

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Outline: PROGRAMMING LANGUAGES
Code No.: EDP 318-5
Program: BUSINESS PROGRAMMER
Semester: FOUR
Date: JANUARY, 1987
Author: WILLEM DEBRUYNE

New: _____

Revision: _____ X

APPROVED:


Chairperson

86-06-27
Date

PROGRAMMING LANGUAGES

EDP 318-5

Course Name

Course Number

Prerequisites: EDP229 - Advanced Applications Programming

Course Synopsis:

The course will focus on the comparison of two computer languages, one high level language, Pascal, and one low level language, Assembler.

This course will teach the student to write assembly language programs for the IBM Personal Computer, and PASCAL programs on the COMMODORE SUPER PET computers. The first part of the course teaches the fundamentals of computer operations, emphasizing those functions of the computer that are not readily apparent when using a high level language like PASCAL. This includes discussion of binary arithmetic and data representation. This section will also deal with the general operation of the assembler (8088). The course will describe the 8088's registers and addressing modes, and all tools necessary to create and use programs on the IBM machine.

The other half of the course teaches the students to use the PASCAL language correctly and effectively. The language will be studied in three parts; statements and values; data structures; and dynamic variables.

Textbook: "PASCAL, Text and Reference", 2nd edition, John B. Moore

"IBM PC & XT Assembly Language - A Guide for Programmers",
by Leo J. Scanlon

MODULE DESCRIPTION

Module 1 - This part of the course deals with binary arithmetic, including the two's complement and hexadecimal representation. The student will then examine machine language and assembly language syntax.

Module 2 - Introduces the 8088 microprocessor, its general registers, and addressing techniques.

Module 3 - Introduces the 8088 instruction set; examining, data movement, stack operations, arithmetic instructions, logical instructions, transfer of control.

Module 4 - This module discusses the four main phases of program preparation: editing, assembling, link editing, and debugging. Each of these phases is accomplished with a different program and different set of procedures, all under the control of DOS.

Module 5 - Examines features of the MACRO ASSEMBLER, which demonstrates the more powerful assembler operations.

Module 6 - Begins with the study of numeric processing; constants, variables, value assignments and simple I/O are covered here.

Module 7 - Describes Boolean values and operations and then shows how they are used in decision making statements of the PASCAL language.

Module 8 - Control loops, character and text processing, enumerated and subrange types, global and local variables are all examined.

Module 9 - Concludes with the difference between the data structures arrays, records and files.

Course Role Within Program:

Many people ask the question "why should I bother with a more difficult language like assembly language when I can write the program in BASIC, COBOL, PASCAL, etc. which are high level languages using English-like commands"? The answer is because of its power and precision. The assembly language allows the programmer to deal directly with the hardware, allowing the programmer to do things no other program can. Most importantly the student should learn assembly language programming because this is the only way to learn how the machine works at its own levels.

The students will also study PASCAL because it is becoming one of the most widely used programming languages in the world. This growth is due to a number of factors most important of which is the discipline it imposes upon the programmer to write in a well structured manner. Secondly, the examination of various data structures are examined and compared using the PASCAL language.

TIME FRAMES:

- Week 1** - Introduction
 - Chapter 1 (SCANLON)
 - Discussion

- Week 2** - **Assignment #1**
 - Chapter 2 (SCANLON)

- Week 3** - Discussion
 - Chapter Questions

- Week 4** - Chapter 3 (SCANLON)
 - **Assignment #1 Due**

- Week 5&6** - **TEST #1**
 - **Assignment #2**
 - Chapter Questions

- Week 7** - **Assignment #3**
 - Chapter 6 (SCANLON)
 - Chapter 7 "
 - Chapter 9 "

- Week 8** - **TEST #2**
 - **Assignment #2 Due**
 - **Assignment #3 Due**

- Week 9** - Chapter #1 (Moore)
 - Chapter #2 "

- Week 10 - Chapter #3 (Moore)
 - Chapter #4 "
 - **Assignment #4**
- Week 11 - Chapter #5 (Moore)
 - Chapter #6 "
 - **Assignment #5**
- Week 12 - **Assignment #5**
 - Chapter #7 (Moore)
 - **TEST #3**
 - **Assignment #4 Due**
- Week 13 - Chapter #8 (Moore)
- Week 14 - **Assignment #6**
 - Chapter #10
 - **Assignment #10 Due**
- Week 15 - Chapter 11 (Moore)
 - Chapter 12 (Moore)
- Week 16 - **TEST #4**
 - **Assignment #6 Due**

STUDENT EVALUATION:

The student's final grade will be determined from the following components:

TESTS (4 @ 10%)	=	40%
ASSIGNMENTS (6 @ 10%)	=	60%

GRADING:

"A"	=	80-100%
"B"	=	70- 79%
"C"	=	55- 69%
"R"	=	0- 54%

NOTE: Students are expected to attend classes regularly and to participate in class activities. Late assignments are subject to a zero grade unless the student has **PRIOR** permission from the instructor to hand the assignment in at a later date.