

ing systems, networking, data management, and business operations.

Students will solve business computer problems through programming techniques and procedures, using appropriate languages and software. The primary emphasis of the curriculum is hands-on training in programming and related computer areas that provide the ability to adapt as systems evolve.

Graduates should qualify for employment in business, industry, and government organizations as programmers, programmer trainees, programmer/analysts, computer operators, systems technicians, or database specialists.

**Degree Awarded**

The Associate in Applied Science Degree in Computer Programming is awarded by the College upon completion of this program.

**Admissions**

- A high school diploma or equivalent is required.
- Placement tests determine placement in English (ENG) and mathematics (MAT) courses.
- Many courses have prerequisites or corequisites; check the Course Descriptions section for details.

**Contact Information**

The Computer Programming program is in the Information Technology Division. For more information, call 704.330.6239, 704.330.6903, 704.330.6460, or 704.330.6549.

**Major and Related Course Requirements**

	Class	Lab	Hours Clinical	Work Exper.	Credits
CIS 115 Introduction to Programming & Logic	2	2	0	0	3
CTS 285 Systems Analysis & Design	3	0	0	0	3
CSC 289 Programming Capstone Project	1	4	0	0	3
DBA 110 Database Concepts	2	3	0	0	3
NOS 110 Operating System Concepts	2	3	0	0	3
SEC 110 Security Concepts	3	0	0	0	3
CIS 110 Introduction to Computers	2	2	0	0	3

**Networking**

Select one of the following courses:

NET 110 Networking Concepts	2	2	0	0	3
NET 125 Networking Basics	1	4	0	0	3

**Business**

Select one of the following courses:

BUS 110 Introduction to Business	3	0	0	0	3
CTS 115 Information Systems Business Concepts	3	0	0	0	3

**Single User**

Select one of the following courses:

NOS 120 Linux/UNIX Single User	2	2	0	0	3
NOS 130 Windows Single User	2	2	0	0	3

**Programming**

Select two of the following courses:

CSC 133 C Programming	2	3	0	0	3
CSC 134 C++ Programming	2	3	0	0	3
CSC 151 JAVA Programming	2	3	0	0	3
CSC 141 Visual C++ Programming	2	3	0	0	3
CSC 139 Visual BASIC Programming	2	3	0	0	3
CSC 153 C# Programming	2	3	0	0	3

**Advanced Programming**

Select two of the following courses:

CSC 233 Advanced C Programming	2	3	0	0	3
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**Computer Programming (A25130)**

The Computer Programming curriculum prepares individuals for employment as computer programmers and related positions through study and applications in computer concepts, logic, programming procedures, languages, generators, operat-

CSC 251 Advanced JAVA Programming	2	3	0	0	3
CSC 234 Advanced C++ Programming	2	3	0	0	3
CSC 241 Advanced Visual C++ Programming	2	3	0	0	3
CSC 239 Advanced Visual BASIC Programming	2	3	0	0	3
CSC 253 Advanced C# Programming	2	3	0	0	3

**Work Experience**

Select one of the following courses:

COE 111 Co-op Work Experience I	0	0	0	10	1
COE 112 Co-op Work Experience I	0	0	0	20	2

**Technical Electives**

**6**

Students must select 6 SHC of electives. Please see Program Chair for current list of elective courses..

**General Education Requirements**

ENG 111 Expository Writing	3	0	0	0	3
ENG 112 Argument-Based Research	3	0	0	0	3
OR					
ENG 113 Literature-Based Research	3	0	0	0	3
OR					
ENG 114 Professional Research & Reporting	3	0	0	0	3
COM 110 Introduction to Communications	3	0	0	0	3
OR					
COM 120 Interpersonal Communications	3	0	0	0	3
OR					
COM 231 Public Speaking	3	0	0	0	3

**Mathematics**

**3**

Students must select a minimum of three (3) credit hours of approved mathematics courses from the list at the end of this section of the catalog.

**Humanities/Fine Arts**

**3**

Students must select a minimum of three (3) credit hours of approved humanities/fine arts courses from the list at the end of this section of the catalog.

**Social/Behavioral Sciences**

**3**

Students must select a minimum of three (3) credit hours of approved social/behavioral sciences courses from the list at the end of this section of the catalog.

**Total Credit Hours** **67**

**Computer Programming Diplomas (D25130)**

**Programming Diploma (D25130-D5)**

**Major and Related Course Requirements**

	Class	Lab	Hours Clinical	Work Exper.	Credits
CIS 110 Introduction to Computers	2	2	0	0	3
CIS 115 Introduction to Programming & Logic	2	2	0	0	3
DBA 110 Database Concepts	2	3	0	0	3
NOS 110 Operating Systems Concepts	2	3	0	0	3
CTS 285 Systems Analysis and Design	3	0	0	0	3
NET 110 Networking Concepts	2	2	0	0	3
OR					
NET 125 Networking Basics	1	4	0	0	3

**Programming**

Students must select two of the following courses:

CSC 133 C Programming	2	3	0	0	3
CSC 134 C++ Programming	2	3	0	0	3
CSC 151 Java Programming	2	3	0	0	3
CSC 141 Visual C++ Programming	2	3	0	0	3

CSC 139 Visual BASIC Programming	2	3	0	0	3
CSC 153 C# Programming	2	3	0	0	3

**Advanced Programming**

Students must select two of the following courses:

CSC 233 Advanced C Programming	2	3	0	0	3
CSC 251 Advanced Java Programming	2	3	0	0	3
CSC 234 Advanced C++ Programming	2	3	0	0	3
CSC 241 Advanced Visual C++ Programming	2	3	0	0	3
CSC 239 Advanced Visual BASIC Programming	2	3	0	0	3
CSC 253 Advanced C# Programming	2	3	0	0	3

**General Education Requirements**

ENG 111 Expository Writing	3	0	0	0	3
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**Mathematics**

**3**

Students must select a minimum of three (3) approved mathematics courses from the list at the end of this section of the catalog.

