SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: COMPUTER SYSTEM MAINTENANCE

Code No.:   CET209-3   Semester: ~~3~~ 4

             PROGRAMMER ANALYST
Program: COMPUTER ~~ENGINEERING TECHNOLOGY~~

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APPROVED: _L.P. Orozutt_____   _91/08/18_
                    Dean   Date

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TOTAL CREDIT HOURS: 48

PREREQUISITES: ELN107

                             CET228 is recommended as a co-requisite.

I.   PHILOSOPHY/GOALS:

The objective of this practical lab-oriented course is to develop
skills in troubleshooting, configuring and maintaining a variety
of computer systems and peripherals, primarily in a DOS and PC
environment.

The emphasis will be on practical hands-on skills rather than the
underlying theory of operation, which is covered in other courses.
Both hardware and software problems will be demonstrated with
practical exercises and troubleshooting tests scheduled to support
the theory.

II.   STUDENT PERFORMANCE OBJECTIVES:

Upon successful completion of this course the student will:

1.   Be able to use and manage a DOS computing environment
     effectively.

2.   Be able to apply a logical approach to troubleshooting PC's
     which will enable board-level maintenance and installation,
     fault diagnosis and system integration.

3.   Be able to install and manage hard drive systems effectively.

4.   Be able to use test equipment and diagnostic software to
     troubleshoot computer systems.

5.   Be able to maintain and configure PC system peripherals such as
     printers, serial ports, keyboards, mice and monitors.

6.   Be familiar with the various families of PC's, their busses and
     support chips including the PS/2 family.

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III. TOPICS TO BE COVERED:

1.   The history of the DOS operating system and its commands,
      including batch files and shells.

2.   A logical approach to board-level troubleshooting.

3.   Diagnostic software and test equipment.

4.   Installation of hard drives, their interfaces and backup
      procedures.

5.   Resource conflicts and their resolution and system integration
      issues.

6.   Keyboard types and their maintenance.

7.   Printers and serial port characteristics, cables and
      troubleshooting.

8.   Memory management issues and memory chip fault diagnosis.

9.   The evolution of PC's, their configurations, and support chips
      and boards.

10.   Viruses and their control.

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IV. LEARNING ACTIVITIES

1   THE DOS ENVIRONMENT

  1. DOS versions, history and limitations.

  2. DOS commands useful for system
     maintenance.

  3. Batch files, shells and Windows.

2   PC AND PS/2 CONFIGURATIONS

                                                CHAP. 3
  1. The IBM XT and AT family of computers,   CHAP. 5
     subsystems and proper disassembly
     /assembly procedures and compatibility
     issues.

  2. The PS/2 family of computers.   CHAP. 4

  3. System components: motherboards, memory
     expansion slots, Power supplies,
     Keyboards.

3   TROUBLESHOOTING AND PREVENTATIVE
     MAINTENANCE

  1. Preventative maintenance procedures and
     threats to system components.   CHAP. 6,7

  2. A logical approach to troubleshooting PC
     systems.   CHAP. 11
  3. Resource conflicts and their resolution.

  4. Board level PC troubleshooting.

  5. Memory chips, faults and their
     diagnosis.

4   FLOPPY AND HARD DISK DRIVES

  1. Floppy disk drive types, encoding
     methods, installation and maintenance.

  2. Hard disk drive types, interfaces and   CHAP. 8,9
     controllers.

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   3. Low level formatting, interleave and
      disk management software.

   4. Disk backup methods.

   5. Installation of hard drives.

5   PERIPHERAL MAINTENANCE

   1. Maintenance of keyboards.

   2. Printer and printer cables maintenance.   CHAP. 10

   3. RS 232C Serial Port and cabling.

   4. Monitor faults.

   5. Test equipment and its use in
      troubleshooting computer systems.

6   RELATED TROUBLESHOOTING ISSUES

   1. Viruses and their cure.

   2. New peripherals and their integration   Instructors
      into systems.   notes.

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V.   METHOD OF EVALUATION:

3 THEORY TESTS (15% each)	45%
LAB PROJECTS/ASSIGNMENTS	40%
QUIZZES AND PRACTICAL TESTS	10%
ATTENDANCE	5%

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

GRADING SCHEME

A+	90	–	100%
A	80	–	89%
B	70	–	79%
C	55	–	69%
I	Incomplete		
R	Repeat		

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 the following criteria:

1.   The students attendance has been satisfactory.
2.   An overall average of at least 40% 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.

LABS:

Lab activities represent a very important component of this
course in which practical skills will be developed. 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.

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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, so that
remedial activities can be scheduled. As shown in the
evaluation procedures, a student may lose up to 5% of their
final mark for poor attendance.

VI.   REQUIRED STUDENT RESOURCES:

TEXT BOOKS:

"PC Upgrading and Repair" by Scott Mueller (QUE Books)

VII. ADDITIONAL RESOURCE MATERIALS AVAILABLE:

" Microcomputer Servicing" by Asser, Stigliano and
Bahrenburg   (Merrill Publ.)

VIII.   SPECIAL NOTES:

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.

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