COURSE SYLLABUS

COURSE TITLE: Elex 139B PC Server Fundamentals

CLASS SECTION:

TERM: Fall 2022

COURSE CREDITS: 3

DELIVERY METHOD(S): Blended Learning

For COVID-19 updates please visit https://camosun.ca/about/covid-19-updates.

Camosun College requires mandatory attendance for the first class meeting of each course. If you do not attend, and do not provide your instructor with a reasonable explanation in advance, you will be removed from the course and the space offered to the next waitlisted student.

INSTRUCTOR DETAILS

NAME: Ian Cameron

EMAIL: cameron@camosun.bc.ca

OFFICE: TEC211

HOURS:

As your course instructor, I endeavour to provide an inclusive learning environment. However, if you experience barriers to learning in this course, do not hesitate to discuss them with me. Camosun College is committed to identifying and removing institutional and social barriers that prevent access and impede success.

CALENDAR DESCRIPTION

The focus of this course is advanced topics on Windows Server and an introduction to Linux. The students are introduced to Server management and administration. The students will create a working Client - Server based network. Students will be required to develop and implement a working file system, create user accounts and groups to implement a working domain structure and configure various server roles and services. The students will use primarily the Linux command line interface to configure programs, files and directories, set file attributes and permissions, and manage users and groups.

Emphasis will be on configuration of the Client – Server environment based on Windows Server 2016 content. In addition, the LPI Linux material will be covered during the latter half of the semester which will be hosted on the Cisco Networking Academy Website.

PREREQUISITE(S):
CO-REQUISITE(S):
EQUIVALENCIES:

COURSE LEARNING OUTCOMES / OBJECTIVES

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

- install and configure network operating systems;
- identify and describe the different server roles;
- describe the operation of server-based networks;
- perform server maintenance;
- configure and manage virtual servers and workstations;
- describe and practice disaster recovery methods for servers;
- perform operations on UNIX file systems, file storage, drives and partitions;
- modify UNIX file attributes and permissions;
- configure access control lists;
- explain basic shell scripts; and
- choose appropriate archive solutions.

REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

(a) Text: Online - TestOut Server Pro 2016: Networking course pack. The information can be accessed through the TestOut (www.testout.com) once the course is purchased.

(b) NDG Linux Essentials hosted through the Cisco Net Academy

(c) Access to ELEX 139 Camosun D2L online course materials as required

COURSE SCHEDULE, TOPICS, AND ASSOCIATED PREPARATION / ACTIVITY / EVALUATION

The following schedule and course components are subject to change with reasonable advance notice, as deemed appropriate by the instructor.

WEEK	ACTIVITY or TOPIC	OTHER NOTES

1	**Week 1** **Reading and Assignment**
	
	0.0 Introduction – Server Pro 2016:Networking Introduction None
	  0.1 Server Overview
	  0.2 Virtual Machines
	  0.3 Lab Configuration	

2	**Week 2** Chapter 1 – TestOut
	
	1.0 DNS
	  1.1 DNS Overview and Installation
	  1.2 DNS Name Resolution
	  1.3 Primary and Secondary DNS Zones
	  1.4 Zone Properties and Auxiliary DNS Zones
	  1.5 DNS Records
	  1.6 DNS Record Management
	  1.7 Single-Label Name Resolution	

WEEK	ACTIVITY or TOPIC	OTHER NOTES
	1.8 DNS Server Properties 1.9 DNS Protection 1.10 DNS Policies 1.11 DNS Monitoring and Troubleshooting	

3	**Week 3**
	
	2.0 TCP/IP Chapter 2 – TestOut
	   2.1 IPv4 Addresses
	   2.2 IPv6 Addresses
	   2.3 IPv4-to-IPv6 Transitional Technologies
	
	      Chapter 3 – TestOut
	3.0 DHCP
	   3.1 Install DHCP
	   3.2 DHCP Scopes
	   3.3 DHCP Options
	   3.4 Advanced Scopes
	   3.5 Centralized DHCP and PXE
	   3.6 DHCP Policies
	   3.7 Advanced DHCP Management
	   3.8 Maintain the DHCP Database
	   3.9 Troubleshoot DHCP	

4	**Week 4**
	
	4.0 IP Address Management (IPAM) Chapter 4 – TestOut
	   4.1 IPAM Installation
	   4.2 IPAM DNS and DHCP
	   4.3 Advanced IPAM Administration and Auditing
	
