



CIST-204 – Switching, Routing and Wireless Essentials

Technology

Effective Term & Year: Fall 2024

Course Outline Review Date: 2029-03-01

Program Area: Information Technology

Description:

In this hands-on course students will engage with a comprehensive curriculum focused on configuring and troubleshooting networking devices such as routers, switches, and wireless devices. Through hands-on activities, participants will gain proficiency in setting up and troubleshooting VLANs, Wireless LANs, and Inter-VLAN routing, essential components for modern network deployments. Furthermore, students will delve into advanced topics including the configuration and troubleshooting of redundancy mechanisms like Spanning Tree Protocol (STP) and EtherChannel, enhancing network reliability and resilience.

Moreover, this course emphasizes the development of critical thinking and problem-solving skills essential for network administrators. Students will learn how to effectively support available and reliable networks by implementing dynamic addressing and first-hop redundancy protocols. By the end of the course, p will possess the expertise needed to design, configure, and troubleshoot complex network environments, empowering them to contribute effectively to the operational success of modern networking infrastructures.

Program Information:

This course is required for the second year of the Computer Information Systems Technology program. Students will receive a certificate from Cisco Networking 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:
 - [CIST105](#) – Introduction to Data Communication and Networking (3)

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 Columbia 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:

Cisco Academy Course Material and CCNA 200-301 Official Cert Guide.

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

- implement device configuration with security measures;
- describe Layer 2 switch data forwarding.;
- set up VLANs and trunking in a switched network;
- resolve inter-VLAN routing issues on Layer 3 devices;
- deploy EtherChannel for enhanced performance and redundancy on links;
- configure DHCPv4 for operation across multiple LANs;
- address LAN security vulnerabilities and configure switch security accordingly; and
- describe and implement a WLAN using a wireless router and WLC.

Course Topics:

- Switching Concepts.
- Virtual LANs.
- Inter-VLAN Routing and Spanning Tree Concepts.
- EtherChannel.
- DHCPv4, SLAAC and DHCPv6.
- FHRP Concepts.
- LAN Security Concepts and Switch Security Configuration.
- WLAN Concepts and Configuration.
- Routing Concepts and IP Static Routing.
- Troubleshooting Static and Default Routes.

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
Module Quizzes	15%
Participation	5%
Module Labs	30%
Project	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 outlin