



**Computer Science Technology - Programming & App Development
Certificate
M.A.P.**

Semester	Suggested Courses	Semester(s) Offered*	Credit Hours
Semester 1 15 credit hours	CIS 149 Introduction to Computers	Fall	3
	CIS 191 Introduction to Computer Programming Concepts	Fall	3
	CIS 193A Introduction to Computer Programming Lab	Fall	1
	CIS 157 Introduction to App Development with Swift	Fall	3
	MTH 100 <i>or</i> MTH 116 Intermediate College Algebra <i>or</i> Mathematical Applications	Fall, Spring, Summer	3
	ORI 101 Orientation to College	Fall, Spring, Summer	2
Semester 2 13 credit hours	CIS 263 Computer Maintenance	Spring	3
	CIS 251 C++ Programming (Recommended CST Elective)	Spring	3
	CIS 193B C++ Programming Lab (Recommended CST Elective)	Spring	1
	CIS 220 App Development with Swift I (Recommended CST Elective)	Spring	3
	ENG 101 English Composition I	Fall, Spring, Summer	3
Semester 3** 3 credit hours	SPH 106 <i>or</i> SPH 107 Fundamentals of Oral Communication <i>or</i> Fundamentals of Public Speaking	Fall, Spring, Summer	3
Semester 4 10 credit hours Apple App Development STC Achieved	CIS 159 Introduction to Graphic Design for Apps (Recommended CST Elective)	Fall	3
	CIS 227 App Development with Swift II (Recommended CST Elective)	Fall	3
	CIS 281 Systems Analysis and Design (Recommended CST Elective)	Fall	3
	CIS 193D Systems Analysis and Design Lab (Recommended CST Elective)	Fall	1
Semester 5 13 credit hours Programming & App Development Certificate Achieved	CIS 207 Web Development	Spring	3
	CIS 249 Microcomputer Operating Systems	Spring	3
	CIS 255 Java Programming (Recommended CST Elective)	Spring	3
	CIS 193F Java Programming Lab (Recommended CST Elective)	Spring	1
	CST Elective Choose 1 Programming & App Development Elective	Fall, Spring	3
Total Hours			52-55

*Course(s) may be offered in additional semesters but are only assured to run in the semester(s) indicated. It is **highly** recommended that course(s) be completed in the semester(s) indicated.

Part-time students and full-time students desiring to begin the CST program of study during a spring or summer semester should consult with an academic advisor to establish an alternate degree completion pathway.

**Students desiring not to enroll for a summer semester may complete one of the *Semester 3 Area I-V Requirements* during Semester 2 and the remaining *Semester 3 Area I-IV requirement* during Semester 4.