Sault College of Applied Arts and Technology sault ste. marie

Course Outline

INTRODUCTION TO DATA PROCESSING

EDP 100-5

revised September 1978

Revised Dept. 1980

INTRODUCTION TO DATA PROCESSING
EDP 100-5

TIME: 5 periods per week for 1 semester

TEXT: DATA PROCESSING WITH APPLICATIONS - Condon

AIM: This introductory course will be taken by all students in Semester 1 of the Business Administration program. Some of these students will decide to specialize in Data Processing while others will choose one of the other business options.

This course is intended to provide:

1. A grounding in Data Processing principles and methods which will be a pre-requisite to more advanced courses for those students electing to specialize in Data Processing.

2. An appreciation of Data Processing principles, methods and capabilities for those students who elect to specialize in an area other than Data Processing.

3. Sufficient exposure to Data Processing to enable the student to decide whether his/her interest and/or aptitude lies in this area.

SPECIFIC OBJECTIVES:

A list of objectives for each topic in the course is attached. These objectives represent minimum requirements.

STUDENT EVALUATION:

The students' final grade will consist of the following components:

Test (2 x 15)	30%
Quizzes (5 x 8)	40%
Participation	
-case studies	
-computer programs	30%
-attendance	
	100%

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STUDENT EVALUATION (Cont'd):

1. Any student who fails to achieve 60% will be required to attend the make-up period at the end of the term in order to up-grade his/her grade.

2. Students wishing to receive better than C standing must demonstrate above average performance in each area to be graded.

3. Any student who fails to write a quiz or test at the time it is scheduled must present a written excuse acceptable to the instructor.

4. Failure to complete any of the assigned computer programs on time will result in a mark of zero for that program.

5. Any student who consistently fails quizzes and/or tests will automatically receive a final grade of R. In this case the student will not be allowed to attend the make-up period.

6. Communication skills are very important in a business environment. For this reason all work submitted will be graded for spelling, punctuation, sentence structure and clarity. A student's mark may be down-graded by as much as 20% for poor quality work in this area.

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REFERENCE	TOPIC #	TOPIC DESCRIPTION
Text - Chapter 1	A1	The Elements of Data Processing - data processing defined - what computers can do - the program & data - computer components - computer systems
"	A2	Developments in Data Processing - early calculating methods - punched-card data processing - the early computers - the potential of the computer - the limitations of the computer
Text - Chapter 2	A3	Computer Classifications - hardward and software - capacity and cost - micro to supercomputer - user programs to application packages - typical computer systems
Text - Chapter 3	A4	Basic Storage Media - external storage - sequential processing media - direct access media - computer codes - magnetic tape concepts - magnetic disk concepts
Text - Chapter 4	A5	The Central Processor - components of the CPU - addressing structure - processing concepts - internal (primary) storage - number systems
Text - Chapter 5	A6	How Data is Processed - preparations for processing - processing concepts - updating - classifying - backup files - sequential versus direct access - "on line" processing - "real time" processing - " timesharing" processing

REFERENCE	TOPIC #	TOPIC DESCRIPTION
Text - Chapter 5 (cont'd)	A6	- file organization
Text - Chapter 6	A7	Data Recording (INPUT) - key input--punched card --key to tape --key to disk - direct data entry --scanners --terminals
Text - Chapter 7	A8	Computer Output - output for machine use - output for us by man
Lecture Notes	A9	Computer in Society - impact of computers on business - effect of computers on workers & organizations - the future in data processing
Text - Chapter 3	B1	The Punched Card - the 80 column card - the 96 column card - advantages & limitations of the punched card
Text - Chapter 5 Chapter 8	B2	Programming - programming languages - steps in writing a program
Text - Chapter 9	B3	Programming Logic - elementary program logic --card to printer --headings --totals --subroutines
Lecture Notes	B4	Basic Elements of Fortran - coding format - character set - constants & variables - integer & real modes - statements - variable names (identifiers) - comment statement

REFERENCE	TOPIC #	TOPIC DESCRIPTION
Lecture Notes	B5	Arithmetic Statements - assignment statements - order of operations - initial value
"	B6	Input-Output Statements - read statement - data cards - format statement - write statement
"	B7	Control Statements - unconditional "go to" statement - conditional "go to" statement - arithmetic "if" statement
"	B8	Imperative Statements - call exit and end statements - do and continue statements

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SPECIFIC OBJECTIVES

The student will be able to explain, describe or perform each of the objectives listed below.

