



# COURSE OUTLINE

## CSO104

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Prepared: D. Kachur Approved: C. Meunier

<b>Course Code: Title</b>	CSO104: INTRODUCTION TO OPERATING SYSTEMS & LAN
<b>Program Number: Name</b>	2090: COMPUTER PROGRAMMER
<b>Department:</b>	COMPUTER STUDIES
<b>Semester/Term:</b>	17F
<b>Course Description:</b>	<p>This course will introduce students to the use of client and server Operating systems. The first portion of this course is dedicated to familiarizing students with Sault College's computing infrastructure regarding security, terms-of-use policies, quotas and login/logout procedures. Students will then install and configure their own personal copy of Microsoft Windows 10 Professional. The topic of Network Operating Systems is then introduced of which students will install and configure Windows Server 2016, whereas gaining practical hands-on skills in installation, administration, file permissions, firewalls, DNS Server (Domain Name Service) and Network Printing services. Microsoft Windows 2016 Server and Windows 10 will be the primary learning software operating systems used.</p>
<b>Total Credits:</b>	5
<b>Hours/Week:</b>	4
<b>Total Hours:</b>	60
<b>This course is a pre-requisite for:</b>	CSO102, CST104
<b>Vocational Learning Outcomes (VLO's):</b>	<p>#1. Use documented solutions to troubleshoot problems associated with software installation and customization.</p> <p>#4. Apply knowledge of networking concepts to develop, deploy, and maintain program code.</p> <p>#8. Conform to workplace expectations found in information technology (IT) environments.</p>
<b>Essential Employability Skills (EES):</b>	<p>#1. Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience.</p> <p>#2. Respond to written, spoken, or visual messages in a manner that ensures effective communication.</p> <p>#4. Apply a systematic approach to solve problems.</p> <p>#5. Use a variety of thinking skills to anticipate and solve problems.</p> <p>#6. Locate, select, organize, and document information using appropriate technology and information systems.</p>



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#7. Analyze, evaluate, and apply relevant information from a variety of sources.

### Course Evaluation:

Passing Grade: 50%, D

### Other Course Evaluation & Assessment Requirements:

A+ = 90-100%  
A = 80-89%  
B = 70-79%  
C = 60-69%  
D = 50-59%  
F < 50%

### Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Assignments	30%
Attendance	10%
Tests	60%

### Course Outcomes and Learning Objectives:

## Course Outcome 1.

1.) Work with Sault College's Network and the Internet

## Learning Objectives 1.

- 1.1 Read and abide by Sault College's policy on computer usage:
- 1.2 Understand and effectively use the Sault College lab and data environment:
- 1.3 Map to AIT, and Student Data Files
- 1.4 Demonstrate the purpose of, utilization, and manipulation of folders (or directories), sub-folders or sub-directories, absolute and explicit paths:
- 1.5 Explore fundamental Internet concepts and protocols:
- 1.6 Work with Internet browser software application(s):
- 1.7 Describe the purpose and components of URLs:
- 1.8 Identify common web sites and utilities: Google Apps, Gmail, Facebook, Chrome, etc.
- 1.9 Identify and use Search Engines effectively:
- 1.10 Work with File Transfer Protocol in the GUI and CLI environment:
- 1.11 Use FileZilla to apply FTP
- 1.12 Identify email protocols:
- 1.13 Send, receive, reply, forward and copy e-mail
- 1.14 Send, receive, forward and copy e-mail attachments



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- 1.15 Apply CC and BCC e-mail addressing
- 1.16 Describe the purpose of a listserv
- 1.17 Use Web Mail
- 1.18 Organize email folders
- 1.19 Incorporate email constructs such as distribution lists, calendar entries and signatures
- 1.20 Demonstrate fundamental concepts related to Internet

### Course Outcome 2.

- 2.) Define and apply Operating System theories and concepts

### Learning Objectives 2.

- 2.1 Document the component pieces of a computer system and the operating system's relevant roles and responsibilities
- 2.2 Describe the significance of the binary representation of bits, bytes, and words.
- 2.3 Understand the significance of the ascii, ebcdic, and Unicode character set representation
- 2.4 Diagram the concepts of kernel, shell, process, program execution, input / output operations, communications, error detection, and memory management
- 2.5 Differentiate between the following: 32 bit vs 64 bit system, Windows OS vs Unix OS:
- 2.6 Diagram concepts such as preemptive multitasking, virtual memory, and virtual machine:
- 2.7 Explore the fundamentals of secondary storage covering: disks, sectors, tracks, cylinders, platters, partitions, the master boot record, and the boot process:

### Course Outcome 3.

- 3.) Utilize Microsoft Windows 10

### Learning Objectives 3.

- 3.1 Document the history of Windows operating systems
- 3.2 Identify and utilize Windows desktop components
- 3.3 Identify the component parts of a Window and their purpose
- 3.4 Utilize the on-line Help features availed by the GUI
- 3.5 Identify and apply proper shutdown and log-off procedures
- 3.6 Create shortcuts on the desktop
- 3.7 Define Windows file naming conventions



