Computer Programming Languages

PROGRAM OUTLINE

PROGRAM GOAL AND OUTCOMES

Program Goal

The Computer Programming Languages Career Certificate program provides students with a background in programming and logic, Microsoft Access, Java, HTML, PHP, and other technologies to help prepare them for entry-level positions as a computer programmer, website or software developer, or database manager.

Program Outcomes	Courses	Evidence of Learning
Create loops; create, search, and sort arrays; create modules and hierarchy charts	CSC105: Introduction to Programming	Graded projects
Use Boolean expressions, validate input	CSC105: Introduction to Programming	Graded projects
Design graphical user interfaces	CSC105: Introduction to Programming	Graded projects
Demonstrate knowledge of logic flow within a task or program	CSC105: Introduction to Programming	Graded projects
Create new Access databases, create forms and reports, sort and filter your data with queries, analyze your data	CSC109: Microsoft Access	Multiple choice lesson exam and graded projects
Use the Java programming language to program applets and create animations and graphics for use on the Internet	INT215: Programming in Java	Graded projects
Use Swing components and create Java programs using layout managers	INT215: Programming in Java	Graded projects
Create engaging, interactive web applications using HTML, CSS, JavaScript, PHP, and MySQL technologies	INT210: Creating Web Pages	Graded projects

PROGRAM STRUCTURE

SYP101: Starting Your Program

Lesson 1	**Starting Your Program**

CSC105: Introduction to Programming

Lesson 2	**Introduction to Programming**
Lesson 3	**Logic, Repetition, Functions, and Input**
Lesson 4	**Arrays, Files, and Menu-Driven Programs**
Lesson 5	**Advanced Programming**
Lesson 6	**CSC105 Graded Project**
Textbook	***Starting Out with Programming Logic and Design***

CSC109: Microsoft Access

Lesson 7	**Microsoft Access**
Lesson 8	**Microsoft Access Graded Project**

INT215: Programming in Java

Lesson 9	**Introduction to Java Language**
Lesson 10	**Data Types and Program Control**
Lesson 11	**Object-Oriented Programming**
Lesson 12	**Advanced Programming Logic**
Lesson 13	**Graphical User Interface Design**
Lesson 14	**INT215 Final Graded Project**
Textbook	***Java: A Beginner's Guide***

INT210: Creating Web Pages

Lesson 15	**Installation, Configuration, and Web Application Basics**
Lesson 16	**JavaScript Fundamentals**
Lesson 17	**PHP Fundamentals**
Lesson 18	**Cookies, User Sessions, and Forms**
Lesson 19	**Integrating a Database**
Lesson 20	**Application Development**
Lesson 21	**INT210 Final Graded Project**
Textbook	***Sams Teach Yourself PHP, MySQL, and JavaScript All in One***

COURSE DESCRIPTIONS AND OBJECTIVES

SYP101: Starting Your Program

In this course, you'll develop the necessary skills to ensure your success in the program. You'll learn how you can improve your study skills, so you're able to use a number of tools that will help you to be successful.

By the end of this course, you'll be able to:

- Identify skills needed to be a confident and independent online learner

CSC105: Introduction to Programming

In this course, you'll learn the fundamentals of computer programming and the basic logic common to all programming languages. You'll also learn guidelines and best practices on how to incorporate good design into your programs. You'll come away from this course with solid knowledge of how to create your own programs.

By the end of this course, you'll be able to:

- Point out the steps for creating a program

- Analyze the use of Boolean, loops, and functions in a program

- Show the use of various types of arrays and menu-driven programs

- Point out the use of text processing, recursion, object-oriented programming, and GUIs

- Design pseudocode, a flowchart, and a GUI for an app

CSC109: Microsoft® Access®

In this course, you'll learn about the features of Access and how they're used to produce databases that can be sorted, filtered, queried, and analyzed. You'll also learn about database design and how to organize data for the most effective analysis. Learning how to use Access will give you a greater range of professional skills and help you have a better understanding of databases in general.

By the end of this course, you'll be able to:

- Explain the components of Microsoft Access

- Construct an inventory database using Microsoft Access

INT215: Programming in Java™

In this course, you'll be introduced to programming using the Java programming language. You'll begin by learning the basics of programming with Java, but by the end of the course, you'll have a fully functional application and the associated skillset to create many more.

By the end of this course, you'll be able to:

- Write, compile, and run Java code

- Implement common coding algorithms in Java

- Create applications with object-oriented design principles

- Use Java I/O and multithreading in applications

- Create Swing-based applications

- Develop a multi-threaded, object-oriented game application with GUI

INT210: Creating Web Pages

In this course, you'll take a step toward establishing an advanced understanding of the technologies used in building web pages. You'll learn how to use HTML, CSS, JavaScript, PHP, and MySQL. You can then use these technologies to code and create engaging, interactive web applications, such as online storefronts, discussion forums, and more.

By the end of this course, you'll be able to:

- Differentiate between HTML, CSS, JavaScript, and PHP

- Explain how to add variables, arrays, functions, and objects using JavaScript

- Describe how to add variables, arrays, functions, and objects using PHP

- Explain how to work with cookies, user sessions, and web-based forms

- Recognize basic SQL commands used in database design

- Create and build simple web applications

- Write scripts for an online storefront

Note: The titles of your learning materials may be different from those listed on your program outline. There is no need to call your instructor about these differences. While the titles of certain learning materials may differ, the educational content is the same. All learning materials are designed to give you the finest education in your field. If you need instructional assistance, however, be sure to call for help. We reserve the right to revise the program of study and the instructional materials and to substitute for the items of equipment offered.