IT-1050: PROGRAMMING LOGIC

Cuyahoga Community College

Viewing: IT-1050: Programming Logic

Board of Trustees:
March 2019

Academic Term:
Spring 2019

Subject Code
IT - Information Technology

Course Number:
1050

Title:
Programming Logic

Catalog Description:
Learn to solve business problems by designing, coding, and testing programming solutions using a current high-level programming language. Learn and apply standard language constructs, control flow, and beginning object-oriented programming concepts.

Credit Hour(s):
3

Lecture Hour(s):
2

Lab Hour(s):
2

Requisites

Prerequisite and Corequisite
IT-1025 Information Technology Concepts for Programmers, or concurrent enrollment.

I. ACADEMIC CREDIT

Academic Credit According to the Ohio Department of Higher Education, one (1) semester hour of college credit will be awarded for each lecture hour. Students will be expected to work on out-of-class assignments on a regular basis which, over the length of the course, would normally average two hours of out-of-class study for each hour of formal class activity. For laboratory hours, one (1) credit shall be awarded for a minimum of three laboratory hours in a standard week for which little or no out-of-class study is required since three hours will be in the lab (i.e. Laboratory 03 hours). Whereas, one (1) credit shall be awarded for a minimum of two laboratory hours in a standard week, if supplemented by out-of-class assignments which would normally average one hour of out-of-class study preparing for or following up the laboratory experience (i.e. Laboratory 02 hours). Credit is also awarded for other hours such as directed practice, practicum, cooperative work experience, and field experience. The number of hours required to receive credit is listed under Other Hours on the syllabus. The number of credit hours for lecture, lab and other hours are listed at the beginning of the syllabus. Make sure you can prioritize your time accordingly. Proper planning, prioritization and dedication will enhance your success in this course.

The standard expectation for an online course is that you will spend 3 hours per week for each credit hour.

II. ACCESSIBILITY STATEMENT

If you need any special course adaptations or accommodations because of a documented disability, please notify your instructor within a reasonable length of time, preferably the first week of the term with formal notice of that need (i.e. an official letter from the Student Accessibility Services (SAS) office). Accommodations will not be made retroactively. For specific information pertaining to ADA accommodation, please contact your campus SAS office or visit online at http://www.tri-c.edu/accessprograms. Blackboard accessibility information is available at http://access.blackboard.com.

Eastern (216) 987-2052 - Voice
Metropolitan (216) 987-4344 – Voice. (216) 987-4048 – TTY.
III. ATTENDANCE TRACKING

Regular class attendance is expected. Tri-C is required by law to verify the enrollment of students who participate in federal Title IV student aid programs and/or who receive educational benefits through other funding sources. Eligibility for federal student financial aid is based in part on enrollment status.

Students who do not attend classes for the entire term are required to withdraw from the course(s). Additionally, students who withdraw from a course or stop attending class without officially withdrawing may be required to return all or a portion of their financial aid based on the date of last attendance. Students who do not attend the full session are responsible for withdrawing from the course(s).

Tri-C is responsible for identifying students who have not attended a course before financial aid funds can be applied to students’ accounts.

Therefore, attendance is recorded in the following ways:

1. For in-person and blended-learning courses, students are required to attend the course by the 15th day of the semester (or equivalent for terms shorter than five weeks) to be considered attending. Students who have not met all attendance requirements for in-person and blended courses, as described herein, within the first two weeks or equivalent, will be considered not attending.

2. For online courses, students are required to login at least two times per week and submit one assignment per week for the first two weeks of the semester, or equivalent to the 15th day of the term. Students who have not met all attendance requirements for online courses, as described herein, within the first two weeks or equivalent, will be considered not attending.

At the conclusion of the first two weeks of a semester or equivalent, instructors report any registered students who have "Never Attended" a course. Those students will be administratively withdrawn from that course. However, after the time period in the previous paragraphs, if a student stops attending a class or wants or needs to withdraw, for any reason, it is the student’s responsibility to take action to withdraw from the course. Students must complete and submit the appropriate Tri-C form by the established withdrawal deadline.

Tri-C is required to ensure that students receive financial aid only for courses that they attend and complete. Students reported for not attending at least one of their registered courses will have all financial aid funds held until confirmation of attendance in registered courses has been verified. Students who fail to complete at least one course may be required to repay all or a portion of their federal financial aid funds and may be ineligible to receive future federal financial aid awards. Students who withdraw from classes prior to completing more than 60 percent of their enrolled class time may be subject to the required federal refund policy.

