SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

CICE COURSE OUTLINE

COURSE TITLE: Computer Hardware and Networking

CODE NO. : CST104 **SEMESTER:** Winter
MODIFIED CODE: CST0104

PROGRAM: Computer Programmer

AUTHOR: Mark Allemang
MODIFIED BY: Amanda Burns, Learning Specialist CICE Program

DATE: Jan. 2014 **PREVIOUS OUTLINE DATED:** Jan. 2013

APPROVED: "Angelique Lemay" Jan. 2014

_____ _____
Dean, School of Community Services and Interdisciplinary Studies **DATE**

TOTAL CREDITS: 5

PREREQUISITE(S): CSO0104

HOURS/WEEK: 4

I. COURSE DESCRIPTION:

This course provides a comprehensive overview of computer hardware, software and networking fundamentals. CICE students, with assistance from a learning specialist, will be able to describe the basic internal components of a computer, assist in the following: assembly of a computer system, installation of an operating system and performance of practical exercises in network cable installation, planning, terminating and testing. This course also includes the study of network media, Ethernet technologies, routing and bridging techniques and network devices.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the CICE student along with the assistance of a Learning Specialist, will demonstrate the basic ability to:

1. **Basically identify and describe the basic function of all major components found inside a typical computer.**

   Potential Elements of the Performance:

   - Identify and describe the uses of various PC cases and power supplies
   - Basically describe the nature of electricity and power including ohms law.
   - Identify PC ports and cables
   - Identify various input/output devices and motherboard components
   - Basically explain system resources and their purpose
   - Basically assemble and disassemble computers

   This outcome constitutes approximately 20% of the course.

2. **Connect and configure various peripheral devices**

   Potential Elements of the Performance:

   - Basically describe the nature of various types of devices such as printers, scanners, cameras, mobile devices.
   - Identify the various interface types used with these devices such as USB, Fire Wire Bluetooth, WIFI, RS232.
   - Basically configure the devices and their interfaces

   This outcome constitutes approximately 15% of the course.

3. **Connect and configure mobile devices**

Potential Elements of the Performance:

- Basically describe the nature of a typical mobile device such as a smartphone or tablet.
- Configure the device to function in a networked environment
- Configure a basic development environment and develop an app for the device.

This outcome constitutes approximately 10% of the course.

4. Basically **describe network principles, standards and purposes and build a network.**

Potential Elements of the Performance:

- Basically explain the principles of networking and the various types of networks
- Identify standards organizations and describe the OSI and the TCP/IP model for networks
- Basically describe LAN topologies and architectures
- Identify Ethernet standards and construct an Ethernet cable
- Basically compare and contrast Enterprise vs small wireless network standards
- Basically utilize various network devices such as NIC, switch, router, wireless access point, media to build a network and share resources across the network
- Basically utilize various software tools to test and troubleshoot networks.

This outcome constitutes approximately 35% of the course.

5. **Basically explain the importance of security and describe the techniques used to secure data**

Potential Elements of the Performance:

- Basically describe various security threats and how to mitigate them
- Basically describe the concept of Encryption and symmetric (shared secret) vs Asymmetric (public/private key) encryption and how it can be used to secure data transfer
- Basically describe how a firewall is used to secure a network

- Explore other topics in security such as digital signatures and VPNs.

This outcome constitutes approximately 10% of the course.

6. **Basically describe the nature of cloud computing and the various methods used to implement it**

Potential Elements of the Performance:

- Basically describe the meaning of software as a service, platform as a service and Infrastructure as a service.
- Given a particular computing requirement, basically recommend the appropriate solution
- Work within a cloud environment such as Google Drive/apps or Microsoft Skydrive.

This outcome constitutes approximately 10% of the course.

III. TOPICS:

1. Computer hardware and system software
2. Peripheral Devices
3. Mobile Devices
4. Networking Essentials
5. Network, system and communication security.
6. Cloud Computing

IV. REQUIRED RESOURCES / TEXTS / MATERIALS:

All curriculum is provided for the student via LMS and or Internet references. The student will need a blank USB storage device (4Gig minimum).

V. EVALUATION PROCESS/GRADING SYSTEM:

Evaluation Methods	Weight
Tests	50%
Lab Assignments	50%

The professor reserves the right to adjust the mark up or down based on attendance, participation, leadership, creativity and whether there is an improving trend.

