

As our digital reliance grows, the need for computer technology professionals increases. This degree combines skills in computer programming, software assurance, and database development fundamentals. A degree in Secure Software Development prepares students for jobs as Computer Systems Analysts, Software Quality Assurance Engineers and Testers, Computer Programmers, Software Developers, and Information Security Analysts.

The AAS Secure Software Development Degree will be offered at both ACC’s Sturm Collaboration Campus in Castle Rock and Littleton Campus. ACC has a transfer articulation with CSU Pueblo, under which students are guaranteed a junior standing with no more than 62 credits to meet the graduation requirements for a B.S. in Computer Information Systems-Software Development Concentration issued by CSU-Pueblo. This B.S. can be attained through a blend of in-person classes at the Sturm Collaboration Campus and on-line classes.

| Required Courses | Credits | Pre or Co Reqs Rqd | Course Availability | | |
|---|---------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| | | | Fall | Spr | Sum |
| General Education Courses | | | | | |
| • Choose three (3) credits from the following areas: Social Behavioral Science: GT SS1-SS3 OR Arts & Humanities: GT AH1-AH4 OR History: HI1 | 3 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| • COM 115 - Public Speaking* (3 Cr.) | 3 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| • ENG 121 - English Composition I: GT-CO1*(3 Cr.) | 3 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| • ENG 122 - English Composition II: GT-CO2 (3 Cr.) | 3 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| • MAT 121 - College Algebra: GT-MA1* (4 Cr.) | 4 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| • Natural / Physical Science GT-SC1-SC2 | 4 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| • Natural / Physical Science GT-SC1-SC2 | 4 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Major Courses | | | | | |
| • BUS 226 - Business Statistics (3 Cr.) | 3 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| • CIS 220 - Fundamentals of Unix (3 Cr.) | 3 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| • CIS 240 - Database Design and Development (3 Cr.) | 3 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| • CIS 243 - Introduction to Structured Query Language (SQL) (3 Cr.) | 3 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| • CIS 268 - Systems Analysis and Design I (3 Cr.) | 3 | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| • CNG 101 - Networking Fundamentals (3 Cr.) | 3 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| • CSC 119 - Introduction to Programming (3 Cr.) | 3 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| • CSC 129 - Introduction to Security Coding (3 Cr.) | 3 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • CSC 160 - Computer Science I* (4 Cr.) | 4 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| • CSC 161 - Computer Science II (4 Cr.) | 4 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| • CSC 225 - Computer Architecture/Assembly Language Programming (4 Cr.) | 4 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • CSC 245 - Secure Software Development (3 Cr.) | 3 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Pre-Requisites, Co-Requisites, and Recommendations (grade C or better required)

Where requirements are listed as course categories (e.g. Electives, Arts/Humanities) rather than as specific courses, please note that depending upon course choice, pre-requisites may be required.

CSC 160 - Computer Science I* (4 Cr.)

- Pre-Requisite: CSC 119 - Introduction to Programming: Java

CSC 161 - Computer Science II (4 Cr.)

- Pre-Requisite: CSC 160 - Computer Science I: Java

ENG 121 - English Composition I: GT-CO1*(3 Cr.)

- Co-Requisite: CCR 094 - Studio 121 (3 Cr.)

ENG 122 - English Composition II: GT-CO2 (3 Cr.)

- Pre-Requisite: ENG 121 - English Composition I OR ENG 131 - Technical Writing I

MAT 121 - College Algebra: GT-MA1* (4 Cr.)

- Co-Requisite: MAT 093 - Algebra Lab* (1 Cr.) OR MAT 077 - Prep Lab for College Algebra (2 Cr.)
- Pre-Requisite: MAT 055 - Algebraic Literacy (4 Cr.) or appropriate score

CSC 225 - Computer Architecture/Assembly Language Programming (4 Cr.)

- Co-Requisite: CSC 161 - Computer Science II (4 Cr.)
- Pre-Requisite: CSC 160 - Computer Science I* (4 Cr.) OR CSC 161 - Computer Science II (4 Cr.)

CSC 129 - Introduction to Security Coding (3 Cr.)

- Co-Requisite: CSC 160 - Computer Science I* (4 Cr.)
- Pre-Requisite: CSC 160 - Computer Science I* (4 Cr.)

CSC 245 - Secure Software Development (3 Cr.)

- Pre-Requisite: CSC 161 - Computer Science II (4 Cr.)

Program Outcomes

- Use appropriate tools to assess and analyze existing applications for weaknesses and vulnerabilities and implement techniques for mitigating security threats and risks.
- Identify and respond to threats and attacks to minimize risk and protect privacy.
- Design, develop, implement, and test secure software using leading industry practices and standards to meet user requirements.
- Plan, manage, document, and communicate all phases of a secure software development project as part of a software development team.
- Apply scripting and programming skills to test and secure software.

Notes

- *This course requires college level readiness as measured by Accuplacer, ACT, or SAT scores; approved high school course work that is less than five years old; or successful completion of appropriate college-readiness course.
- As a graduate of a Career and Technical Education program you will be contacted by an ACC employee in approximately six months to verify your employment information. This information gathering is a federal requirement to ensure that ACC receives certain federal funding.
- In order to meet program requirements, students registered for ENG 121 or ENG 131 must also register for CCR 094 unless they can demonstrate otherwise meeting the CCR 094 standard through assessment testing, prior college coursework, or recent High School coursework. See an Advisor for details.

