Miami Dade College

Course Description

CGS1005C | Computing Fundamentals for Entrepreneurship | 4.00 credits

This interactive discovery course for noncomputer majors teaches how to apply computational thinking to solve real world problems. Students will learn basic computer programming, web design, mobile application development, project management and desktop publishing through the use of case studies and scenarios that simulate real world business applications.

Course Competencies:

Competency 1: The student will demonstrate an understanding of how computers translate and represent data and information by:

1. Representing decimal numbers as binary numbers
2. Converting characters to ASCII code
3. Identifying simple data types such as integer, decimal, character, string, and Boolean
4. Identifying structured data types such as arrays, structures, and classes
5. Identifying operators and using operators in computational statements

Competency 2: The student will demonstrate an understanding of program development by:

1. Creating pseudocode for program development before writing the code
2. Identifying basic programming structures (sequence, decision, repetition)
3. Associating and incorporating basic programming structures with essential elements of a higher-level language, such as if/else, switches, and loops
4. Using basic programming structures (sequence, decision, repetition) to represent the problem-solving logic created within pseudocode
5. Analyzing pseudocode logic using flowcharting software such as Raptor to simulate the pseudocode logic and generate rudimentary code
6. Using application programs such as Scratch, Alice, and Angry Birds to implement programming and logic structures

Competency 3: The student will demonstrate an understanding of developing an application program in a higher-level language by:

1. Using functions to demonstrate an understanding of how to organize tasks within the design of a computer program
2. Designing a computer program by creating pseudocode from a problem description
3. Analyzing pseudocode design by using flowcharting software
4. Constructing a computer program from pseudocode
5. Testing, correcting, loading, and executing a computer program
6. Using effective, directional comments and remarks in developing a computer program

Competency 4: The student will demonstrate an understanding of methods for collecting, organizing, and modifying data by:

1. Designing a table repository using software, such as Excel, for data collection about a selected topic (person, place, or event)
2. Using Pivot tables to interrogate the data
3. Converting the table to a database such as Access using conversion software
4. Populating tables and the database with the appropriate data type
5. Interrogating the data within the database using querying techniques such as QBE
6. Producing reports that contain relevant information about a selected topic

Competency 5: The student will demonstrate an understanding of file formats by:

1. Examining the advantages and disadvantages of various file formats

2. Describing the technical attributes of various file formats
3. Selecting the appropriate file format for displaying selected data
4. Displaying data and information using a selected file format

Competency 6: The student will demonstrate an understanding of how to create various business application documents by:

1. Using appropriate visual design techniques to create effective, focused documents
2. Using desk top publishing software such as Photoshop and Publisher, to implement the design of advertising brochures, business cards, customer surveys and other focused documents
3. Creating a document, uploading the document as a web page, and accessing the web page

Competency 7: The student will demonstrate an understanding of how to use software to develop, build, and deploy a simple website by:

1. Performing the design tasks associated with developing a home page
2. Performing the design tasks associated with developing web pages for a website
3. Identifying and importing components that comprise the website
4. Integrating a "mashup" (e.g., Google Maps) into a themed website
5. Importing or connecting a populated database to a themed website

Competency 8: The student will demonstrate an understanding of project management functions by:

1. Using project management software to perform cost/benefit analysis techniques such as Return on Investment (ROI), Net Present Value (NPV), and Payback Analysis
2. Identifying tasks, processes, and production output
3. Developing Work Flow Diagrams and Business Process Diagrams created using flow charts and diagramming software (e.g., Visio, Smart Draw)
4. Allocating resources consistent with budgetary requirements using project management software
5. Scheduling deliverables, training, and resources that ensure successful project completion

Competency 9: The student will demonstrate an understanding of how to design, develop, and deploy a mobile application by:

1. Researching mobile platforms such as iPhone, Android and Windows
2. Researching deployment methods associated with mobile platforms
3. Assessing the strengths and weaknesses of mobile platforms for a particular application
4. Evaluating programming languages such as C++, JAVA, C# used by various mobile platforms
5. Selecting the appropriate Application Programming Interface (API) for producing quality mobile applications
6. Listing and defining program requirements for the application
7. Defining and creating artifacts using UML software modeling tools to reflect the application architecture

Learning Outcomes:

- Use quantitative analytical skills to evaluate and process numerical data
- Solve problems using critical and creative thinking and scientific reasoning
- Formulate strategies to locate, evaluate, and apply information