

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY  
SAULT STE MARIE, ON

## COURSE OUTLINE

Course Title: Microcomputer Processors & PeripheralsCode No.: CST204 Semester: FourthProgram: Computer Systems SupportAuthor: F. Turco

Date: Jan 2000 Previous Outline Date: Jan 1999

Approved: \_\_\_\_\_  
Dean Date

Total Credits: 4 Total Credit Hours: 60

Prerequisites: Completion of the first year common and CST201  
in the Computer Studies ProgramLength of Course: 60 Hours - 4 hours a week for 15 weeks comprised of:  
2 - 2 hour theory / lab class with the professor per week

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 For additional information, please contact Kitty DeRosario, Dean, School of Trades  
 & Technology, (705) 759-2554, Ext. 642.

## **COURSE OUTLINE**

### **I. COURSE DESCRIPTION :**

This course introduces the student to PC system hardware, peripherals, concepts, maintenance and basic troubleshooting. The areas of study include microprocessors, peripherals, buses and common computer subsystems. Theory is reinforced and practical skills are developed with hands on lab exercises which include hardware and software installation and maintenance of peripheral devices.

### **II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:**

(Generic Skills Learning Outcomes placement on the course outline will be determined and communicated at a later date)

#### **A. LEARNING OUTCOMES:**

1. Demonstrate an understanding of a range of processors such as INTEL , MOTOROLA and RISC based systems.
2. Demonstrate procedures to evaluate, price and compare PC's and servers in the current market.
3. Demonstrate an understanding of how printers and plotters work, install maintain and troubleshoot.
4. Demonstrate an understanding of how scanners work, install, maintain and troubleshoot.
5. Demonstrate an understanding of how the various types of monitors work, install, maintain and troubleshoot.
6. Demonstrate and use newer technology products relating to the PC and Internet environment.

### **II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE**

**(Continued):****B . LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE :**

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

- 1 . Demonstrate an understanding of a range of processors such as INTEL, MOTOROLA and RISC based systems.

**Potential elements of performance:**

- Learn the basic principles of how a microprocessor works.
- Investigate the evolution of processors 8 bit to 64bit Data-Bus capacity.
- Learn how a Math Coprocessor works and its functionality
- Develop an example of how a typical processor works.
- Investigate and report on the different types of microprocessors such as INTEL, RISC, MOTOROLA and their use in various applications.
- Define parallel processing and investigate future developments.

***This learning outcome will constitute 20 % of the course's grade. (Possible weighting strategy).***

- 2 . Demonstrate procedures to evaluate, price and compare PC's and servers in the current market environment.

**Potential elements of performance:**

- Investigate current systems and options available
- Develop procedures to review pricing, performance and maintenance
- Investigate and report on future developments

***This learning outcome will constitute 10 % of the course's grade. (Possible weighting strategy).***

**II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE  
(Continued):**

**B . LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE (Continued):**

- 3 . Demonstrate an understanding of how printers and plotters work, install maintain and troubleshoot.

**Potential elements of performance:**

- Learn the various types of printers and plotters available in the current market
- Investigate pricing, features and functionality
- Understand the basic operations of deskjet, inkjet, lasers and plotters
- Learn to install printer hardware and software drivers
- Learn basic maintenance and troubleshooting
- Understand and demonstrate how a parallel interface works

***This learning outcome will constitute 15 % of the course's grade. (Possible weighting strategy).***

- 4 . Demonstrate and understand how scanners work, install, maintain and troubleshoot.

**Potential elements of performance:**

- Understand the operation of a typical flatbed scanner
- Understand the operation of a SCSI device
- Learn to install a scanner and software device drivers
- Test the operation of a scanner and perform basic troubleshooting and maintenance procedures.
- Evaluate the different types of scanners available in relation to price and performance , investigate future developments.
- Compare SCSI to parallel operation

***This learning outcome will constitute 15 % of the course's grade. (Possible weighting strategy).***

**II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE (Continued):**

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**B . LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE (Continued):**

- 5 . Demonstrate an understanding of how various types of monitors work, install maintain and troubleshoot.

**Potential elements of performance**

- Learn different types of monitors that are available, review pricing and functionality.
- Understand the basic operation of a monitor
- Understand LCD's , CRT and new Flat Panel Architecture
- Learn to install monitors and software drivers
- Understand video controllers and memory configurations such as dual-port memory.

***This learning outcome will constitute 10 % of the course's grade. (Possible weighting strategy)***

- 6 . Demonstrate and use new technology products relating to PC and Internet environment

**Potential elements of performance**

- Understand and demonstrate Digital Camera technology, investigate new developments
- Understand and demonstrate the use of Zip Drives, investigate new developments
- Understand and demonstrate the use of video conference equipment for the Internet -- Quick Cam
- Investigate the use of Read/Write CDROM technology
- Understand and demonstrate tape drive technology investigate new developments
- Research and report on Point of Sale Technology, investigate new technologies hand held input devices and receipt printers.
- Research and report on new INPUT/OUTPUT devices in today's market

***This learning outcome will constitute 30 % of the course's grade. (Possible weighting strategy)***

**III . TOPICS TO BE COVERED**

- **Note:** These topics sometimes overlap several areas of skill development and are

not necessarily intended to be explored in isolated learning units or in the order below.