**Total Credit Hours** **36**

**Computer Programming Certificates (C25130)**

The certificates listed below can be earned in the Computer Programming (A25130) program.

**Admissions**

- A high school diploma or equivalent is encouraged as the foundation of a career in this area.
- Many courses have prerequisites or corequisites; check the Course Descriptions section for details.

**Contact Information**

For more information, call 704.330.6879 or 704.330.6549.

**Computer Programming Certificate with a Specialization in C++ Programming (C25130-C4)**

**Major and Related Course Requirements**

	Class	Lab	Hours Clinical	Work Exper.	Credits
CIS 115 Introduction to Programming & Logic	2	2	0	0	3
CTS 285 Systems Analysis & Design	3	0	0	0	3
Select one of the following pairs of courses:					6
CSC 134 C++ Programming	2	3	0	0	3
CSC 234 Advanced C++ Programming	2	3	0	0	3
OR					
CSC 141 C++ Visual Basic Programming	2	3	0	0	3
CSC 241 Advanced Visual C++ Programming	2	3	0	0	3
<b>Total Credit Hours</b>					<b>12</b>

**Computer Programming Certificate with a Specialization in Visual Basic Programming (C25130-C5)**

**Major and Related Course Requirements**

	Class	Lab	Hours Clinical	Work Exper.	Credits
CIS 115 Introduction to Programming & Logic	2	2	0	0	3
CSC 139 Visual BASIC Programming	2	3	0	0	3

CSC 239 Advanced Visual Basic Programming I	2	3	0	0	3
CTS 285 Systems Analysis and Design	3	0	0	0	3
<b>Total Credit Hours</b>					<b>12</b>

**Computer Programming Certificate with a Specialization in Java Programming (C25130-C6)**

*Major and Related Course Requirements*

	Class	Lab	Hours Clinical	Work Exper.	Credits
CIS 115 Introduction to Programming & Logic	2	2	0	0	3
CSC 151 Java Programming	2	3	0	0	3
CSC 251 Advanced Java Programming	2	3	0	0	3
CTS 285 Systems Analysis and Design	3	0	0	0	3
<b>Total Credit Hours</b>					<b>12</b>

**Computer Programming Certificate with a Specialization in Object-Oriented Programming (C25130-12)**

*Major and Related Course Requirements*

	Class	Lab	Hours Clinical	Work Exper.	Credits
CIS 115 Introduction to Programming & Logic	2	2	0	0	3
CTS 285 Systems Analysis & Design	3	0	0	0	3
<b>Programming</b>					<b>12</b>
Select two of the following pairs of courses:					
CSC 151 Java Programming	2	3	0	0	3
CSC 251 Advanced Java Programming	2	3	0	0	3
CSC 134 C++ Programming	2	3	0	0	3
CSC 234 Advanced C++ Programming	2	3	0	0	3
CSC 139 Visual BASIC Programming	2	3	0	0	3
CSC 239 Advanced Visual BASIC Programming	2	3	0	0	3
CSC 153 C# Programming	2	3	0	0	3
CSC 253 Advanced C# Programming	2	3	0	0	3
CSC 141 C++ Visual Programming	2	3	0	0	3
CSC 241 Advanced Visual C++ Programming	2	3	0	0	3
<b>Total Credit Hours</b>					<b>18</b>

**Computer Programming Certificate with a Specialization in .Net Programming (C25130-13)**

*Major and Related Course Requirements*

	Class	Lab	Hours Clinical	Work Exper.	Credits
CIS 115 Introduction to Programming & Logic	2	2	0	0	3
CSC 139 Visual Basic Programming	2	3	0	0	3
CSC 239 Advanced Visual Basic Programming	2	3	0	0	3
CSC 141 C++ Programming	2	3	0	0	3
CSC 241 Advanced Visual C++ Programming	2	3	0	0	3
CTS 285 Systems Analysis & Design	3	0	0	0	3
<b>Total Credit Hours</b>					<b>18</b>

**Computer Programming Certificate with a Specialization in C# Programming (C25130-16)**

*Major and Related Course Requirements*

	Class	Lab	Hours Clinical	Work Exper.	Credits
CIS 115 Introduction to Programming & Logic	2	2	0	0	3
CSC 153 C# Programming	2	3	0	0	3
CSC 253 Advanced C# Programming	2	3	0	0	3
CTS 285 Systems Analysis and Design	3	0	0	0	3
<b>Total Credit Hours</b>					<b>12</b>