

COMPUTER PROGRAMMER CERTIFICATE

39 Semester Credit Hours; Curriculum: 0124

| Code | Title | Hours |
|--|---|-----------|
| Courses for a Certificate | | |
| CIS 101 | Introduction to Computer Information Systems | 3 |
| CIS 131 | Web Page Development | 4 |
| CIS 201 | Information Systems for Business | 3 |
| CIS 204 | Introduction to System Analysis and Design | 3 |
| CAB 140 | Database Application Using Access | 3 |
| CNS 105 | Networking Essentials (or any higher-numbered CNS course) | 3 |
| Select one of the following: | | 3 |
| CSC 155 | C++ Computer Science I | |
| CSC 156 | Java Computer Science I | |
| CSC 157 | Python Computer Science I | |
| Select one of the following non-programming elective courses: | | 3 |
| CIS 143 | Introduction to SQL | |
| CIS 203 | Managing Information Systems | |
| CIS 205 | Documentation and Technical Writing | |
| CIS 241 | Database Management | |
| CIS 251 | Computer Information Systems Internship | |
| Courses to total a minimum of 14 semester credit hours within one of the following tracks: | | 14 |
| Total Hours | | 39 |

| Code | Title | Hours |
|---|---|-------|
| General Programmer Track | | |
| Select one of the following programming language electives: | | 3-4 |
| CIS 208 | Visual Basic for Applications | |
| CIS 209 | Database Programming for PCs | |
| CIS 210 | Visual Basic .NET Programming for Files and Databases | |
| CIS 211 | Java Programming | |
| CIS 213 | Advanced Topics in Visual Basic .NET Programming | |
| CIS 222 | Java Programming Using Files and Databases | |
| CIS 227 | C# Programming | |
| CIS 231 | Advanced Java Programming | |
| CIS 257 | Apps Programming for Apple Mobile Devices | |
| CIS 258 | Apps Programming for Android Mobile Devices | |
| CIS 267 | Advanced Apps Programming Using Apple Mobile Devices | |
| CIS 268 | Advanced Apps Programming for Android Mobile Devices | |
| CSC 240 | C++ Data Structures | |
| CSC 241 | Java Data Structures | |
| CSC 255 | Objects and Algorithms | |
| or a course approved by the program coordinator | | |

Select two CIS courses in the same programming language 8
 Select one 200-level programming course (one course from the programming electives) 3-4

| Code | Title | Hours |
|---|--|-------|
| Mobile Programmer Track | | |
| Select one of the following programming language electives: | | 3-4 |
| CIS 208 | Visual Basic for Applications | |
| CIS 209 | Database Programming for PCs | |
| CIS 210 | Visual Basic .NET Programming for Files and Databases | |
| CIS 211 | Java Programming | |
| CIS 213 | Advanced Topics in Visual Basic .NET Programming | |
| CIS 222 | Java Programming Using Files and Databases | |
| CIS 227 | C# Programming | |
| CIS 231 | Advanced Java Programming | |
| CIS 257 | Apps Programming for Apple Mobile Devices | |
| CIS 258 | Apps Programming for Android Mobile Devices | |
| CIS 267 | Advanced Apps Programming Using Apple Mobile Devices | |
| CIS 268 | Advanced Apps Programming for Android Mobile Devices | |
| CSC 240 | C++ Data Structures | |
| CSC 241 | Java Data Structures | |
| CSC 255 | Objects and Algorithms | |
| or a course approved by the program coordinator | | |
| Select one programming course of the following: | | 4 |
| CIS 180 | Introduction to Visual Basic .NET Programming | |
| CIS 211 | Java Programming | |
| CIS 227 | C# Programming | |
| or a course approved by the program coordinator | | |
| Select one of the following: | | 8 |
| CIS 257 & CIS 267 | Apps Programming for Apple Mobile Devices and Advanced Apps Programming Using Apple Mobile Devices | |
| CIS 258 & CIS 268 | Apps Programming for Android Mobile Devices and Advanced Apps Programming for Android Mobile Devices | |

| Code | Title | Hours |
|---|-------------------------------------|-------|
| Web Developer Track | | |
| Select one of the following programming language electives: | | 3-4 |
| CIS 214 | Web Site Maintenance and Management | |
| CIS 232 | Web Scripting | |
| or a course approved by the program coordinator | | |
| CIS 171 | Advanced Web Page Development | 3 |
| CIS 188 | Active Server Pages | 4 |
| CIS 248 | Web Database Management | 4 |

Prior to pursuing this certificate, it is strongly recommended that students have taken CIS 116 or CIS 118 or possess equivalent knowledge. Credits earned in these courses are not applicable to this certificate. Consult the program coordinator for further information.

