



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. Students who successfully complete the certificate requirements may apply for entry-level positions in software development support, programming support, web and application development support, quality assurance testing, and other junior computing-related roles. 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

Cert- Software Development Essentials (SDE)

[Total Units Required for the Major 14]

CS 120, CS 121, CS 122- Prerequisite: Completion of or concurrent enrollment in & MATH 150 OR MATH 150H OR completion of CS 110 OR successful completion of one year of Calculus in high school OR successful completion of one year of programming in high school.

Programming I Options (Total 3)	
CS 120 - programming and Algorithms in	3
CS 121- Programming and Algorithms in Java	3
CS 122- Programming and Algorithms in Python	3

Programming II Options (Total 3)	
CS 130- Data Structures using C/C++ Prerequisite: Completion of CS 120	3
CS 131-Data Structures using Java Prerequisite: Completion of CS 121	3
CS132- Data Structures using Python Prerequisite: Completion of CS 122.	3

Complete ALL the following: (19 units)	
MATH 150 OR MATH 150H - Calculus and Analytic Geometry /HONORS Prerequisite: Completion of MATH 140 or MATH 149 or placement by multiple measures.	5

Program Elective, choose ONE of the following: (4-5 units)	
CS110 - Introduction to Programming Concepts and Methodologies	3
CS140 - Assembly Language and Computer Architecture Prerequisite: Completion of CS 120 or CS 121 or CS 122 or CS 123	3
CS230 - Advanced Programming and Algorithms in C++ Prerequisite: Completion of CS 130	3
CS231 - Advanced Programming and Algorithms in Java Prerequisite: Completion of CS 131	3

RECOMMENDED PATHWAY

Software Development Essentials Cert

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

SEMESTER 1	
Course	Units
CS 110	3
MATH 150 or MATH 150H	5
Total Units	8

SEMESTER 2	
Course	Units
CS 120 OR CS 121 OR CS 122	3
Total Units	3

SEMESTER 3	
Course	Units
CS 130 OR CS 131 OR CS 132	3
Total Units	3
Total Certificate Units	15

COUNSELING NOTE SECTION

Prerequisite: If a course is listed as a prerequisite for another course, that prerequisite course must be completed with a satisfactory grade to enroll in the next course. A satisfactory grade is a grade of "A," "B," "C" or "P". Students who enroll in classes for which they do not meet the prerequisites will be involuntarily dropped. Students will be notified of this involuntary drop. Title 5, Section 55200(d)

Application for Graduation:

Antelope Valley College awards degrees three times annually following the Fall, Spring, and summer semesters. Students must apply for graduation to earn their degree or certificate. Applications are due by September 6 for spring/summer graduates and by February 14 for fall graduates.

AVC 26-27 CATALOG: [ACADEMIC POLICIES](#)

INFORMATION and RESOURCES

Tutoring Assistance	Career Center	AVC Student Health Services
Transfer Center	Office of Students with Disabilities	Palmdale Center
Basic Needs	Financial Aid	Counseling Division