	<b>SPECIFIC TOPICS</b>	<b>APPROXIMATE TIME</b>
1 .	<b>MICROPROCESSORS</b>	<b>3 Weeks</b>
2 .	<b>PRICING AND EVALUATING</b>	<b>1 Week</b>
3 .	<b>PRINTERS</b>	<b>2 Weeks</b>
4 .	<b>SCANNERS</b>	<b>2 Weeks</b>
5 .	<b>MONITORS</b>	<b>2 Weeks</b>
6.	<b>NEW PERIPHERALS</b>	<b>5 Weeks</b>

#### **IV. REQUIRED RESOURCES / TEXTS / MATERIALS:**

##### **TEXTBOOKS TO BE USED AS REFERENCE MATERIAL:**

1. HOW COMPUTERS WORK - Deluxe Edition By Ron White, ZD Press

##### **ADDITIONAL RESOURCE MATERIALS:**

Textual Material from books used in previous courses.

Handouts, Guidance, and Material as it relates to the individual topics.

Use of research modes such as INTERNET, Library Data Base searches, and articles.

Additional reference material will either be given to the students or places in the library for the student's use.

##### **REQUIRED INDIVIDUAL STUDENT RESOURCES:**

Participation & Teamwork

Box of Disks

Individual Research

Documentation

#### **V. EVALUATION METHODS :**

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The items below represent a tentative marking scheme subject to change by the instructor.

<b>TESTS</b>	<b>40 %</b>
<b>QUIZZES</b>	<b>10 %</b>
<b>ASSIGNMENTS AND LAB WORK</b>	<b>50 %</b>

The tentative breakdown is as follows:

2	Formal Theory Tests	at	20 % each
2	Quizzes (best 2 out of 3)	at	5 % each
6	Minor Assignments	at	5 % each
2	Major Assignments	at	10 % each

Some minor modifications to the above percentages may be necessary. The professor reserves the right to adjust the mark up or down 5% based on attendance, participation, leadership, creativity and whether there is an improving trend. Students must have passing grades in the tests and assignments portion to pass the entire course.

- \* Students must complete and pass both the test and assignment portion of the course in order to pass the entire course.
- \* All Assignments must be completed satisfactorily to complete the course. Late hand in penalties will be 5% per day. Assignments will not be accepted past one week late unless there are extenuating and legitimate circumstances.
- \* 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.

## V. EVALUATION METHODS (Continued):

### GRADING DETAILS

#### 1. TESTS

Written tests will be conducted as deemed necessary; generally at the end of each block of work. They will be announced about one week in advance. Quizzes may be conducted without advance warning.

## 2. ASSIGNMENTS

Assignments not completed by the assigned due-date will be penalized by 5% per day late. All assignments must be completed satisfactorily to complete the course.

## 3. GRADING SCHEME

A+	90 - 100%	Outstanding achievement
A	80 - 89%	Excellent achievement
B	70 - 79%	Average Achievement
C	60 - 69%	Satisfactory Achievement
U	Incomplete:	Course work not complete at Mid-term. Only used at mid-term.
R	Repeat	
X	A temporary grade that is limited to instances where special circumstances have prevented the student from completing objectives by the end of the semester. An X grade must be authorised by the Chairman. It reverts to an R if not upgraded in an agreed-upon time, less than 120 days.	

## 4. UPGRADING OF INCOMPLETE

When a student's course work is incomplete or final grade is below 60%, there is the possibility of upgrading to a pass when the student's performance warrants it. Attendance and assignment completion will have a bearing on whether upgrading will be allowed. A failing grade on all tests will remove the option of any upgrading and an R grade will result. The highest grade on re-written tests or assignments will be 60%.

Where a student's overall performance has been consistently unsatisfactory, an R grade may be assigned without the option of make-up work.

The method of upgrading is at the discretion of the teacher and may consist of one or more of the following options: assigned make-up work, re-doing assignments, re-writing of tests, or writing a comprehensive supplemental examination.

## VI. SPECIAL NOTES

1. All students should be aware of the Special Needs Office in the College. If you have any special needs such as being visually impaired, hearing disabled, physically disabled, learning disabilities you are encouraged to discuss required accommodations confidentially with the Professor and/or



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- contact the Special Needs Office, Room E1204, Ext. 493, or 717, or 491 so that support services can be arranged for you.
2. Your professor reserves the right to modify the course as he/she deems necessary to meet the needs of students.
  3. It is the responsibility of the student to retain all course outlines for possible future use in gaining advanced standing at other post-secondary institutions.
  4. Plagiarism  
  
Student should refer to the definition of “academic dishonesty” in the “Statement of 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, as may be decided by the professor.
  5. Substitute course information is available at the Registrar’s office.
  6. Students must achieve a passing grade in **both** the assignment and the test portions of the course.
  7. The topics will not necessarily be covered in the order shown in this course outline.

## VII. PRIOR LEARNING ASSESSMENT

Students who wish to apply for advanced credit in the course should consult the professor.