Computers Programmer Certificate Pathway

The following Pathway is recommended for students pursuing the Computers Programming Certificate.

| Course | Title | Hours |
|--|---|-----------|
| First Year | | |
| Semester One | | |
| CIS 101 | Introduction to Computer Information Systems | 3 |
| CIS 131 | Web Page Development | 4 |
| CNS 105 | Networking Essentials | 3 |
| CAB 140 | Database Application Using Access | 3 |
| Select one of the following: | | 3 |
| CSC 155 | C++ Computer Science I | |
| CSC 156 | Java Computer Science I | |
| CSC 157 | Python Computer Science I | |
| Hours | | 16 |
| Semester Two | | |
| CIS 201 | Information Systems for Business | 3 |
| CIS 204 | Introduction to System Analysis and Design | 3 |
| Select one of the following: | | 3 |
| CIS 143 | Introduction to SQL | |
| CIS 203 | Managing Information Systems | |
| CIS 205 | Documentation and Technical Writing | |
| CIS 241 | Database Management | |
| CIS 251 | Computer Information Systems Internship | |
| Select one course from one of the following tracks: | | 4 |
| General Programmer Track (4 credit hours) | | |
| Select one of the following: | | |
| CIS 180 | Introduction to Visual Basic .NET Programming (to be followed by CIS 210 in next semester) | |
| CIS 208 | Visual Basic for Applications (to be followed by CIS 209 in next semester) | |
| CIS 211 | Java Programming (to be followed by CIS 222 in next semester) | |
| Mobile Programmer Track (4 credit hours) | | |
| CIS 257 or CIS 258 | Apps Programming for Apple Mobile Devices or Apps Programming for Android Mobile Devices | |
| Web Developer Track (4 credit hours) | | |
| CIS 171 | Advanced Web Page Development | |
| Hours | | 13 |
| Second Year | | |
| Semester One | | |
| Select courses from one of the following tracks: | | 10-12 |
| General Programmer Track (10-12 credit hours) | | |
| Select one of the following: | | |
| CIS 210 | Visual Basic .NET Programming for Files and Databases (if CIS 180 was taken in previous semester) | |
| CIS 209 | Database Programming for PCs (if CIS 208 was taken in previous semester) | |
| CIS 222 | Java Programming Using Files and Databases (if CIS 211 was taken in previous semester) | |
| Select two courses from the following: | | |
| CIS 208 | Visual Basic for Applications | |
| CIS 209 | Database Programming for PCs | |
| CIS 210 | Visual Basic .NET Programming for Files and Databases | |
| CIS 211 | Java Programming | |
| CIS 213 | Advanced Topics in Visual Basic .NET Programming | |
| CIS 222 | Java Programming Using Files and Databases | |
| CIS 227 | C# Programming | |
| CIS 231 | Advanced Java Programming | |
| CSC 240 | C++ Data Structures | |
| CSC 241 | Java Data Structures | |

| | | |
|---|---|--------------|
| CSC 242 | Python Data Structures | |
| CSC 255 | Objects and Algorithms | |
| or other course approved by the program coordinator | | |
| Mobile Programmer Track (11-12 credit hours) | | |
| CIS 267 or CIS 268 | Advanced Apps Programming Using Apple Mobile Devices or Advanced Apps Programming for Android Mobile Devices | |
| Select one of the following: | | |
| CIS 180 | Introduction to Visual Basic .NET Programming | |
| CIS 211 | Java Programming | |
| CIS 227 | C# Programming | |
| or other course approved by the program coordinator | | |
| Select one of the following: | | |
| CIS 208 | Visual Basic for Applications | |
| CIS 209 | Database Programming for PCs | |
| CIS 210 | Visual Basic .NET Programming for Files and Databases | |
| CIS 211 | Java Programming | |
| CIS 213 | Advanced Topics in Visual Basic .NET Programming | |
| CIS 222 | Java Programming Using Files and Databases | |
| CIS 227 | C# Programming | |
| CIS 231 | Advanced Java Programming | |
| CSC 240 | C++ Data Structures | |
| CSC 241 | Java Data Structures | |
| CSC 255 | Objects and Algorithms | |
| or other course approved by the program coordinator | | |
| Web Developer Track (12 credit hours) | | |
| CIS 188 | Active Server Pages | |
| CIS 248 | Web Database Management | |
| Select one of the following: | | |
| CIS 214 | Web Site Maintenance and Management | |
| CIS 232 | Web Scripting | |
| or other course approved by the program coordinator | | |
| Hours | | 10-12 |
| Total Hours | | 39-41 |

Note: Pathway is a recommended sequence and selection of courses. Part-time students should contact the program co-coordinators to discuss a part-time pathway as well as course prerequisites and recommendations.