CIST-206 – Introduction to Computer Security

Technology

Effective Term & Year: Fall 2024
Course Outline Review Date: 2029-03-01

Program Area: Information Technology

Description:

In this course students will learn the fundamentals of computer security. Students learn the principles of computer and information security in general and become familiar with the fundamentals of designing a secure system both from a hardware and software point of view.

Students will become familiar with security policies, the principles of cryptography, the basics of authentication, data protection concepts, how access control systems work, and software security. In general, learners will become familiar with the principles, practices, and analysis of developing secure software systems. Additionally, students will learn to recognize several areas of security attacks, examine current security measures and evaluate techniques to enhance existing measures.

Students will also learn fundamental principles associated with the current cybersecurity landscape and identify concepts required to recognize and potentially mitigate against enterprise networks as well as mission critical infrastructure. This course will also teach students how to initially setup and configure security zones, authentication, policies on the Palo Alto next generation firewall.

Program Information:

This course is required for the second year of the Computer Information Systems Technology program. Students will receive a certificate from Palo Alto Academy after this course.

Delivery Methods: Hybrid – On-campus (Face-to-Face) and Online

Credit Type: College of the Rockies Credits

Credits: 3

Instructional Activity and Hours:

Activity	Hours
Classroom, Directed Studies or Online Instruction	30
Seminar/Tutorials	
Laboratory/Studio	30
Practicum/Field Experience	
Co-op/Work Experience	
Other	
Total	60

Course Requisites:

- Completed the following:
  - CIST101 – Computer Systems Administration (4)

Flexible Assessment: Yes

Students are able to request formal recognition of their prior learning or experience outside the classroom. Challenge examination, portfolio-assisted assessment, or work-based assessment are used to identify, assess, and recognize prior skills, competencies, and knowledge to achieve course credit. Tuition fees apply, refer to Policy 2.5.5 Prior Learning Assessment and Recognition (PLAR) or contact an education advisor for more information.

Course Transfer Credit:

For information about receiving transfer credit for courses taken at either British Columbia or Alberta institutions, please see https://www.bctransferguide.ca/ or https://transferalberta.alberta.ca . For more transfer credit information, please visit https://www.cotr.bc.ca/Transfer

All requests for course transfer credit from institutions in British Columba or elsewhere should go to the College of the Rockies Enrolment Services office.

Textbook Resources:

Textbook selection varies by instructor and may change from year to year. At the Course Outline Effective Date the following textbooks were in use:

Palo Alto Academy Official Course Material

Please see the instructor's syllabus or check COTR's online text calculator https://textbook.cotr.bc.ca/ for a complete list of the currently required textbooks.

Learning Outcomes:

Upon the successful completion of this course, students will be able to

- discuss fundamental aspects of computer security;
- understand the NIST framework;
- describe main types of security policies;
- understand attacker Profiles and Cyber-Attack Strategies;
- understand Malware, Vulnerabilities and Exploits;
- understand and implement Security models such as, Zero Trust, Perimeter based Security, Policies and Trust;
- understand the Security Operating Platform;
- articulate the principles of security design;
- evaluate Network Security;
- describe access control systems including aspects of Access Control, Authentication and Account Management;
- evaluate the use of Certificates and their role in ensuring computer security;
- describe Compliance and Operational Security for implementing security measures;
- evaluate techniques to enhance existing security measures; and
- discuss troubleshooting and managing security incidents.

Course Topics:

- Security Fundamentals
- Security Threats and Vulnerabilities
- Cyber Landscape
- Data, Application and Host Security
- Cyber-Threats
- Network Security
- Access Control, Authentication and Account Management
- Cyberattack Types and Techniques
- Cybersecurity Models and Design Principles
- The Use of Certificates
- Compliance and Operational Security
- Security Operating Platform
- Risk Management
- Troubleshooting and managing Security Incidents

See instructor's syllabus for the detailed outline of weekly readings, activities and assignments.

Evaluation and Assessments

Assessment Type: On-Campus (face-to-face)

Assessment Type	% of Total Grade
Assignments	20%
Quizzes	10%
Project	20%
Midterm Exam	20%
Final Exam	30%
Total	100%

Grade Scheme

A+	A	A-	B+	B	B-	C+	C	C-	D	F
>=90	89-85	84-80	79-76	75-72	71-68	67-64	63-60	59-55	54-50	<50

Evaluation Notes: A grade of “D” grants credit, but may not be sufficient as a prerequisite for sequential courses.

Evaluation Notes Comments:

Please see the instructor’s syllabus for specific classroom policies related to this course, such as details of evaluation, penalties for late assignments and use of electronic aids.

Exam Attendance:

Students must attend all scheduled exams at the appointed time and place. Instructors may approve an alternate exam to accommodate an illness or personal crisis. Department heads will consider other written requests. Any student who misses a scheduled exam without prior approval will receive a “0” on the exam.

Academic Policies:

College of the Rockies policies related to courses can be found at https://cotr.bc.ca/about-us/college-policies/ and include the following:

- Policy 2.1.4 Course Audit
- Policy 2.4.1 Credential Framework
- Policy 2.4.3 Students with Documented Disabilities
- Policy 2.4.4 Student Rights, Responsibilities and Conduct
- Policy 2.4.8 Academic Performance
- Policy 2.4.9 Student Feedback and Concerns

- Policy 2.4.11 Storage of Academic Works
- Policy 2.5.3 Student Appeal
- Policy 2.5.5 Prior Learning Assessment and Recognition (PLAR)

Course Changes:

The College of the Rockies updates course outlines regularly to meet changing educational, employment and marketing needs. The instructor will notify students in writing of any updates to this outline during the semester. The instructor reserves the right to revise, add or delete material while meeting the learning outcomes of this course outline.