- Students must complete and pass both the test and lab portion of the course in order to pass the entire course.
- All Assignments must be completed satisfactorily to complete the course.
- Makeup Tests are at the discretion of the instructor and will be assigned a maximum grade of 50%.
- The professor reserves the right to adjust the number of tests, practical tests and quizzes based on unforeseen circumstances. The students will be given sufficient notice to any changes and the reasons thereof.
- A student who is absent for 3 or more times without any valid reason or effort to resolve the problem will result in action taken.

NOTE: If action is to be taken, it will range from marks being deducted to a maximum of removal from the course.

Attendance:

Absenteeism will affect a student's ability to succeed in this course. Absences due to medical or other unavoidable circumstances should be discussed with the professor. Students are required to be in class on time a attendance will be taken within the first five minutes of class. A missed clas result in a penalty in your marks unless you have discussed your absence v the professor as described above. The penalty depends on course hours a will be applied as follows:

Course Hours	Deduction
5 hrs/week (75 hrs)	1% per hour
4 hrs/week (60 hrs)	1.5% per hour
3 hrs/week (45 hrs)	2% per hour
2 hrs/week (30 hrs)	3% per hour

Absentee reports will be discussed with each student during regular meetin with Faculty Mentors. Final penalties will be reviewed by the professor and be at the discretion of the professor.

The following semester grades will be assigned to students:

Grade	**Definition**	***Grade Point Equivalent***
A+	90 – 100%	4.00

A	80 – 89%	
B	70 - 79%	3.00
C	60 - 69%	2.00
D	50 – 59%	1.00
F (Fail)	49% and below	0.00

CR (Credit)	Credit for diploma requirements has been awarded.
S	Satisfactory achievement in field /clinical placement or non-graded subject area.
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.
NR	Grade not reported to Registrar's office.
W	Student has withdrawn from the course without academic penalty.

VI. SPECIAL NOTES:

Upgrading of Incompletes:
When a student's course work is incomplete or final grade is below 50%, there is the possibility of upgrading to a pass when a student meets all of the following criteria:

1. The student’s attendance has been good.
2. An overall average of at least 45% has been achieved by semester’s end.
3. The student has made reasonable efforts to participate in class and maintain the recommended schedule for assigned activities.

The nature of the upgrading requirements will be determined by the instructor and may involve re-testing and/or additional lab assignments

VII. COURSE OUTLINE ADDENDUM:

The provisions contained in the addendum located on the portal form part of this course outline.

Addendum:

Further modifications may be required as needed as the semester progresses based on individual student(s) abilities and agreed upon by the instructor.

CICE Modifications:

Preparation and Participation

1. A Learning Specialist will attend class with the student(s) to assist with inclusion in the class and to take notes.
2. Students will receive support in and outside of the classroom (i.e. tutoring, assistance with homework and assignments, preparation for exams, tests and quizzes.)
3. Study notes will be geared to test content and style which will match with modified learning outcomes.
4. Although the Learning Specialist may not attend all classes with the student(s), support will always be available. When the Learning Specialist does attend classes he/she will remain as inconspicuous as possible.

A. Tests may be modified in the following ways:

1. Tests, which require essay answers, may be modified to short answers.
2. Short answer questions may be changed to multiple choice or the question may be simplified so the answer will reflect a basic understanding.
3. Tests, which use fill in the blank format, may be modified to include a few choices for each question, or a list of choices for all questions. This will allow the student to match or use visual clues.
4. Tests in the T/F or multiple choice format may be modified by rewording or clarifying statements into layman's or simplified terms. Multiple choice questions may have a reduced number of choices.

B. Tests will be written in CICE office with assistance from a Learning Specialist.

The Learning Specialist may:

1. Read the test question to the student.
2. Paraphrase the test question without revealing any key words or definitions.
3. Transcribe the student's verbal answer.
4. Test length may be reduced and time allowed to complete test may be increased.

C. Assignments may be modified in the following ways:

1. Assignments may be modified by reducing the amount of information required while maintaining general concepts.
2. Some assignments may be eliminated depending on the number of assignments required in the particular course.

The Learning Specialist may:

1. Use a question/answer format instead of essay/research format
2. Propose a reduction in the number of references required for an assignment
3. Assist with groups to ensure that student comprehends his/her role within the group
4. Require an extension on due dates due to the fact that some students may require additional time to process information
5. Formally summarize articles and assigned readings to isolate main points for the student
6. Use questioning techniques and paraphrasing to assist in student comprehension of an assignment

D. Evaluation:

Is reflective of modified learning outcomes.