COURSE OUTLINE: CSO104 - INTRO OS/LAN ADMIN

Prepared: D. Kachur
Approved: Corey Meunier, Chair, Technology and Skilled Trades

Course Code: Title	CSO104: INTRODUCTION TO OPERATING SYSTEMS & LAN
Program Number: Name	2090: COMPUTER PROGRAMMER
Department:	COMPUTER STUDIES
Semesters/Terms:	20F
Course Description:	This course will introduce students to the use of client and server Operating systems. The first portion of this course is dedicated to bringing awareness to students the various types of operating systems, purposes and capabilities. Students will configure, secure and performance-tune a Microsoft Windows 10 Operating System. The topic of Network Operating Systems is then introduced of which students will install and configure a Windows Server, whereas gaining practical hands-on skills in installation, administration, file permissions, firewalls, DNS Server (Domain Name Service) and Network Printing services. Microsoft Windows Server and Windows 10 will be the primary learning software operating systems used.
Total Credits:	5
Hours/Week:	4
Total Hours:	60
Prerequisites:	There are no pre-requisites for this course.
Corequisites:	There are no co-requisites for this course.
This course is a pre-requisite for:	CSO102, CST104
Vocational Learning Outcomes (VLO's) addressed in this course: Please refer to program web page for a complete listing of program outcomes where applicable.	**2090 - COMPUTER PROGRAMMER** VLO 2 Contribute to the diagnostics, troubleshooting, documenting and monitoring of technical problems using appropriate methodologies and tools. VLO 3 Implement and maintain secure computing environments.
Essential Employability Skills (EES) addressed in this course:	EES 1 Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience. EES 2 Respond to written, spoken, or visual messages in a manner that ensures effective communication. EES 4 Apply a systematic approach to solve problems. EES 5 Use a variety of thinking skills to anticipate and solve problems. EES 6 Locate, select, organize, and document information using appropriate technology and information systems. EES 7 Analyze, evaluate, and apply relevant information from a variety of sources.
Course Evaluation:	Passing Grade: 50%, D

In response to public health requirements pertaining to the COVID19 pandemic, course delivery and assessment traditionally delivered in-class, may occur remotely either in whole or in part in the 2020-2021 academic year.

SAULT COLLEGE | 443 NORTHERN AVENUE | SAULT STE. MARIE, ON P6B 4J3, CANADA | 705-759-2554

	A minimum program GPA of 2.0 or higher where program specific standards exist is required for graduation.
Other Course Evaluation & Assessment Requirements:	A+ = 90-100% A = 80-89% B = 70-79% C = 60-69% D = 50-59% F < 50% Students are expected to be present to write all tests in class. If a student is unable to write a test due to illness or a legitimate emergency, that student must contact the professor prior to class and provide reasoning, which is acceptable to the professor. Should the student fail to contact the professor, the student shall receive a grade of zero on the test. Once the test has commenced, the student is considered absent and will not be given the privilege of writing the test. Students caught cheating during a test will receive an automatic zero. Please refer to the College Academic Dishonesty Policy for further information. In order to qualify to write a missed test, the student shall have: a) attended at least 80% of the classes. b) provided the professor an acceptable explanation for his/her absence. c) been granted permission by the professor. NOTE: The missed test that has met the criteria above will be an end-of-semester test. Academic success is directly linked to attendance. Missing more than 1/3 of the course hours in a semester may result in an `F` grade for the course. Labs and Assignments are due on the due-date indicated by the Professor. Notice by the professor will be written on the lab or verbally announced in the class and / or both. No late labs will be accepted beyond the due date. Once labs / assignments have been marked by the professor and returned to the student, no new labs / assignments will be accepted. It is the responsibility of the student who has missed a class to contact the professor immediately to obtain the lab / assignment that is due at a future date. Students are responsible for doing their own work. Labs / assignments that are handed in and are deemed identical in content and personal wording to others may constitute academic dishonesty and result in a zero grade. The total overall average of test scores combined must be 50% or higher in order to qualify to pass this course. In addition, combined tests, Labs / Assignments total grade must be 50% or higher.
Books and Required Resources:	USB Hard Drive is Required for this Course by For In-Class Students Only: USB Removable HDD 1 TB or larger Students taking this course online, will not require a USB Hard Drive by On-line students will NOT require the USB Hard Drive
Course Outcomes and Learning Objectives:	**Course Outcome 1** **Learning Objectives for Course Outcome 1**

