

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY  
SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: MICROPROCESSOR PROGRAMMING

Code No.: CET 205-4

Program: ELECTRICAL/ELECTRONIC TECHNICIAN

Semester: THREE

Date: AUGUST 1986

Author: N. BARKER

New: \_\_\_\_\_ Revision: X

APPROVED: \_\_\_\_\_  
Chairperson Date

MICROPROCESSOR PROGRAMMING

CET 205-4

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Course Name

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**PHILOSOPHY/GOALS:**

To develop the student's knowledge of microprocessor organization, machine language and application and to develop the student's skills in writing machine language programs testing microprocessor hardware and implementing applications using the M6808 Microprocessor.

**METHOD OF ASSESSMENT (GRADING METHOD):**

- written tests
- programming assignments
- hands-on verification of skills in operating and debugging, using the Heathkit M6800 Microprocessor.

A	80 - 100%
B	66 - 79%
C	55 - 65%
X	
R	REPEAT

**TEXTBOOK(S):**

Introduction to Microcomputing - Sydney B. Newell

**SPECIFIC OBJECTIVES:**

**BLOCK I**

1. Introduction to microprocessor.
2. Architecture of the M6800 system (HEATHKIT) RAM, ROM, PIA, ACIA, Adder Bus, Data Bus, Control.
3. Organization of the M6808 microprocessor register
4. Interconnection pin out of the IC's
5. Memory organization
6. Explanation of the more commonly used machine language instructions.
7. Addressing modes - immediate, direct, extended and inherent.
8. Write, run and debug simple programs. Include single step and break-points.

**BLOCK II**

1. Introduction to the PIA, its registers and pin connections.
2. Initializing and addressing the PIA for fundamental I/O operation.
3. Write, run and debug programs employing the PIA and using the following techniques:
  - a) Branch and Jump
  - b) Looping
  - c) Index mode of addressing
  - d) Subroutines
  - e) Stack Pointer
4. Address decoding
5. Examination of waveforms and Control Signals

**BLOCK III**

1. The interrupt system, RST, IRQ, NMI, SWI.
2. Use of interrupts with the P/A in the Hardslope pulse and ON/OFF modes.
3. Serial data transmission
4. Initializing, addressing and programming the P/A