	5.0 Routing and Remote Access (RRAS) Chapter 5 – TestOut
	   5.1 Routing
	   5.2 Install VPN
	   5.3 VPNs
	   5.4 Connection Profiles
	
	6.0 DirectAccess (DA) Chapter 6 – TestOut
	   6.1 DirectAccess Installation
	   6.2 DirectAccess Troubleshooting	

5	**Week 5** **- Mid Term Exam for Server**
	
	7.0 Network Policy Server (NPS) Chapter 7 – TestOut
	   7.1 Install Network Policy Server (NPS)
	   7.2 NPS Templates
	   7.3 NPS Network Policies
	   7.4 NPS Connection Request Policies
	   7.5 RADIUS Accounting	

WEEK	ACTIVITY or TOPIC	OTHER NOTES
	7.6 Manage NPS Policies	

6	**Week 6**
	
	8.0 Distributed File System (DFS) and BranchCache Chapter 8 – TestOut
	  8.1 Distributed File System (DFS) Namespaces
	  8.2 Configure DFS Replication
	  8.3 Optimize DFS Replication
	  8.4 Manage the DFS Replication Database
	  8.5 BranchCache Installation and Configuration	

7	**Week 7**
	
	10.0 Implement Software-Defined Networking (SDN) Chapter 10 – TestOut
	  10.1 Implement SDN
	  10.2 Implement Hyper-V Network Virtualization (HNV)
	  10.3 Implement Software Load Balancer (SLB)
	  10.4 Implement Windows Server Gateways
	  10.5 Implement Data Center Firewall Policies	

8	**Week 8** **Final Exam for Server**
	
	1.0 Module 1 – Introduction to Linux Module 1/2/3 - Cisco
	
	  1.1 Linux is Everywhere
	  1.2 Linux is a Kernel
	  1.3 Linux is Open Source
	  1.4 Linux Has Distributions
	  1.5 Linux Embraces the CLI
	
	2.0 Module 2 – Operating Systems
	  2.1 Operating Systems
	  2.2 Microsoft Windows
	  2.3 Apple macOS
	  2.4 Linux
	
	3.0 Module 3 – Working in Linux
	  3.1 Navigating the Linux Desktop
	  3.2 Applications
	  3.3 Console Tools
	  3.4 Package Management
	  3.5 Development Languages
	  3.6 Security
	  3.7 The Cloud	

9	**Week 9** Modules 4/5/6 - Cisco	

WEEK	ACTIVITY or TOPIC	OTHER NOTES

	4.0 Module 4 – Open Source Software and Licensing
	    4.1 Introduction
	    4.2 Open Source Licensing
	    4.3 Open Source Business Models
	
	5.0 Module 5 – Command Line Skills
	    5.1 Introduction
	    5.2 Shell
	    5.3 Commands
	    5.4 Variables
	    5.5 Command Types
	    5.6 Quoting
	    5.7 Control Statements
	
	6.0 Module 6 – Getting Help
	    6.1 Introduction
	    6.2 Man Pages
	    6.3 Finding Commands and Documentation
	    6.4 Info Documentation
	    6.5 Additional Sources of Help	

10	<u>**Week 10**</u> Modules 7/8/9 – Cisco
	
	7.0 Module 7 – Navigating the Filesystem
	    7.1 Introduction
	    7.2 Directory Structure
	    7.3 Paths
	    7.4 Listing Files in a Directory
	
	8.0 Module 8 – Managing Files and Directories
	    8.1 Introduction
	    8.2 Globbing
	    8.3 Copying Files
	    8.4 Moving Files
	    8.5 Creating Files
	    8.6 Removing Files
	    8.7 Creating Directories
	
	9.0 Module 9 – Archiving and Compression
	    9.1 Introduction
	    9.2 Compressing files
	    9.3 Archiving Files
	    9.4 ZIP files	

11	<u>**Week 11**</u> **Mid Term Exam for Linux** Modules 10/11 - Cisco **10.0 Module 10 – Working With Text** 10.1 Introduction	

WEEK	ACTIVITY or TOPIC	OTHER NOTES

	10.2 Command Line Pipes
	10.3 Input / Output Redirection
	10.4 Sorting Files or Input
	10.5 Viewing File Statistics
	10.6 Filter File Sections
	10.7 Filter File Contents
	10.8 Basic Regular Expressions
	
	11.0 Module 11 – Basic Scripting
	    11.1 Introduction
	    11.2 Shell Scripts in a Nutshell
	    11.3 Editing Shell Scripts
	    11.4 Scripting Basics	

