Miami Dade College

Course Description

COP1670 | Introduction to Computing through Mobile Application Development | 4.00 credits

This course is designed for students pursuing a degree in STEM. Students will learn basic computing principles and computational thinking through the development of mobile applications. They will work in teams to develop applications for mobile computing devices using a graphical software development environment, such as App Inventor and Snap.

Course Competencies

Competency 1: The student will demonstrate an understanding of Human-Computer Interaction by:

1. Analyzing the characteristics of hardware components to determine the applications for which they can be used.
2. Using appropriate tools and methods to execute Internet searches which yield requested data.
3. Evaluating the results of web searches and the reliability of information found on the Internet.
4. Explaining the differences between tasks that can and cannot be accomplished with a computer.
5. Analyzing the effects of computing on society within economic, social, and cultural contexts.
6. Explaining the implications of communication as data exchange.

Competency 2: The student will demonstrate basic problem-solving ability by:

1. Naming and explaining the steps employed in solving a problem using the Engineering Problem Solving method.
2. Solving a problem by applying appropriate problem-solving techniques.
3. Providing a solution to a problem using a graphical application development environment, such as
4. App.Inventor, Snap, or Scratch.
5. Determining if a given algorithm successfully solves a stated problem.
6. Creating algorithms that meet specified objectives.
7. Explaining the connections between binary numbers and computers.
8. Summarizing the behavior of an algorithm.
9. Comparing the tradeoffs between different algorithms for solving the same problem.
10. Explaining the characteristics of problems that cannot be solved by an algorithm.

Competency 3: The student will demonstrate an understanding of how to develop basic mobile applications by:

1. Creating a mobile application to address specified objectives using a graphical application development environment, such as App.Inventor, Snap, or Scratch.
2. Creating a mobile application with a practical, personal, and/or societal purpose using a graphical application development environment, such as App.Inventor, Snap, or Scratch.
3. Selecting appropriate techniques when creating a mobile application using a graphical application development environment, such as App.Inventor, Snap, or Scratch.
4. Using abstraction to separate style from content in a mobile application design and development.
5. Describe the use a mobile application with appropriate documentation.

Competency 4: The student will demonstrate an understanding of computational thinking by:

1. Using appropriate algorithms to solve a problem.
2. Designing, implementing, testing, and executing a mobile application that corresponds to a set of specifications.

3. Selecting the appropriate basic programming structures.
4. Locating and correcting errors in a mobile application.
5. Explaining how a particular program functions.
6. Justifying the correctness of a program.

Competency 5: The student will demonstrate an understanding of computing and data analysis by:

1. Describing the features of appropriate data sets for specific problems.
2. Applying a variety of analysis techniques to data sets.
3. Using computers to find patterns in data and test hypotheses about data.
4. Comparing different analysis techniques and discuss the tradeoffs among them.
5. Justifying conclusions drawn from data analysis.

Competency 6: The student will demonstrate an understanding of the societal impacts of computing by:

1. Describing the ways in which computing enables innovation.
2. Discussing the ways in which innovations enabled by computing affect communication and problem solving.
3. Analyzing how computing influences and is influenced by the cultures for which they are designed and the
4. cultures in which they are used.
5. Analyzing how social and economic values influence the design and development of computing
6. innovations.
7. Discussing issues of equity, access, and power in the context of computing resources.
8. Communicating the legal and ethical concerns raised by computational innovations.
9. Discussing privacy and security concerns related to computational innovations.
10. Explaining positive and negative effects of technological innovations on human culture.

Learning Outcomes:

1. Computer / Technology Usage
2. Critical Thinking
3. Cultural / Global Perspective
4. Ethical Issues
5. Information Literacy
6. Numbers / Data