

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: SYSTEM INTEGRATION AND MAINTENANCE

Code No.: CST201

Semester: 43

Program: COMPUTER ENGINEERING TECHNOLOGY
COMPUTER NETWORK TECHNOLOGY
COMPUTER SYSTEM SUPPORT TECHNOLOGY

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Date: January 1997 **Previous Outline Dated:** _____

Approved: 
Dean


Date

Total Credits: 4

Prerequisites: CST101

Length of Course: 4 Hours/Week **Total Credit Hours:** 75

I. COURSE DESCRIPTION:

This course develops PC system configuration and troubleshooting skills. A variety of peripherals such as hard drives, monitors, printers, sound cards and CD-ROM drives will be studied in addition to the issues involved in integrating and configuring hardware and software system components.

LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

A. Learning outcomes:

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

- 1) Install and configure peripheral devices including: Sound Boards, CDROMS, ~~DUAL~~ Hard drives, scanner and network cards.
- 2) Troubleshoot and repair PC system faults and configuration problems.
- 3) Analyze system performance, describe factors that can affect performance and recommend the level of system components in order to satisfy a particular performance requirement.
- 4) Describe the operation of a VGA Video Monitor at the block diagram level and identify symptoms of failure of the various blocks.
- 5) Demonstrate the ability to plan and implement a PC Maintenance strategy including such items as planning backups and using a logbook.
- 6) Describe the typical features and maintenance issues associated with Laptop/Notebook type computers.
- 7) Maintain various types of printers including Laser, Ink Jet and Dot Matrix.
- 8) Utilize the Internet as a resource for PC maintenance information.

B. Learning Outcomes and Elements of the Performance:

Upon successful completion of this course the student will demonstrate the ability to:

- 1) *Install and configure peripheral devices including: Sound Boards, CDROMS, DUAL Hard drives, scanner and network cards.*

Elements of the Performance:

- Install and configure a sound board hardware and software drivers and do so minimizing the amount of conventional memory that is used.
- Install and configure a CDROM and driver software. Differentiate between IDE-ATAPI type and Proprietary Panasonic types.
- Install a 2nd IDE hard drive and configure it as SLAVE.
- Install a Hand Scanner, interface board and software. Demonstrate and describe the use of the accompanying OCR software.
- Install an Ethernet network card driver and Netware workstation software. Connect the workstation to the college network.

This learning outcome will constitute approximately 25% of the course.

- 2) *Troubleshoot and repair PC system faults and configuration problems.*

Elements of the Performance:

- given a set of system fault symptoms, suggest appropriate troubleshooting steps that should be followed in order to solve the problem
- given a non functioning system and some spare parts, troubleshoot and repair the system
- Utilize system diagnostic tools to aid in PC Maintenance.

This learning outcome will constitute approximately 25% of the course.

- 3) *Analyze system performance, describe factors that can affect performance and recommend the level of system components in order to satisfy a particular performance requirement.*

Elements of the Performance:

- Describe the features of a system (processor, bus, disk, video, ram etc) that can affect system performance

- Utilize a performance analysis utility to determine the relative performance of the various subsystems of a computer
- Recommend the type of system and subsystems to use for a particular type of application such as for a CAD station or Fileserver
- Perform a system upgrade by replacing the motherboard with the next level of motherboard technology.

This learning outcome will constitute approximately 10% of the course.

- 4) *Describe the operation of a VGA Video Monitor at the block diagram level and identify symptoms of failure of the various blocks.*

Elements of the Performance:

- sketch and describe the block diagram of a VGA Video Monitor
- suggest potential areas of failure given a particular symptom
- identify the various subsystems inside a video monitor

This learning outcome will constitute approximately 10% of the course.

- 5) *Demonstrate the ability to plan and implement a PC Maintenance strategy including such items as planning BACKUPS and using a LOGBOOK.*

Elements of the Performance:

- set-up a Computer System logbook and describe its purpose
- describe an appropriate disaster recovery strategy given a particular computer system application

This learning outcome will constitute approximately 5% of the course.

- 6) *Describe the typical features and maintenance issues associated with Laptop/Notebook type computers.*

Elements of the Performance:

- describe the type and features of laptop display technology

- describe the types of I/O ports found on laptop computers
- describe the purpose of a docking station

This learning outcome will constitute approximately 5% of the course.

7) *Maintain various types of printers including Laser, Ink Jet and Dot Matrix.*

Elements of the Performance:

- identify the typical maintenance requirements for each of the above printers
- describe the operation at a block diagram level of each of the above printers

This learning outcome will constitute approximately 10% of the course.

8) *Utilize the Internet as a resource for PC maintenance information.*

Elements of the Performance:

- identify sites that specialize in PC Maintenance
- locate a USENET thread where a problem is identified and a solution is suggested regarding a PC Maintenance problem

This learning outcome will constitute approximately 10% of the course.

III. TOPICS TO BE COVERED:

1. Peripheral Devices
2. Troubleshooting
3. System Performance
4. Video Monitor Operations
5. PC Maintenance Strategy
6. Laptops/Notebooks

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- 7. Printers
- 8. Internet resources for PC Maintenance

IV. REQUIRED STUDENT RESOURCES/TEXTS:

TEXT BOOK:

“Upgrading and Repairing PCs” (5th Edition)
by Scott Mueller, Que Publishing

V. EVALUATION PROCESS/GRADING SYSTEM:

3 WRITTEN TESTS	60%
LAB PROJECTS/ASSIGNMENTS	30%
QUIZZES	5%
LAB ATTENDANCE	5%

(The percentages shown above may vary slightly if circumstances warrant.)

NOTE: *It is required to pass both the theory and the lab part of this course. For example, it is not possible to pass the course if a student has a failing average in the three written tests but is passing the lab portion, (or vice versa).*

GRADING SYSTEM

A+	90	-	100%
A	80	-	89%
B	70	-	79%
C	55	-	69%
R	Repeat Less than 55%		

UPGRADING OF INCOMPLETES

When a student's course work is incomplete or final grade is below 55%, 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 satisfactory.
2. An overall average of at least 45% has been achieved.
3. The student has not had a failing grade in all of the theory tests taken.
4. The student has made reasonable efforts to participate in class and complete assignments.

The nature of the upgrading requirements will be determined by the instructor and may involve one or more of the following: completion of existing labs and assignments, completion of additional assignments, re-testing on individual parts of the course or a comprehensive test on the entire course.

LABS:

Lab activities represent a very important component of this course. Because of this, **attendance is mandatory** and the satisfactory completion of all lab activities is required. *It is the student's responsibility to discuss absences from regularly scheduled labs with the instructor so that alternate arrangements (where possible) can be made to complete the lab requirements.*

LAB REPORTS

Required lab report requirements will be detailed before labs are assigned.

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 instructor.

VI. SPECIAL NOTES:

• Special Needs

Students with special needs (eg. physical limitations, visual or hearing impairments, or learning disabilities) are encouraged to discuss any required accommodations confidentially with the instructor and/or contact the Special Needs Office so that support services can be arranged.

- **Retention of Course Outlines**

It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other post-secondary institutions.

- **Course Modifications**

Your instructor reserves the right to make reasonable modifications to the course as deemed necessary to meet the needs of students or take advantage of new or different learning opportunities.

VII. PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced standing in the course should consult the instructor. This course is not eligible for challenge at the present time.