12	<u>**Week 12**</u> *Complete Module 12 on your own.*
	
	13.0 Module 13 – Where Data is Stored Modules 13/14 - Cisco
	    13.1 Introduction
	    13.2 Processes
	    13.3 Memory
	    13.4 Log Files
	    13.5 Kernel Messages
	    13.6 Filesystem Hierarchy Standard
	14.0 Module 14 – Network Configuration
	    14.1 Introduction
	    14.2 Basic Network Terminology
	    14.3 Networking Features Terminology
	    14.4 IP Addresses
	    14.5 Configuring Network Devices
	    14.6 Network Tools	

13	<u>**Week 13**</u> Modules 15/16 - Cisco
	
	15.0 Module 15 – System and User Security
	    15.1 Introduction
	    15.2 Administrative Accounts
	    15.3 User Accounts
	    15.4 System Accounts
	    15.5 Group Accounts
	    15.6 Viewing User Information
	    15.7 Viewing Current Users
	    15.8 Viewing Login History
	
	16.0 Module 16 – Create Users and Groups
	    16.1 Introduction
	    16.2 Groups
	    16.3 Users	

WEEK	ACTIVITY or TOPIC	OTHER NOTES
14	**Week 14** Modules 17/18 - Cisco **17.0 Module 17 – Ownership and Permissions** 17.1 Introduction 17.2 File Ownership 17.3 Changing Groups 17.4 Changing Group Ownership 17.5 Changing User Ownership 17.6 Permissions 17.7 Understanding Permissions 17.8 Changing Permissions 17.9 Default Permissions **18.0 Module 18 – Special Directories and Files** 18.1 Introduction 18.2 Setuid 18.3 Setgid 18.4 Sticky Bit 18.5 Links **19.0 Review**	
15	**Final Exam for Linux - TBA**	

Students registered with the Centre for Accessible Learning (CAL) who complete quizzes, tests, and exams with academic accommodations have booking procedures and deadlines with CAL where advanced noticed is required. Deadlines can be reviewed on the CAL exams page. http://camosun.ca/services/accessible-learning/exams.html

EVALUATION OF LEARNING

DESCRIPTION		WEIGHTING
Quizzes		5%
D2l Assignments		5%
Completion of Lab Activities		20%
Term Tests (2)		20%
Final Exam		50%
	TOTAL	100%

If you have a concern about a grade you have received for an evaluation, please come and see me as soon as possible. Refer to the Grade Review and Appeals policy for more information.
http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf

COURSE GUIDELINES & EXPECTATIONS

Evaluation for this course will be a combined total of quizzes, course finals, assignments, and lab marks. There is no final exam in this course. Attendance and completion of all material is mandatory to pass the course. Late submissions will be not graded.

Quizzes will be based on current week's material from both seminar and lab content and delivered through D2L.

A Course Final will be completed at the end of each course covering all of the content in each course. There will be no overall final exam covering all of the three courses material.

Completion of Lab Activities will be based on finishing weekly Lab / Packet Tracer exercises and submission of lab reports to the D2L Dropbox by **Sunday 11:59 PM** of the corresponding week – no late labs will be graded.

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. No late materials will be accepted past midnight of the last day of the course.
3. No opportunity will be available to write missed quizzes.
4. Attendance and completion of all lab material is mandatory to pass the course.

SCHOOL OR DEPARTMENTAL INFORMATION

[INSERT TEXT HERE]

STUDENT RESPONSIBILITY

Enrolment at Camosun assumes that the student will become a responsible member of the College community. As such, each student will display a positive work ethic, assist in the preservation of College property, and assume responsibility for their education by researching academic requirements and policies; demonstrating courtesy and respect toward others; and respecting expectations concerning attendance, assignments, deadlines, and appointments.

SUPPORTS AND SERVICES FOR STUDENTS

Camosun College offers a number of services to help you succeed in and out of the classroom. For a detailed overview of the supports and services visit http://camosun.ca/students/.

