

## Software Developer Certificate

### Program Description

The Software Developer Certificate is an 18-credit program designed for IT practitioners who wish to update their skillsets to include current programming languages, database programming (primarily relational though NoSQL), and web development fundamentals. While these topics provide the emphasis for this certification, the student will also become experienced with Amazon Web Services. The program is designed to be completed in two semesters and culminates in a Columbus State-awarded certificate, while also preparing students to sit for the Amazon Cloud Practitioner exam. With additional work beyond this certification, students will be well on their way to advancing toward the AWS Software Associate exam.

Students taking courses in this curriculum may need to own or have access to hardware/software to pursue this degree. This is particularly important for students who are enrolled in online/distance-learning sections of a particular course. Students are advised to discuss course needs and options with the program advisor.

Because this certification is designed to provide students with greater depth in one programming language (in addition to JavaScript used for web development), students must choose a development track: either Java or C#. The language selected depends on a number of factors, and the decision can be made in conjunction with the student's advisor. Elements to consider include whether the student is seeking to advance within an organization where they are already employed or if they are seeking to work in a specific organization or industry, in which case the student should select the language that most closely matches the technologies used therein. Both Java and C# are general, all-purpose, business programming languages.

### Program Admission Requirements

Students must either have taken CSCI1103-Introduction to Programming Logic and Math1111-Discrete Mathematics for Computing, or their equivalents, or demonstrate competency in these areas before matriculating into this certification program.

### Program of Study

First Semester	Second Semester
<ul style="list-style-type: none"><li>• CSCI-1145 – HTML</li><li>• CSCI-2467 – Java Programming I</li></ul> <p><b>OR</b></p> <ul style="list-style-type: none"><li>• CSCI-1630 – C# Programming I</li></ul> <ul style="list-style-type: none"><li>• CSCI-1320 – Database Fundamentals</li></ul>	<ul style="list-style-type: none"><li>• CSCI-2447 – JavaScript Fundamentals</li><li>• CSCI-2469 – Java Programming II (if CSCI-2467 was previously taken)</li></ul> <p><b>OR</b></p> <ul style="list-style-type: none"><li>• CSCI-2630 – C# Programming II (if CSCI-1630 was previously taken)</li></ul> <ul style="list-style-type: none"><li>• CSCI-2370 – Database Programming</li></ul>

### Learning Outcomes

1. Demonstrate proficiency in web development, programming in either Java or C#, and database design and development.
2. Demonstrate techniques of object-oriented design and programming.
3. Design, code, and debug software and programs using either Java or C#.
4. Demonstrate proficiency in working with GitHub, various APIs, and database management using Java or C#.
5. Develop web front-end applications with appropriate database backend.
6. Create N-Tier architecture application.
7. Demonstrate knowledge of Amazon Web Services at a minimum of the Cloud Practitioner level.