

# INFORMATION TECHNOLOGY

## COMPUTER PROGRAMMING AND DEVELOPMENT

### Computer Programming and Development Degree - A25590CP

-Day and Evening

This curriculum prepares learners to design and develop desktop and web applications. Graduates can be proficient in Java, MVC, REST, unit testing, server-side JavaScript, and SQL. Graduates can be able to support the software development needs of businesses in a wide variety of industries, including healthcare, manufacturing, insurance, finance and software publishing.

Students can solve business computer problems through programming techniques and procedures. 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, software developers, database specialists, software specialists, or information systems managers.

#### Program Sequence

##### FALL SEMESTER

CSC 120	Computing Fundamentals I	4
CTI 110	Web, Pgm, and DB Foundations	3
ENG 111	Writing and Inquiry	3
NOS 110	Operating Systems Concepts	3
— —	Mathematics Elective	3

##### SPRING SEMESTER

CSC 121	Python Programming	3
CTI 120	Network & Sec Foundations	3
DBA 120	Database Programming I	3
WEB 115	Web Markup and Scripting	3
— —	Programming Concentration Area	3

##### SUMMER SEMESTER

CTS 115	Info Sys Business Concepts	3
— —	English and Communications Elective	3

##### FALL SEMESTER

CSC 154	Software Development	3
— —	Programming Concentration Area	9

##### SPRING SEMESTER

CSC 227	Cloud Application Development	3
— —	Social and Behavioral Sciences Elective	3
— —	Humanities/Fine Art Elective	3
— —	Project Elective	3
— —	Major Elective	3

**Graduation Requirements .....64 Credit Hours**

#### English and Communications Electives

(Choose 3 credit hrs)

ENG 112	Writing and Research in the Disciplines	3
ENG 114	Prof Research & Reporting	3
COM 120	Intro Interpersonal Comm	3
COM 231	Public Speaking	3

#### Humanities and Fine Arts Electives

(Choose 3 credit hrs)

HUM 110	Technology and Society	3
HUM 115	Critical Thinking	3
PHI 240	Introduction to Ethics	3

#### Mathematics Electives

(Choose 3 credit hrs)

MAT 121	Algebra/Trigonometry I	3
MAT 143	Quantitative Literacy	3
MAT 171	Precalculus Algebra	4
MAT 172	Precalculus Trigonometry	4
MAT 271	Calculus I	4
MAT 272	Calculus II	4

#### Social and Behavioral Sciences Electives

(Choose 3 credit hrs)

ECO 151	Survey of Economics	3
ECO 251	Principles of Microeconomics	3
ECO 252	Principles of Macroeconomics	3
POL 120	American Government	3
PSY 118	Interpersonal Psychology	3
PSY 150	General Psychology	3
SOC 210	Introduction to Sociology	3

#### Concentration Areas

(Select 1 Option Grouping Below)

##### Option 1 – Java Programming (12 Cr Hrs, Take in order listed)

CSC 151	Java Programming	3
CSC 249	Data Structure & Algorithms	3
CSC 251	Advanced Java Programming	3
CSC 256	Software Quality Assurance	3

##### Option 2 – C++ Programming (12 Cr Hrs, Take in order listed)

CSC 134	C++ Programming	3
CSC 249	Data Structure & Algorithms	3
CSC 234	Advanced C++ Programming	3
CSC 256	Software Quality Assurance	3

#### Major Electives

(Choose Min of 3 Credit hrs)

CSC 122	Python Application Development	3
CSC 130	Computer Fundamentals II	4
CSC 221	Advanced Python Programming	3
DBA 130	Intro to noSQL Databases	3
DBA 240	Database Analysis/Design	3
NET 226	Network Programmability	3

#### Project Electives

(Choose Min of 3 Cr hrs)

CSC 289	Programming Capstone	3
*WBL 111	Work-Based Learning	1
*WBL 112	Work-Based Learning	2
*WBL 113	Work-Based Learning	3
*WBL 121	Work-Based Learning	1
*WBL 122	Work-Based Learning	2
*WBL 123	Work-Based Learning	3

\*Work-Based Learning is an elective. WBL courses completed for one program may not count toward the completion of another program. Contact your academic advisor or WBL faculty coordinator for verification. Students must have approval from the department head and pre-register with the Computer Technologies Division office. As an alternative to CSC 289, three credit hours of Work-Based Learning can be taken. The Work-Based Learning work period may be taken

# INFORMATION TECHNOLOGY

---

as WBL 112, over two semesters as WBL-111 and WBL-112 or over one semester as WBL-113.

## **C++ Programming Certificate – C25590CC**

-Day

The C++ Programming certificate offers courses for students interested in upgrading their programming skills by acquiring proficiency in an object-oriented programming language.

CSC 134	C++ Programming .....	3
CSC 154	Software Development.....	3
CSC 227	Cloud Application Development.....	3
CSC 234	Advanced C++ Programming .....	3

**Graduation Requirements .....12 Credit Hours**

## **Java Programming Certificate – C25590JV**

-Day

Designed for individuals interested in acquiring programming skills necessary to design and implement Java programs

CSC 151	Java Programming .....	3
CSC 154	Software Development.....	3
CSC 227	Cloud Application Development.....	3
CSC 251	Advanced Java Programming.....	3

**Graduation Requirements .....12 Credit Hours**

## **Programming Fundamentals Certificate - C25590PF**

-Day

The Fundamentals of Computer Programming Certificate will give students the opportunity to achieve programming literacy.

CSC 120	Computer Fundamentals I .....	4
CSC 121	Python Programming .....	3
CTI 110	Web, Pgm, and DB Foundations .....	3
WEB 115	Web Markup and Scripting.....	3
DBA 120	Database Programming I .....	3

**Graduation Requirements .....16 Credit Hours**