SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

Sault College

COURSE OUTLINE

COURSE TITLE: SYSTEM INTEGRATION AND MAINTENANCE

CODE NO. :   CST201   **SEMESTER:**   4

PROGRAM: Computer Engineering Technology,
Computer Network Technology
Computer System Support Technology

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DATE: June, 2006   **PREVIOUS OUTLINE DATED:**   Jan, 2006

APPROVED:

_____   _____
                        DEAN   **DATE**

TOTAL CREDITS: 5

PREREQUISITE(S):   CST101

HOURS/WEEK: 4 hours/week

SYSTEM INTEGRATION AND
MAINTENANCE   CST201

I.   COURSE DESCRIPTION:
This course develops PC system configuration and troubleshooting skills.
A variety of peripherals such as hard drives, monitors, printers, POST
cards and CD-ROM drives will be studied in addition to the issues involved
in integrating and configuring hardware and software system components.
The process of attaining A+ certification will also be discussed.

II.   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: dual hard drives,
      CDROM drives, SCSI controllers and devices, video controllers, and
      infrared devices.

      Potential Elements of the Performance:
      • Install and configure a CDROM drive on its own channel and
        sharing a channel.
      • Install a 2nd IDE hard drive and configure it as SLAVE and
        install a 2nd IDE hard drive on its own channel.
      • Install a SCSI controller and two SCSI devices.
      • Install a video controller and compare different video modes.
      • Install a infrared transceiver and transfer files using the
        transceiver.
      This learning outcome will constitute approximately 30% of the
      course.

2.   Troubleshoot and repair PC system faults and configuration problems
      using software and hardware resources.

      Potential 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, some spare parts, and a
        POST card, troubleshoot and repair the system
      • Utilize system diagnostic tools to aid in PC Maintenance.
      This learning outcome will constitute approximately 20% 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.

      Potential 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
      •   Demonstrate how system performance can be improved by
              fine-tuning the system's CMOS setup.
      •   Demonstrate how different hard drive controller types can
              improve system performance.
      •   Recommend the type of system and subsystems to use for a
              particular type of application such as for a CAD station or
              Fileserver
      •   Describe various types of system upgrades including various
              processors, memory types etc.
      This learning outcome will constitute approximately 10% of the
      course.

4.   Demonstrate the ability to plan and implement a PC Maintenance
      strategy such as planning BACKUPs.

      Potential Elements of the Performance:
      •   Describe an appropriate disaster recovery strategy given a
              particular computer system application.
      •   Install a tape backup unit and use appropriate software to
              backup a hard drive.
      This learning outcome will constitute approximately 5% of the course.

5.   Describe the typical features and maintenance issues associated with
      Laptop/Notebook type computers and Personal Digital Assistant
      devices.

      Potential Elements of the Performance:
      •   Describe the type and features of laptop display technology
      •   Describe the types of I/O ports and pointing devices found on
              laptop computers
      •   Describe the purpose of a docking station
      •   Describe various Personal Digital Assistants (PDA) and their
              features and operating systems.
      •   Install PDA software and perform synchronizations.

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

6.   Utilize the Internet as a resource for PC maintenance information.

Potential 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 5% of the course.

7.   Demonstrate the knowledge and skill required to upgrade system BIOS.

Potential Elements of the Performance:
- Describe how to discover the system BIOS manufacturer and model.
- Demonstrate how to make a backup copy of the system BIOS and flash a new system BIOS.

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

8.   Describe the skills/knowledge required to attain an A+ certification.

Potential Elements of the Performance:
- Describe the objectives of the A+ certification examination.
- Explain the A+ certification examination process

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

III.   TOPICS:

1.   Peripheral Devices
2.   Troubleshooting
3.   System Performance
4.   PC Maintenance Strategy
5.   Laptops/Notebooks/Personal Digital Assistants
6.   Utilize the Internet as a Resource
7.   System BIOS
8.   A+ Certification Process

IV.   REQUIRED RESOURCES/TEXTS/MATERIALS:
Upgrading and repairing PCs, 17th edition, by- Scott Mueller, QUE,
ISBN: 0-7897-3404-4

V.   EVALUATION PROCESS/GRADING SYSTEM:
2 WRITTEN TESTS   60%
LAB WORK/ATTENDANCE
/QUIZZES/PRACTICAL TESTS   40%

(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).*

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.

SYSTEM INTEGRATION AND   CST201
MAINTENANCE

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 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.
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.*

VI.   SPECIAL NOTES:

Special Needs:
If you are a student with special needs (e.g. physical limitations, visual
impairments, hearing impairments, or learning disabilities), you are
encouraged to discuss required accommodations with your professor
and/or the Special Needs office. Visit Room E1101 or call Extension 2703
so that support services can be arranged for you.

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 postsecondary
institutions.

SYSTEM INTEGRATION AND   CST201
MAINTENANCE

Plagiarism:
Students should refer to the definition of "academic dishonesty" in *Student Rights and Responsibilities*. Students who engage in "academic dishonesty" will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course/program, as may be decided by the professor/dean. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

Course Outline Amendments:
The professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Substitute course information is available in the Registrar's office.

Attendance:
Absenteeism will affect a student's ability to succeed in this course. Part of the course mark will be based on LAB attendance. Absences due to medical or other unavoidable circumstances should be discussed with the instructor.

VII.   PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced credit in the course should consult the professor. Credit for prior learning will be given upon successful completion of a challenge exam or portfolio.

VIII.   DIRECT CREDIT TRANSFERS:

Students who wish to apply for direct credit transfer (advanced standing) should obtain a direct credit transfer form from the Dean's secretary. Students will be required to provide a transcript and course outline related to the course in question.