



CAMOSUN COLLEGE
Trades and Technology
Electronics and Computer Engineering

ELEX 133c
LAN Switching/Routing, Wireless, and WANS

Fall 2019

COURSE OUTLINE

The calendar description is available on the web @ Camosun.ca

Please note: This outline will not be kept indefinitely. It is recommended students keep this outline for their records, especially to assist in transfer credit to post-secondary institutions.

1. Instructor Information

- (a) **Instructor** Trevor Curtis _____
- (b) **Office hours** _____
- (c) **Location** CBA 122 _____
- (d) **Phone** 250 370 4431 **Alternative:** _____
- (e) **E-mail** curtis@camosun.bc.ca _____
- (f) **Website** _____

2. Intended Learning Outcomes

Elex 133c expands on the knowledge and skills developed during Elex 133a and b. The Curriculum follows the Cisco Networking Academy Scaling Networks and Connecting Networks courses. At the end of this course students will have completed the Cisco Networking Academy CCNA R&S (routing and switching) curriculum and will be able to write the Cisco CCNA certification exam.

Students will be able to:

1. employ network switching
2. enable data-link layer security
3. configure spanning tree protocols
4. discuss various point-to-point WAN protocols
5. configure Access Control Lists
6. configure advanced IP addressing services
7. employ networking troubleshooting skills

3. Required Materials

- (a) Computer with Internet access
- (b) Access to Cisco Networking Academy

4. Course Content

Elex 133c Course Introduction

Scaling Course Introduction

CH1 LAN Design

- Introduction to LAN Design
- Selecting Network Devices

CH2 Scaling VLANs

- VTP, Extended VLANs, and DTP
- Troubleshooting Multi-VLAN Issues
- Layer 3 Switching

CH3 STP

- LAN Redundancy
- Spanning Tree Concepts
- Varieties of Spanning Tree Protocols
- Spanning Tree Configuration

CH4 EtherChannel and HSRP

- Link Aggregation Concepts
- Link Aggregation Configuration
- First Hop Redundancy Protocols

CH5 Dynamic Routing

- Dynamic Routing Protocols
- Distance Vector Fundamentals
- Link State Routing Protocols

CH 6 EIGRP

- EIGRP Characteristics
- Implement EIGRP for IPv4
- EIGRP Operation
- Implement EIGRP for IPv6

CH 7 EIGRP Tuning and Troubleshooting

- Tune EIGRP
- Troubleshooting EIGRP

CH 8 Single Area OSPF

- OSPF Characteristics
- Single Area OSPFv2
- Single Area OSPFv3
- Configuring Multiarea OSPF

CH 9 Multi Area OSPF
Multi Area OSPF Operation
Configuring Multi Area OSPF

CH 10 OSPF Tuning and Troubleshooting
Advanced Single Area OSPF Configurations
Troubleshooting Single Area OSPF Implementations

Scaling Networks Final

Connecting Networks

CH 1 WAN Concepts

- WAN technologies Overview
- Selecting WAN Technology

- Hierarchical Network Design Overview
- Cisco Enterprise Architectures
- Evolving Network Architectures

CH 2 Point to Point Connections

- Serial Point to Point Overview
- PPP Operation
- PPP Implementation
- Troubleshoot WAN Connectivity

CH 3 Branch Connections

- Remote Access Connections
- PPPoE
- VPNs
- GRE
- eBGP

CH 4 Access Control Lists

- Standard ACL Operation and Configuration Review
- Extended IPv4 ACLs
- IPv6 ACLs
- Troubleshooting ACLs

CH 5 Network Security and Monitoring

- LAN Security
- SNMP
- Cisco Switch Port Analyzer

- Syslog

- NetFlow

CH 6 Quality of Service

- QoS Overview
- QoS Mechanisms

CH 7 Network Evolution

- Internet of Things
- Cloud and Virtualization
- Network Programming

CH 8 Network Troubleshooting

- Troubleshooting Methodology
- Troubleshooting Scenarios

Connecting Networks Final

5. Basis of Student Assessment (Weighting)

a. Quizzes		30%
b. Exams		
Scaling Networks Final Exam	=	20%
Connecting Networks Final Exam	=	20%
c. Assignments		30%
	=	100%

Attendance is required for all classroom, lab, and activities. It is the student's responsibility to communicate with the instructor, preferably prior to any absence. Any absence not sufficiently justified will result in a loss of 5% of the overall course grade.

Professionalism: "the skill, good judgment, and polite behavior that is expected from a person who is trained to do a job well" (Merriam Webster online). Students will be evaluated on the above as well as their ability to work well in a team.

Assignments are due each Sunday and are part of your non-contact work. You have until 11:55PM to submit your assignment for that. You are encouraged to use the discussion area to ask questions as this will be monitored by the instructor.

Please note the following:

1. A grade of 50% or better is required in all assessment items above to be able to pass the course.
2. A grade of 60% or better is required in all assessment items above for this course to qualify as a prerequisite.
3. Labs are due at the end of the lab period. A grade of 0% will be awarded to late labs.
4. No late materials will be accepted past midnight of the last day of the course.
5. No opportunity will be available to write missed quizzes.
6. A student is required to inform the instructor prior to being late or missing a class, or as soon as possible.

6. Grading System

Standard Grading System (GPA)

Competency Based Grading System

7. Recommended Materials or Services to Assist Students to Succeed Throughout the Course

LEARNING SUPPORT AND SERVICES FOR STUDENTS

There are a variety of services available for students to assist them throughout their learning. This information is available in the College Calendar, Student Services or the College web site at <http://www.camosun.bc.ca>

STUDENT CONDUCT POLICY

There is a Student Conduct Policy. It is the student's responsibility to become familiar with the content of this policy. The policy is available in

each School Administration Office, Registration, and on the College web site in the Policy Section.

<http://www.camosun.bc.ca/policies/policies.html>

A. GRADING SYSTEMS <http://www.camosun.bc.ca/policies/policies.php>

The following two grading systems are used at Camosun College:

1. Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D		1
0-49	F	Minimum level has not been achieved.	0

2. Competency Based Grading System (Non GPA)

This grading system is based on satisfactory acquisition of defined skills or successful completion of the course learning outcomes

Grade	Description
COM	The student has met the goals, criteria, or competencies established for this course, practicum or field placement.
DST	The student has met and exceeded, above and beyond expectation, the goals, criteria, or competencies established for this course, practicum or field placement.
NC	The student has not met the goals, criteria or competencies established for this course, practicum or field placement.

B. Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy at <http://www.camosun.bc.ca/policies/E-1.5.pdf> for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	<i>Incomplete:</i> A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.
IP	<i>In progress:</i> A temporary grade assigned for courses that are designed to have an anticipated enrollment that extends beyond one term. No more than two IP grades will be assigned for the same course.

CW	<i>Compulsory Withdrawal:</i> A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement.
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