



MERCER
COUNTY COMMUNITY COLLEGE

COURSE OUTLINE

Course Number IST 108	Course Title Introduction to Programming with Mobile Application Development	Credits 4
Hours: Lecture/Lab/Other	Co- or Pre-requisite	Implementation Semester & Year
3 lecture / 2 lab	Pre-requisite: MAT 037 or MAT 042 or equivalent	Spring 2022

Catalog description:

Introduces computing and programming concepts, and explores mobile and web technologies. Topics include variables, decision-making, iteration, lists, functions, decomposition, event-driven programming, databases, client-server computing, web services, platforms, programming languages, animation, texting, and geolocation. Students learn by creating Android mobile applications using App Inventor, a visual programming language.

General Education Category:
Not GenEd

Course coordinator:

Meimei Gao, 609-570-3483, gaom@mccc.edu

Required texts & Other materials:

Required Textbook: Wolbe, Abelson, Spertus, and Looney, "App Inventor 2", O'Reilly Media, ISBN-10: 1-4919-0684-7, ISBN-13: 978-1-4919-0684-2

Free e-book is available and will be provided by the instructor

Software: App Inventor 2, free online software

Course Student Learning Outcomes (SLO):

Upon successful completion of this course the student will be able to:

1. Describe mobile platforms and development environments. [Supports ILG # 4]
2. Design algorithms and develop solutions using basic programming skills including variables, objects, properties, sequence, selection, iteration, functions, procedures and lists. [Supports ILG # 4, 11; PLO #1, 2]
3. Implement user interfaces and event-driven programming. [Supports ILG # 4, 11; PLO #1, 2]
4. Build and test mobile applications. [Supports ILG # 4, 11; PLO #1, 2]

Course-specific Institutional Learning Goals (ILG):

Institutional Learning Goal 4. Technology. Students will use computer systems or other appropriate forms of technology to achieve educational and personal goals.

Institutional Learning Goal 11. Critical Thinking: Students will use critical thinking skills understand, analyze, or apply information or solve problems.

Program Learning Outcomes for Mobile and Web Computing Certificate (PLO)

1. Analyze computer application requirements;
2. Design, write, test, and debug mobile and web applications.

Units of study in detail – Unit Student Learning Outcomes:

Unit I Overview of application development [Supports Course SLO #1]

Learning Objectives

The student will be able to:

- Define the terms including programs, applications, platforms.
- Explain the differences among mobile platforms and applications.
- Describe the different development environments.

Unit II Getting started with the first mobile application development [Supports Course SLO #2, 3, 4]

Learning Objectives

The student will be able to:

- Build, test and deploy a simple mobile application.
- Explain the concepts of user interface and event-driven programming.

Unit III Properties of components, Variables [Supports Course SLO #2, 3, 4]

Learning Objectives

The student will be able to:

- Explain the concepts of properties and variables.
- Use and change properties of components.
- Define and use variables.

Unit IV Creating animation applications [Supports Course SLO #2, 3, 4]

Learning Objectives

The student will be able to:

- Use canvas coordinate system.
- Create animation applications.

Unit V Conditionals/Selections [Supports Course SLO #2, 3, 4]

Learning Objectives

The student will be able to...

- Evaluate Boolean expressions and use Boolean operators.
- Create *if* and *if-else* statements.
- Create nested *if-else* statements.

Unit VI Repetitions/Iterations [Supports Course SLO #2, 3, 4]

Learning Objectives

The student will be able to...

- Identify the differences between selections and iterations.
- Create *foreach* statements.
- Create *while* statements.

Unit VII **Lists** [Supports Course SLO #2, 3, 4]

Learning Objectives

The student will be able to...

- Create list variables and make a list.
- Select the items from a list using indexes.
- Traverse a list.
- Add an item to a list and remove an item from a list.

Unit VIII **Procedures/Functions** [Supports Course SLO #2, 3, 4]

Learning Objectives

The student will be able to...

- Call built-in functions.
- Create their own functions/procedures.
- Define and use parameters in functions/procedures.

Unit IX **Databases** [Supports Course SLO #2, 3, 4]

Learning Objectives

The student will be able to...

- Determine the data to be stored locally or on the web.
- Store and retrieve data using local and web databases.

Unit X **Sensors** [Supports Course SLO #2, 3, 4]

Learning Objectives

The student will be able to...

- Create a location-aware mobile application using a location sensor component.
- Create a mobile application using an orientation sensor component.
- Create a mobile application using accelerometer sensor.

Unit XI **Web APIs** [Supports Course SLO #2, 3, 4]

Learning Objectives

The student will be able to...

- Explain web services.
- Distinguish between web pages and web APIs.

Evaluation of student learning:

Specific methods for evaluating student progress through the course is up to the discretion of the instructor. Below is an example:

Projects/Assignments = 70% of the grade

Tests = 30% of the grade