals

**(This exam is in PILOT status for the 19-20 school year. No certificate is available.)**

## **EXAM INFORMATION**

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**Exam Number**

850

**Items**

35

**Points**

38

**Prerequisites**

COMPUTER PROGRAMMING I

COMPUTER SCIENCE PRINCIPLES

WEB DEVELOPMENT

GAMING DEVELOPMENT

FUNDAMENTALS

**Recommended Course Length**

ONE SEMESTER

**National Career Cluster**

INFORMATION TECHNOLOGY

**Performance Standards**

INCLUDED (OPTIONAL)

**Certificate Available**

NO

## **DESCRIPTION**

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This course is designed to teach skills to develop apps for phones, tablets, and other devices that run on a variety of operating system.

## **EXAM BLUEPRINT**

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**STANDARD**

**PERCENTAGE OF EXAM**

1 - Introduction to Mobile Devices	8%
2 - Design and Development	16%
3 - Applications	34%
4 - Design for Deployment	34%
5 - Careers	8%



## STANDARD 1

### INTRODUCTION TO MOBILE DEVICES

- Objective 1 History of mobile technologies.
1. Describe how mobile technologies came to be
  2. Describe the current major mobile platforms
  3. Describe the effects upcoming mobile platforms may have on mobile technologies
- Objective 2 Understand physical capabilities of the mobile device.
1. Identify the different device sensors
  2. Describe and define the camera capture
  3. Identify different built-in hardware
- Objective 3 Plan for physical interactions with the mobile device.
1. Describe and define the differences among devices
  2. Describe and define features, APIs, number of touchpoints, and networking
  3. Identify ways to save energy
  4. Account for screen size/real estate when planning layout

## STANDARD 2

### DESIGN AND DEVELOPMENT METHODOLOGIES

- Objective 1 Implement project management: Student will be able to implement project management methodologies to streamline workflow.
1. Create an analog or digital prototype version of their app
  2. Work in a team
  3. Utilize project management skills
  4. Develop a concept with considerations for plan, cost, and time
  5. Develop a design document detailing the problem the app solves and its core competencies
- Objective 2 Creation
1. Create appropriate art and text
  2. Develop audio for the application
  3. Write and comment code appropriately
  4. Create application animations

## STANDARD 3

### DEVELOP MOBILE APPLICATIONS

- Objective 1 Develop programming skills.
1. Begin to think like a programmer
  2. Understand why your app uses its language(s) for development
  3. Learn the basic tools necessary for programming
  4. Variables
  5. Methods
  6. Control structures
  7. Data structures
  8. User input
  9. Object-oriented programming (OOP);
  10. Build and run an application
- Objective 2 Code for mobile applications.



1. Evaluate code
2. Identify code errors
3. Identify code to use to meet requirements
4. Distinguish among programming languages and programs (e.g. C#, Objective-C, Java, Javascript, HTML5, CSS, Swift, etc.)

## Objective 3

Manage the application lifecycle.

1. Preserve application state information and handle activate/deactivate functions
2. Create a responsive application with feedback in response to user actions

## Objective 4

Understand mobile device APIs.

1. Understand mapping/geolocation APIs, forms, and media APIs
2. Describe and define manipulation events (user input)

## Objective 5

Understand mobile device controls.

1. Use phone controls
2. Arrange content appropriately
3. Display collections of items
4. Build custom controls
5. Describe and define notification types and uses
6. Use tasks and choosers to enhance application functionality

## Objective 6

Build the user interface.

1. Create layout with appropriate design principles
2. Design with system theme, accent color
3. Design appropriate screen orientation options
4. Design graphic layering (transparency, borders, resizing)
5. Design the user experience to be clean, focused, and using UI standards and guidelines
6. Integrate images and media in an application

## STANDARD 4

### DESIGN FOR DEPLOYMENT

## Objective 1

Understand how to publish for mobile devices.

1. Describe and define marketplace submission rules
2. Describe and define mobile design concepts (for example, metro, button sizing, spacing)

## Objective 2

Use the principles of user interface design.

1. Design and organize the User Interface
2. Design should make simple common tasks easy
3. Options and materials for tasks visible without distracting the user
4. Design should provide methods for feedback; examples - actions, changes of state or conditions, errors, in language familiar to users
5. Design should be flexible and tolerant accounting for user mistakes
6. Design should maintain consistency reducing the need for users to rethink and remember

## Objective 3

Work with developer tools.

1. Use an appropriate IDE
2. Create the deployment package and deploy the application (optional, suggested for more advanced students)
3. Configure a test environment
4. Test and debug mobile applications



## STANDARD 5

### STUDENTS WILL BE FAMILIAR WITH CAREERS IN MOBILE TECHNOLOGIES AND APPLICATION DEVELOPMENT

- Objective 1** Students will develop career awareness related to working in mobile apps.
1. Identify personal interests and abilities related to mobile applications, such as:
    1. Identify personal creative talents
    2. Identify organizational and leadership skills
    3. Identify special interest areas
  2. Investigate career opportunities, trends, and requirements related to mobile application jobs
  3. Survey educational opportunities (e.g. non-traditional) to determine programs, degrees and training availability to improve job prospects
  4. Develop employability competencies/characteristics: responsibility, dependability, ethics, respect, and cooperation
  5. Achieve high standards of personal performance with a positive work ethic and attitude
- Objective 2** Industry Guides
1. Teachers will invite, encourage, entice, and otherwise bribe individuals who work in mobile application technologies to come and interact with students



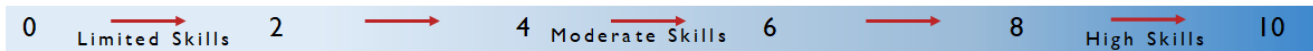
## Mobile Development Fundamentals Performance Standards (Optional)

Performance assessments may be completed and evaluated at any time during the course. The following performance skills are to be used in connection with the associated standards and exam. To pass the performance standard the student must attain a performance standard average of **8 or higher** on the rating scale. Students may be encouraged to repeat the objectives until they average **8 or higher**.

Students Name \_\_\_\_\_

Class \_\_\_\_\_

### PERFORMANCE RATING SCALE



### STANDARD 5 Applications of Non-Destructive Testing

Score:

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

### PERFORMANCE STANDARD AVERAGE SCORE:

Evaluator Name \_\_\_\_\_

Evaluator Title \_\_\_\_\_

Evaluator Signature \_\_\_\_\_

Date \_\_\_\_\_