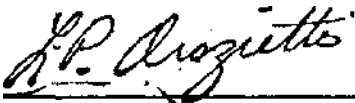SAOLT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: Introduction to CN.C.

Code No.:   MCH 238-3

Program: Mechanical Engineering Technician - Machining

Semester: Three

Date: 1986 06 03

Author: Greg White

                                              XX
                                    New: Revision:

APPROVED: _L.P. Arozietto_____
                 Chairperson   Date

Introduction to C.N.C.   MCH 238-3

      Course Name   **Course Number**

PHILOSOPHY/GOALS:

Designed to acquaint the student (who has a strong machining
background) with the terms, practices and procedures of
numerical control application. To provide sufficient background
knowledge and experience so that the student will have the necessary
skills to learn any specific system or systems.

METHODS OF ASSESSMENT (GRADING METHOD):

Students will be assessed on attendance, tests and on evaluation
of progamming assignments and projects submitted to their instructor.
An evaluation will also be made on their lab practices and procedures

TEXTBOQK(S):

EMCO C.N.C. - BASIC programming manual issued to students.

Computer Numerical Control by J. Pasztai, M. Sava Reston publishing
                     purchased by students.

OBJECTIVES;

To understand and apply topics as outlined and demonstrate a proven
knowledge both theoretically and practically on N.C. programming
operation and maintenance.

SPECIAL APPENDIX

		test 1	=	10%
3 Tests	40%	test 2	=	10%
		test 3	=	20%

shop evaluation, attendance (51 hours) - 1% per hour absent or la

= course material and preparation demands approximately
  8 hrs. outside work/week

= book extra lab times as applicable

1st project piece due in week 4

2nd project piece due in week 9

3rd project piece due in week 12

4th project piece due in week 16

Reference texts: Computer Numerical Control, J.Puszta & M. Sava,
                              Reston Publishing

Essential of Numerical Control, R. Rapello, Prentice-Hall Publish

Fundamentals of Numerical Control, W. Luggen, Delmar Publishing

Compact II Programming Manual
APT Programming Manual, I.B.M. Corporation

Basic Programming Manual, Emco C.N.C.

TOPIC NO,	PERIODS	TOPIC DESCRIPTION	REFERENCE
1		History of C.N.C. Principals of operation. Parts and functions of a typical machine.	Text Ch. 1 & 2 Basic programming manual Lecture notes
		Axis relationships requirements for N.C. binary and co-ordinate systems. Inputting simple programs on a typical control.	Text Ch. 2 Lecture notes Basic programming manual.
		Advantages and disadvantages to N.C. Codes and Coding formatting sequences.	Lecture notes
		Planning and processing for N.C. N.C. justification requirements for operators and/or programmers	Lecture Basic programming manual.
		Types of N.C. systems. Types of feedback systems, incrernental systerns, review.	Lecture notes Basic programming manual.
		Test. Absolute systems, zero shift systems. Stepping vs. profiling.	Lecture notes Basic programming manual.
		Types of functions of tape readers, the tape type formatting.	Lecture notes

TOPIC NO.	PERIODS	TOPIC DESCRIPTION	REFERENCE
		Safety with N.C. programming systems. Tool touch-off procedures.	Lecture notes.
		Tool guaging, turret location Home position. Machine Zero, offsets.	Lecture notes
10		Tool referencing. Set-up sheets. Role of the operator Review.	Lecture notes Basic programming manual.
11		Test. System subroutines.	Text
12		M.D.S.I, compact II programming.	Lecture notes Text
13		APT and graphics programming.	Text Lecture notes
14		Tooling considerations. Fixturing. Tooling practices.	Lecture notes
15		Industry standards: N, G, S, S_f T, F, I, K, M, V, W. Tool tip and radius compensation	Lecture notes Basic programming manual.
16		Test What the future holds	Lecture notes Basic programming manual.