SAULT COLLEGE | 443 NORTHERN AVENUE | SAULT STE. MARIE, ON P6B 4J3, CANADA | 705-759-2554

	1. Apply communication, network and internet skills to access and use course resources	1.1 Read and abide by Sault College`s policy on computer usage 1.2 Apply hands-on skills accessing and using The Learning Management System and MS-Teams 1.3 Incorporate office outook constructs such as email, calendaring, scheduling, message rules, recalls and signatures
	Course Outcome 2	**Learning Objectives for Course Outcome 2**
	2. Define and apply Operating System theories and concepts	2.1 Define what Operating Systems are 2.2 Identify the major Operating Systems used world-wide 2.3 Explain the role of Multi-Tasking Operating Systems 2.4 Explain software versions, patches and security issues related to various operating system types 2.5 Document the component pieces of a computer system and the operating system`s relevant roles and responsibilities 2.6 Describe the significance of the binary representation of bits, bytes, and words. 2.7 Understand the significance of the ascii, ebcdic, and Unicode character set representation 2.8 Diagram the concepts of kernel, shell, process, program execution, input / output operations, communications, error detection, and memory management 2.9 Differentiate between the following: 32 bit vs 64 bit system, Windows OS vs Unix OS: 2.10 Diagram concepts such as preemptive multitasking, virtual memory, and virtual machine: 2.11 Explore the fundamentals of secondary storage covering: disks, sectors, tracks, cylinders, platters, partitions, the master boot record, and the boot process:
	Course Outcome 3	**Learning Objectives for Course Outcome 3**
	3. Utilize Microsoft Windows 10	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 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

In response to public health requirements pertaining to the COVID19 pandemic, course delivery and assessment traditionally delivered in-class, may occur remotely either in whole or in part in the 2020-2021 academic year.

SAULT COLLEGE | 443 NORTHERN AVENUE | SAULT STE. MARIE, ON P6B 4J3, CANADA | 705-759-2554

	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	**Learning Objectives for Course Outcome 4**
4. Introduction To Network Operating Systems	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 Server software 4.7 Diagram Domain modeling with introduction to Domain Controllers, Trees and Forests
Course Outcome 5	**Learning Objectives for Course Outcome 5**
5. Install and configure a Windows Network Server	5.1 Create, then access an online Virtual OS account 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 Review the default Windows Server security settings, Firewall, Anti-Virus and Service Pack updates 5.10 Install a DNS Server in preparation for Network Name Resolution
Course Outcome 6	**Learning Objectives for Course Outcome 6**
6. Administer a Windows Server (Users and Groups)	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	**Learning Objectives for Course Outcome 7**
7. Administer a Windows	7.1 Explore Share Level Permissions

SAULT COLLEGE | 443 NORTHERN AVENUE | SAULT STE. MARIE, ON P6B 4J3, CANADA | 705-759-2554

	Server (Shares, Folders and Files)	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
	Course Outcome 8	**Learning Objectives for Course Outcome 8**
	8. Implement Group Policy	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	**Learning Objectives for Course Outcome 9**
	9. Create Backup Strategies and Disaster Recovery Plans	9.1 Apply various backup methods and schedules 9.2 Work with the File Archive bit for backups and restores 9.3 Perform Volume backups 9.4 Research Storage Area Networks 9.5 Document off-site backups and data backup integrity testing

Evaluation Process and Grading System:		
	Evaluation Type	**Evaluation Weight**
	Assignments	40%
	Tests & Quizzes	60%

Date:	July 6, 2020
Addendum:	Please refer to the course outline addendum on the Learning Management System for further information.

SAULT COLLEGE | 443 NORTHERN AVENUE | SAULT STE. MARIE, ON P6B 4J3, CANADA | 705-759-2554