



## Switching, Routing and Wireless Essentials – CIST 204 Computer Information Systems Technology Program

### Course Outline

**COURSE IMPLEMENTATION DATE:** September 2024  
**OUTLINE EFFECTIVE DATE:** September 2024  
**COURSE OUTLINE REVIEW DATE:** March 2029

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#### GENERAL COURSE 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, you 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.

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**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.

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**Delivery:** This program is delivered hybrid (includes both face-to-face and online components).

**COTR Credits:** 3

**Hours for this course:** 60 hours

#### Typical Structure of Instructional Hours:

Instructional Activity	Duration
Lecture Hours	30
Seminars / Tutorials	
Laboratory / Studio Hours	30
Practicum / Field Experience	
Other Contact Hours	
<b>Total</b>	<b>60</b>

#### Practicum Hours (if applicable):

Type of Practicum	Duration
On-the-Job Experience	
Formal Work Experience	
Other	
<b>Total</b>	<b>N/A</b>

**Course Outline Author or Contact:**

Chizoba Anoliefo, BSc, MEng

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Signature

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**APPROVAL SIGNATURES:**

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Department Head Signature

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Dean Signature

EDCO

Valid from: September 2024 – March 2029

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Education Council Approval Date

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**COURSE PREREQUISITES AND TRANSFER CREDIT:**

**Prerequisites:** CIST 105

**Corequisites:** None

**Flexible Assessment (FA):**

Credit can be awarded for this course through FA  Yes  No

Learners may request formal recognition for flexible assessment at the College of the Rockies through one or more of the following processes: External Evaluation, Worksite Assessment, Demonstration, Standardized Test, Self-assessment, Interview, Products/Portfolio, Challenge Exam. Contact an Education Advisor for more information.

**Transfer Credit:** For transfer information within British Columbia, Alberta and other institutions, please visit <http://www.cotr.bc.ca/Transfer>.

Student should also contact an academic advisor at the institution where they want transfer credit.

**Prior Course Number:** N/A

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## **Textbooks and Required 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.*

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## **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.
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## **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.*

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## EVALUATION AND ASSESSMENT (Face-to-Face Delivery):

Assignments	% of Total Grade
Module Quizzes	15%
Participation	5%
Module Labs	30%
Project	20%
Final Exam	<u>30%</u>
Total	100%

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.

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### EXAM POLICY:

Students must attend all required scheduled exams that make up a final grade at the appointed time and place.

Individual instructors may accommodate for illness or personal crisis. Additional accommodation will not be made unless a written request is sent to and approved by the appropriate Department Head prior to the scheduled exam.

Any student who misses a scheduled exam without approval will be given a grade of "0" for the exam.

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### COURSE GRADE:

Course grades are assigned as follows:

Grade	A+	A	A-	B+	B	B-	C+	C	C-	D	F
Mark (Percent)	≥ 90	89-85	84-80	79-76	75-72	71-68	67-64	63-60	59-55	54-50	< 50

A grade of "D" grants credit, but may not be sufficient as a prerequisite for sequential courses.

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### ACADEMIC POLICIES:

See [www.cotr.bc.ca/policies](http://www.cotr.bc.ca/policies) for general college policies related to course activities, including grade appeals, cheating and plagiarism.

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### COURSE CHANGES:

Information contained in course outlines is correct at the time of publication. Content of the courses is revised on an ongoing basis to ensure relevance to changing educational, employment and marketing needs. The instructor endeavours to provide notice of changes to students as soon as possible. The instructor reserves the right to add or delete material from courses.