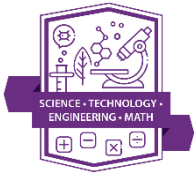# Software Development Essentials Certificate 25-26

ABOUT THIS MAJOR

A student completing the Software Development Essentials Certificate will gain a solid grounding in the basic principles that underlie Computer Science. This certificate provides both academic preparation for and a pathway to internships.

When combined with further study, it will lead to the Computer Science Associate in Science Degree (AS), Computer Science Associate in Science for Transfer (AS-T), and/or transfer. This certificate is intended for students that would like to develop their programming skills in a specific language. . For more information, visit the Math and Science division.

TO EARN A Certificate A STUDENT MUST COMPLETE THE FOLLOWING:

[1] Completion of Major & Program Electives Courses
[2] Minimum grade point average of 2.0
[3] A C or better in all courses required for the major

Certificate- Software Development Essentials
[Total Unit Required in the Major 14]

Required CALC course, choose one (5 units)	
MATH150 - Calculus and Analytic Geometry	5
MATH150H - Calculus & Analytic Geometry Honors	5

Programming I: choose one the following: (3 units)	
CS120 - Programming and Algorithms in C++	3
CS121 - Programming and Algorithms in Java	3
CS122 - Programming and Algorithms in Python	3

Programming II: choose one the following: (3 units)	
CS130 - Data Structures using C++	5
CS131 - Data Structures using Java	5
CS132 - Data Structures using Python	5

Program Elective: choose one (3 units)	
CS110 - Intro to Programming Concepts and Methodologies	3
CS140 - Assembly Language and Computer Architecture	3
CS230 - Advanced Programming and Algorithms in C++	3
CS231 - Advanced Programming and Algorithms in Java	3

RECOMMENDED PATHWAY
Software Development Essentials Certificate

The Recommended Plan of Study is determined by the discipline faculty
Take classes in **Summer** or **Intersession** if needed to complete your degree in a timely manner!

Fall/Spring: Max 19 units| Summer: Max 9 units| Intersession: Max 6 units

🟦 Major   🔺 Program Electives

SEMESTER 1

Course	Units
🟦 MATH 150 or MATH 150H	5
🔺 Program Elective : CS 110 (rec.)	3
Total Units	8

SEMESTER 2

Course	Units
🟦 Programming 1: choose from list	3
Total Units	3

SEMESTER 2

Course	Units
🟦 Programming 1: choose from list	3
Total Units	3
Total Certificate Units	**14**

The State requires ALL STUDENTS to have a Comprehensive Education Plan. You MUST make a counseling appointment as soon as enrollment is established to receive your plan. Stop by the Counseling Center or call 661-722-6300 x 6338 to schedule an appointment.

8/26/25 (Angie Gonzalez)