Graduation Requirements



- Achieve a "C" or better in all required courses.
- Apply for graduation online at www.arapahoe.edu/graduation

RECOMMENDED COURSE SEQUENCE FULL-TIME TRACK

| Year 1: Fall | Credits | Course |
|----------------|---------|--|
| | 3 | Choose three (3) credits from the following areas: Social Behavioral Science: GT SS1-SS3 OR Arts & Humanities: GT AH1-AH4 OR History: HI1 ~Recommended Course(s)~ ECO 201 - Principles of Macroeconomics: GT-SS1* (3 Cr.) ECO 202 - Principles of Microeconomics: GT-SS1* (3 Cr.) HIS 101 - Western Civilization: Antiquity-1650: GT-HI1* (3 Cr.) HIS 102 - Western Civilization: 1650-Present: GT-HI1* (3 Cr.) PHI 113 - Logic: GT-AH3* (3 Cr.) |
| | 3 | CNG 101 - Networking Fundamentals (3 Cr.) |
| | 3 | CSC 119 - Introduction to Programming (3 Cr.) |
| | 3 | ENG 121 - English Composition I: GT-CO1 (3 Cr.) |
| | 4 | Natural / Physical Science GT-SC1-SC2 AST 101 - Astronomy with Lab: Planetary Systems: GT-SC1* (4 Cr.) GEY 111 - Physical Geology w/Lab: GT-SC1* (4 Cr.) |
| Year 1: Spring | Credits | Course |
| | 3 | CIS 220 - Fundamentals of Unix (3 Cr.) |
| | 4 | CSC 160 - Computer Science I (4 Cr.) |
| | 4 | MAT 121 - College Algebra: GT-MA1 (4 Cr.) |
| | 4 | Natural / Physical Science GT-SC1-SC2 AST 101 - Astronomy with Lab: Planetary Systems: GT-SC1* (4 Cr.) GEY 111 - Physical Geology w/Lab: GT-SC1* (4 Cr.) |
| Year 2: Fall | Credits | Course |
| | 3 | CIS 243 - Introduction to Structured Query Language (SQL) (3 Cr.) |
| | 3 | CSC 129 - Introduction to Security Coding (3 Cr.) |
| | 4 | CSC 161 - Computer Science II (4 Cr.) |
| | 4 | CSC 225 - Computer Architecture/Assembly Language Programming (4 Cr.) |
| | 3 | ENG 122 - English Composition II: GT-CO2 (3 Cr.) |
| Year 2: Spring | Credits | Course |
| | 3 | BUS 226 - Business Statistics (3 Cr.) |
| | 3 | CIS 240 - Database Design and Development (3 Cr.) |
| | 3 | CIS 268 - Systems Analysis and Design I (3 Cr.) |
| | 3 | COM 115 - Public Speaking (3 Cr.) |
| | 3 | CSC 245 - Secure Software Development (3 Cr.) |

RECOMMENDED COURSE SEQUENCE PART-TIME TRACK

| Year 1: Fall | Credits | Course |
|----------------|---------|---|
| | 3 | CNG 101 - Networking Fundamentals (3 Cr.) |
| | 3 | CSC 119 - Introduction to Programming (3 Cr.) |
| | 3 | ENG 121 - English Composition I: GT-CO1 (3 Cr.) |
| Year 1: Spring | Credits | Course |
| | 3 | CIS 220 - Fundamentals of Unix (3 Cr.) |
| | 4 | CSC 160 - Computer Science I (4 Cr.) |
| Year 1: Summer | Credits | Course |
| | 3 | COM 115 - Public Speaking (3 Cr.) |
| Year 2: Fall | Credits | Course |
| | 3 | CSC 129 - Introduction to Security Coding (3 Cr.) |
| | 4 | CSC 161 - Computer Science II (4 Cr.) |
| | 4 | MAT 121 - College Algebra: GT-MA1 (4 Cr.) |
| Year 2: Spring | Credits | Course |
| | 3 | BUS 226 - Business Statistics (3 Cr.) |
| | 3 | Choose three (3) credits from the following areas: Social Behavioral Science: GT SS1-SS3 OR Arts & Humanities: GT AH1-AH4 OR History: HI1 ~Recommended Course(s)~ ECO 201 - Principles of Macroeconomics: GT-SS1* (3 Cr.) ECO 202 - Principles of Microeconomics: GT-SS1* (3 Cr.) HIS 101 - Western Civilization: Antiquity-1650: GT-HI1* (3 Cr.) HIS 102 - Western Civilization: 1650-Present: GT-HI1* (3 Cr.) PHI 113 - Logic: GT-AH3* (3 Cr.) |
| | 3 | CSC 245 - Secure Software Development (3 Cr.) |
| Year 2: Summer | Credits | Course |
| | 3 | ENG 122 - English Composition II: GT-CO2 (3 Cr.) |
| Year 3: Fall | Credits | Course |
| | 3 | CIS 243 - Introduction to Structured Query Language (SQL) (3 Cr.) |
| | 4 | CSC 225 - Computer Architecture/Assembly Language Programming (4 Cr.) |
| | 4 | Natural / Physical Science GT-SC1-SC2 AST 101 - Astronomy with Lab: Planetary Systems: GT-SC1* (4 Cr.) GEY 111 - Physical Geology w/Lab: GT-SC1* (4 Cr.) |
| Year 3: Spring | Credits | Course |
| | 3 | CIS 240 - Database Design and Development (3 Cr.) |
| | 3 | CIS 268 - Systems Analysis and Design I (3 Cr.) |
| | 4 | Natural / Physical Science GT-SC1-SC2 AST 101 - Astronomy with Lab: Planetary Systems: GT-SC1* (4 Cr.) GEY 111 - Physical Geology w/Lab: GT-SC1* (4 Cr.) |