CYBR-102 – Network Security Tools and Technologies

Technology

Effective Term & Year: Fall 2027
Course Outline Review Date: 2032-03-01

Program Area: Information Technology

Description:

This course provides students with practical experience using industry-standard network security tools and technologies to protect organizational systems and data. Students learn to deploy, configure, and evaluate firewalls, intrusion detection and prevention systems, virtual private networks, network monitoring tools, and security information sources. Through hands-on laboratory activities, students develop skills in traffic analysis, threat detection, network hardening, and security monitoring while building a foundation for advanced cybersecurity studies.

Program Information:

This course is required for the first year of the Cybersecurity Operations program.

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:

Prior Learning and Recognition: Yes

Students are able to request formal recognition of their prior learning or experience outside the classroom. Challenge examination, portfolio-assisted assessment, work-based assessment or a combination of assessments that is appropriate 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 Columbia or elsewhere should go to the College of the Rockies Enrollment Service 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:

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:

- analyze network traffic and system activity to identify common cybersecurity threats and

suspicious behavior;
- configure and manage network security technologies including firewalls, VPNs, intrusion detection systems, and monitoring tools;
- implement network security controls and vulnerability management practices that support secure enterprise operations;
- monitor, assess, and respond to network security events using industry-standard security tools and technologies;
- apply security automation and scripting techniques to support threat detection, system monitoring, and incident response processes; and
- troubleshoot and evaluate network security incidents and recommend appropriate mitigation strategies.

Course Topics:

- Firewalls
- Network Monitoring and Analysis
- Intrusion Detection and Prevention Systems (IDPS)
- Vulnerability Assessment and Testing
- Endpoint Security
- Virtual Private Networks (VPNs)
- Wireless Security
- Authentication and Authorization
- Content Filtering and Web Security
- Email Security
- Data Loss Prevention (DLP)

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

Evaluation and Assessments

Assessment Type: On-Campus (face-to-face) and Online, or Hybrid

Assessment Type	% of Total Grade
Assignments (x2)	40%
Midterm	20%
In-progress	10%
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.