Support Service	Website
Academic Advising	http://camosun.ca/advising
Accessible Learning	http://camosun.ca/accessible-learning
Counselling	http://camosun.ca/counselling

Support Service	Website
Career Services	http://camosun.ca/coop
Financial Aid and Awards	http://camosun.ca/financialaid
Help Centres (Math/English/Science)	http://camosun.ca/help-centres
Indigenous Student Support	http://camosun.ca/indigenous
International Student Support	http://camosun.ca/international/
Learning Skills	http://camosun.ca/learningskills
Library	http://camosun.ca/services/library/
Office of Student Support	http://camosun.ca/oss
Ombudsperson	http://camosun.ca/ombuds
Registration	http://camosun.ca/registration
Technology Support	http://camosun.ca/its
Writing Centre	http://camosun.ca/writing-centre

If you have a mental health concern, please contact Counselling to arrange an appointment as soon as possible. Counselling sessions are available at both campuses during business hours. If you need urgent support after-hours, please contact the Vancouver Island Crisis Line at 1-888-494-3888 or call 911.

COLLEGE-WIDE POLICIES, PROCEDURES, REQUIREMENTS, AND STANDARDS

Academic Integrity

Students are expected to comply with all College policy regarding academic integrity; which is about honest and ethical behaviour in your education journey. The following guide is designed to help you understand your responsibilities: https://camosun.libguides.com/academicintegrity/welcome

Please visit http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.13.pdf for Camosun's Academic Integrity policy and details for addressing and resolving matters of academic misconduct.

Academic Accommodations for Students with Disabilities

The College is committed to providing appropriate and reasonable academic accommodations to students with disabilities (i.e. physical, depression, learning, etc.). If you have a disability, the Centre for Accessible Learning (CAL) can help you document your needs, and where disability-related barriers to access in your courses exist, create an accommodation plan. By making a plan through CAL, you can ensure you have the appropriate academic accommodations you need without disclosing your diagnosis or condition to course instructors. Please visit the CAL website for contacts and to learn how to get started:

http://camosun.ca/services/accessible-learning/

Academic Progress

Please visit https://www.camosun.ca/sites/default/files/2021-05/e-1.1_0.pdf for further details on how Camosun College monitors students' academic progress and what steps can be taken if a student is at risk of not meeting the College's academic progress standards.

Course Withdrawals Policy

Please visit http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.2.pdf for further details about course withdrawals. For deadline for fees, course drop dates, and tuition refund, please visit http://camosun.ca/learn/fees/#deadlines.

Grading Policy

Please visit http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf for further details about grading.

Grade Review and Appeals

Please visit http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf for policy relating to requests for review and appeal of grades.

Mandatory Attendance for First Class Meeting of Each Course

Camosun College requires mandatory attendance for the first class meeting of each course. If you do not attend, and do not provide your instructor with a reasonable reason in advance, you will be removed from the course and the space offered to the next waitlisted student. For more information, please see the "Attendance" section under "Registration Policies and Procedures" (https://camosun.ca/registration-records/policies-and-procedures-students/registration-policies-students) and the Grading Policy at http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf.

Medical / Compassionate Withdrawals

Students who are incapacitated and unable to complete or succeed in their studies by virtue of serious and demonstrated exceptional circumstances may be eligible for a medical/compassionate withdrawal. Please visit http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.8.pdf to learn more about the process involved in a medical/compassionate withdrawal.

Sexual Violence and Misconduct

Camosun is committed to creating a campus culture of safety, respect, and consent. Camosun's Office of Student Support is responsible for offering support to students impacted by sexual violence. Regardless of when or where the sexual violence or misconduct occurred, students can access support at Camosun. The Office of Student Support will make sure students have a safe and private place to talk and will help them understand what supports are available and their options for next steps. The Office of Student Support respects a student's right to choose what is right for them. For more information see Camosun's Sexualized Violence and Misconduct Policy: http://www.camosun.ca/sites/default/files/2021-05/e-2.9.pdf and camosun.ca/sexual-violence. To contact the Office of Student Support: oss@camosun.ca or by phone: 250-370-3046 or 250-370-3841

Camosun College is committed to building the academic competency of all students, seeks to empower students to become agents of their own learning, and promotes academic belonging for everyone. Camosun also expects that all students to conduct themselves in a manner that contributes to a positive, supportive, and safe learning environment. Please review Camosun College's Student Misconduct Policy at http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.5.pdf to understand the College's expectations of academic integrity and student behavioural conduct.

Looking for other policies?

The full suite of College policies and directives can be found here: https://camosun.ca/about/camosun-college-policies-and-directives

Changes to this Syllabus: Every effort has been made to ensure that information in this syllabus is accurate at the time of publication. The College reserves the right to change courses if it becomes necessary so that course content remains relevant. In such cases, the instructor will give the students clear and timely notice of the changes.