If illness or emergency should necessitate a brief absence from class, students should confer with instructors upon their return. Students having problems with coursework due to a prolonged absence should confer with the instructor or a counselor.

IV. LEARNING OUTCOMES ASSESSMENT

Occasionally, in addition to submitting assignments to their instructors for evaluation and a grade, students will also be asked to submit completed assignments, called ‘artifacts,’ for assessment of course and program outcomes and the College’s Essential Learning Outcomes (ELOs). The artifacts will be submitted in Blackboard or a similar technology. The level of mastery of the outcome demonstrated by the artifact DOES NOT affect the student’s grade or academic record in any way. However, some instructors require that students submit their artifact before receiving their final grade. Some artifacts will be randomly selected for assessment, which will help determine improvements and support needed to further student success. If you have any questions, please feel free to speak with your instructor or contact the Learning Outcomes Assessment office.

V. CONCEALED CARRY STATEMENT

College policy prohibits the possession of weapons on college property by students, faculty and staff, unless specifically approved in advance as a job-related requirement (i.e., Tri-C campus police officers) or, in accordance with Ohio law, secured in a parked vehicle in a designated parking area only by an individual in possession of a valid conceal carry permit.

As a Tri-C student, your behavior on campus must comply with the student code of conduct which is available on page 19 within the Tri-C student handbook, available at http://www.tri-c.edu/student-resources/documents/studenthandbook.pdf You must also comply with the College's Zero Tolerance for Violence on College Property available athttp://www.tri-c.edu/policies-and-procedures/documents/3354-1-20-10-zero-tolerance-for-violence-policy.pdf

Outcomes

Course Outcome(s):
Analyze, design and test programs to address specified business problems utilizing programming logic including object-oriented and structured concepts.

Objective(s):
1. Analyze and research simple business problems in order to design effective algorithms and programming solutions.
2. Identify, analyze, and research given programming problems to define necessary inputs, outputs, and processes.
3. Write code with control flow statements, including decisions and loops, to change the order statements in a program are executed.
4. Explain the design and advantages of modularization.
5. Create and call methods with the appropriate access modifier, return type, naming, parameters, arguments, and implementation.
6. Demonstrate the use of a simple data structure.
7. Explain the design and demonstrate the use of classes and objects.
8. Explain object-oriented design concepts such as inheritance, encapsulation, and polymorphism.
9. Write and perform tests to confirm code validity.

Course Outcome(s):
Perform as both a team member and individually, in a professional environment where the business and technical environment are constantly changing.

Objective(s):
1. Engage in directed work as a member of a software development team.
2. Perform skills as a self-starter, demonstrating the ability to solve problems as an individual as well as a member of a team.

Methods of Evaluation:
1. Class participation and discussion
2. Oral and/or written reports
3. Homework assignments
4. Comprehensive projects
5. Quizzes
6. Objective examinations
7. Other methods deemed appropriate by the department

Course Content Outline:
1. An overview of computers, logic and the development process
   a. What is a computer program
   b. What is a compiler
   c. Executing an application
   d. What is a variable
   e. What is a statement
   f. Communicating amongst classes
   g. Object-oriented design
   h. Object-oriented vs. structured design
   i. Designing with software tools
   j. Testing the design
   k. Testing the implementation (code)
   l. The software development team
   m. Taking initiative and working as an individual self-starter
2. Object-oriented programming concepts
   a. What is a class
   b. What is an object
   c. The difference between classes and objects
   d. Communicating amongst classes
   e. Object-oriented design
   f. Object-oriented vs. structured design
   g. The use of classes in modularization
   h. Teamwork and modularization
3. Using methods and parameters
   a. Determining program control
   b. Determining the input/output process
   c. Invoking a method
   d. Passing information in a method
   e. Returning a value from a method
   f. The use of methods in modularization
4. Understanding structure
5. Making decisions (if-statements)
   a. Simple if-statements
   b. If-then-else statements
   c. Nested if-statements
   d. Determining the appropriate conditional (if) structure
   e. Switch/case statements

6. Looping
   a. While loop
   b. Until Loop
   c. For loop
   d. Nested if-statements
   e. Determining the appropriate loop structure

7. Arrays
   a. Single dimensional arrays
   b. Multi-dimensional arrays
   c. Arrays and loops (searching)
   d. The link between arrays and algorithms (i.e. searches, etc.)

8. Advanced object-oriented concepts
   a. Inheritance
   b. Encapsulation
   c. Composition
   d. Polymorphism
   e. Extensibility (anticipating and adapting to change)

Resources


Resources Other
MSDN Subscriptions

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