TOPIC #	OBJECTIVE
All Topics	1. Explain the meaning of a wide variety of data processing terms. These will be found at the end of each chapter in the text. Additional terms will be noted as each topic is covered.
A1	1. Explain in your own words, an appropriate answer to the question: - What is a computer?
	2. Explain the difference between data and information.
	3. Explain why the idea of "data processing" is not new.
	4. Explain why records are needed by all business organizations.
	5. Explain the sources of data in a business organization (internal & external).
	6. Explain the meaning of the term "data processing" and also explain the idea of a "data processing system".
	7. Describe the functional components found in every computer system.
	8. Explain how managers at different levels in an organization utilize information differently.
	9. Explain the concept of cost versus value of information.
	10. Explain how the characteristics accuracy, clarity, completeness, timeliness and relevancy are related to the question of cost versus value.
	11. Explain how the digital computer is forcing managers to improve.

TOPIC #	OBJECTIVE
A2	1. Name and describe the 4 developments leading to the development of computers.
	2. Describe the contributions of Hollerith and Powers to the development of punched-card data processing.
	3. Explain the contribution made by each of the pioneers in the early development of electronic computers.
	4. Explain the characteristics by which computers are classified into "generations".
	5. Describe the uses and capabilities of business computers.
	6. Describe the limitations of business computers.
A3	1. Explain the meaning of the terms hardware and software.
	2. Explain how computers are categorized into micro, mini, small, medium, large and supercomputers.
	3. Describe three typical computer systems.
	4. Describe four commonly used input or output devices.
	5. Explain the following terms--user programs, operating system, translator programs, utility programs.
A4	1. Explain the meaning of "secondary storage".
	2. Explain the difference between sequential and direct access.
	3. What types of media can be included for sequential processing?? ....for direct access??
	4. Explain the coding structure of the six bit and eight bit codes.
	5. Explain the reasons for the development of the 8 bit codes.
	6. Explain the meaning of the term "packed".
	7. Explain the characteristics of each of the different media covered in this chapter.

TOPIC #	OBJECTIVE
A5	1. Explain in detail the operation of each component in the CPU.
	2. Explain the concept of a primary storage address.
	3. Differentiate between primary and secondary storage.
	4. Name at least three types of primary storage.
	5. Explain the construction and general operation of magnetic core storage. Explain how cores are magnetized and how a number of cores may be used to represent a character.
	6. Explain the concepts of "virtual Storage".
	7. Explain the advantage of using the binary numbering system instead of the decimal system.
A6	1. Describe the steps which must be taken prior to processing data.
	2. Explain the basic concepts involved in "updating" data files.
	3. Explain the basic components of a "file".
	4. Explain the concept of "Batch" versus "On-line" processing.
	5. Explain the concept of "Real-time" processing.
	6. Explain the concept of "time-sharing" systems.
	7. Describe the advantages and disadvantages of "time-sharing".
	8. Explain the concept of a "data-base" system.
	9. Describe the advantages and limitations of a data base system.
	10. Explain the different ways in which a file may be "organized".
A7 & A8	1. Explain the importance of input-output devices in business data processing.
	2. Explain the general purpose of all types of input-output devices.

TOPIC #	OBJECTIVE
A7 & A8	3. Explain the general operation of each of the input-output devices in this chapter.
	4. Explain the advantages and disadvantages of each of the input-output devices in this chapter.
A9	1. Describe the impact that computers have had and will have, when used as a business tool.
	2. Describe the effects that computers may have on individuals and the companies for which they work.
	3. Describe, in your own words, how the computer will affect society in the future.
B1	1. Describe the physical characteristics of the 80 and the 96 column punched card.
	2. Explain the coding formats used to record information in the 80 and 96 column cards.
	3. Explain the advantages and limitations of the punched card.
	4. Describe the advantages of the 96 column card over the 80 column card.
	5. Explain a number of terms relating to punched cards - (e.g. face, zone, digit, edge, field, leading zero, alphanumeric, numeric, column).
	6. Explain the main features of a keypunch unit.
B2	1. Explain the meaning of the term "computer program".
	2. Explain the concept of a "stored program".
	3. Explain the concepts of machine language, symbolic language and high-level language coding.
	4. Describe a number of different programming languages and their use in industry.
B3	1. List, in the correct order, each of the steps involved in writing a computer program.
	2. Explain, in detail, each of the steps involved in writing a computer program.

TOPIC #	OBJECTIVE
B4 B8	1. Explain all Fortran terms discussed in class and listed in the course outline.
	2. Display an ability to use or explain all features of the Fortran language taught---either on a test or through a computer program.

NOTE: During the course of the semester additional objectives may be assigned.