CAMOSUN COLLEGE
Trades and Technology
Electronics and Computer Engineering

ELEX 133A
Introduction to Networks
Routing and Switching

Fall 2019
COURSE OUTLINE

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

1. Instructor Information

(a)	**Instructor**	Gurbinder Dhade	
(b)	**Office hours**	Posted outside office	
(c)	**Location**	CBA 122B	
(d)	**Phone**	250 370 4450	**Alternative:**
(e)	**E-mail**	dhadeg@camosun.bc.ca	
(f)	**Website**		

2. Intended Learning Outcomes

Networking Fundamentals and Routing introduces the student to local area networks, internetworking and the associated concepts. Students will configure hardware and network resources required to create a functional LAN. The OSI model will be used extensively as a tool to discuss the various concepts such as IP addressing and TCP/IP. The students will explore the Cisco Command Line Interface as they learn how to program network switches and routers.

Upon successful completion of this course a student will be able to:

➢ discuss the role a technician could fulfil in a network-centric global economy
➢ identify the various physical and logical topologies of LANs in common use today;
➢ recall networking terms and acronyms as used in Industry;
➢ implement various LAN configurations using the Cisco CLI;
➢ recall common networking models including TCP/IP, OSI and IEEE;
➢ explain and apply IP addressing to network devices; and
➢ apply basic TCP/IP troubleshooting tools and diagnostic software.

3. Required Materials

• Access to Cisco CCNA Intro 6.0 – Online Curriculum. ➔ **www.netacad.com**

4. Course Content

Introduction to Networking Course

1. Explore the Network
    1.1 Globally Connected
    1.2 LANs, WANs, and the Internet
    1.3 The Network as a Platform
    1.4 The Changing Network Environment

2. Configuring a Network Operating System
    2.1 IOS Bootcamp
    2.2 Basic Device Configuration
    2.3 Address Schemes

3. Network Protocols and Communications
    3.1 Rules of Communications
    3.2 Network Protocols and Standards
    3.3 Data Transfer in the Network

4. Network Access
    4.1 Physical Layer Protocols
    4.2 Network Media
    4.3 Data Link Layer Protocols
    4.4 Media Access Control

5. Ethernet
    5.1 Ethernet Protocol
    5.2 LAN Switches
    5.3 Address Resolution Protocol

6. Network Layer
    6.1 Network Layer Protocols
    6.2 Routing
    6.3 Routers
    6.4 Configure a Cisco Router

7. IP Addressing
    7.1 IPv4 Network Addresses
    7.2 IPv6 Network Addresses
    7.3 Connectivity Verification

8. Subnetting IP Networks
    8.1 Subnetting an IPv4 Network
    8.2 Addressing Schemes
    8.3 Design Considerations for IPv6

9. Transport Layer
    9.1 Transport Layer Protocols
    9.2 TCP and UDP

10. Application Layer
    10.1 Application Layer Protocols
    10.2 Well-Known Application Layer Protocols and Services

11. Build a Small Network
    11.1 Network Design
    11.2 Network Security

11.3 Basic Network Performance
11.4 Network Troubleshooting

Holidays

Sep 2 – Monday Labor Day – College Closed (Week 1)
Oct 14 – Monday Thanksgiving Day – College Closed (Week 7)
Nov 11 – Monday Remembrance Day – College Closed (Week 11)

5. Basis of Student Assessment (Weighting)

(a)	Assignment Questions	=	5%
(b)	Chapter Exams (Off-Campus)	=	5%
(c)	Chapter Exams (In-Class)	=	10%
(d)	Lab Activities	=	10%
(e)	Packet Tracer Activities	=	5%
(f)	Mid-Term Theoretical Exam	=	10%
(g)	Mid-Term Skills Exam	=	10%
(h)	Final Theoretical Exam	=	25%
(i)	Final Skills Exam	=	20%
	Total	=	100%

Assignments (Discussion Questions) and Packet Tracer Activities are based on the current chapter material and are to be submitted to the correct dropbox by **Friday Midnight** of the current week. **No late submissions.**

Chapter Quiz will consist of the Cisco Online Chapter material and be completed outside the class by **Sunday Midnight** of the current week.

Chapter Exam will consist of the Cisco Online Chapter material and be completed in the following week **(Monday class)** of the completion of the chapter.

There will be a one-hour Packet Tracer based **skills mid-term exam** based on Chapters 1–6 of the Cisco curriculum.

There will be a one-hour online mid-term **theoretical exam** based on Chapters 1-6 of the Cisco curriculum.

There will be a Packet Tracer based **skills exam** during Week 14 based on Chapters 1–11 of the Cisco curriculum.

There will be a three-hour **Final Exam** during the Exam week based on Chapters 1–11 of the Cisco curriculum.

Laboratory evaluation will be based on the following breakdown:
½ mark is given for attendance, cleanliness, deportment.
½ mark for completion of lab activities on time.

All Lab activities are to be completed before or by the end of the last lab period of the current week.

You should keep a bound journal for any information relating to this course such as terminology, lab exercises, observations, and procedures. Your instructor may review your journal at any time during lab periods. So always keep it up-to date!!!

6. Grading System

| X | 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	*Incomplete*: 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	*In progress*: 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	*Compulsory Withdrawal*: 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.