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- 3.8 Differentiate between various file types: system, data and executable
- 3.9 Copy, move, edit and delete files using My Computer, Windows Explorer, and cut, copy, paste techniques
- 3.10 Explore the role and use of the Recycle Bin.
- 3.11 View and modify file and folder attributes
- 3.12 Identify and utilize available disk drives
- 3.13 Identify and differentiate between various file systems used by Windows - FAT and NTFS
- 3.14 Differentiate between system, non-system, and recovery disks
- 3.15 Develop effective use of Windows Search capabilities
- 3.16 Develop contextual awareness of the purpose of the Windows Registry
- 3.17 Develop awareness for the purpose of a Restore Point
- 3.18 Develop awareness of Windows memory allocation and utilization
- 3.19 Differentiate between Internal and External commands, and the concept of Path to locate external commands
- 3.20 Apply the concept of Multi-tasking in Windows
- 3.21 Access and utilize the Command Line interface

### Course Outcome 4.

- 4.) Introduction To Network Operating Systems

### Learning Objectives 4.

- 4.1 Describe the structure of a Network Operating System environment
- 4.2 Identify the major Network Operating Systems in the workplace
- 4.3 Compare certifications of each Network Operating System
- 4.4 Compare pricing, support, and past / current / future market share
- 4.5 Contrast the difference between Peer-LAN and Client / Server
- 4.6 Identify the versions Microsoft Windows 2016 Server software
- 4.7 Diagram Domain modeling with introduction to Domain Controllers, Trees and Forests

### Course Outcome 5.

- 5.) Install and configure a Windows Network Server

### Learning Objectives 5.





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- 5.1 Download Windows 2016 Server source files
- 5.2 Create a Virtual machine and virtual image
- 5.3 Identify the startup location and executable file for the Server install
- 5.4 Differentiate between Standalone, Member Server or Domain Controller
- 5.5 Contrast Computer Name, Domain Name, and DNS Naming structure
- 5.6 Install a Windows Server on your Virtual Machine
- 5.7 Login to 2016 Server and create a backup Administrator account
- 5.8 Configure TCP/IP to access the network and Internet
- 5.9 Lockdown Windows 2016 Server using a Firewall, Anti-Virus and Service Pack updates
- 5.10 Install a DNS Server in preparation for Network Name Resolution
- 5.11 Configure DNS and WINS for 'User' and 'Computer' locating on the Network
- 5.12 Create 'Hosts' and 'lmhost' files for Name Resolution

### Course Outcome 6.

Administer a Windows 2016 Server (Users and Groups)

### Learning Objectives 6.

- 6.1 Explore Administrative Tools
- 6.2 Work with Active Directory in preparation for a Domain-Based install
- 6.3 Install Active Directory and convert to a Domain Controller
- 6.4 Work with 'Active Directory Users and Computers' tool
- 6.5 Create User Accounts
- 6.6 Create Domain Local Groups
- 6.7 Add Users to Groups

### Course Outcome 7.

7.) Administer Windows 2016 Server (Shares, Folders and Files)

### Learning Objectives 7.

- 7.1 Explore Share Level Permissions
- 7.2 Contrast NTFS vs FAT in a Windows 2016 Server environment
- 7.3 Apply and test Shares / Folders and File Permissions in an NTFS-based environment using hands-on business lab examples



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### **Course Outcome 8.**

8.) Implement Group Policy

### **Learning Objectives 8.**

- 8.1 Compare Policies VS Profiles
- 8.2 Contrast Local and Group policies
- 8.3 Work with the Window Domain and Domain Controller Group Policies
- 8.4 Learn the hierarchy of Policy ordering and execution
- 8.5 Contrast then create Local and Roaming profiles
- 8.6 Understand the flow of Roaming profiles
- 8.7 Implement Group Policies to restrict user accessibility on the Network
- 8.8 Map drives and re-direct folders using Group Policy

### **Course Outcome 9.**

9.) Manage Printing Services

### **Learning Objectives 9.**

- 9.1 Install, configure and secure Printing Services for Windows 2016 Server
- 9.2 Install and share a Network-based Printer
- 9.3 Test printing services for both Server and Client

### **Course Outcome 10.**

10.) Create Backup Strategies and Disaster Recovery Plans

### **Learning Objectives 10.**

- 10.1 Apply various backup methods and schedules
- 10.2 Work with file 'Archive' bit for backups and restores
- 10.3 Perform Volume backups



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10.4 Research Storage Area Networks

10.5 Document off-site backups and data backup integrity testing

**Date:**

Friday, September 1, 2017

Please refer to the course outline addendum on the Learning Management System for further information.