SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: STRUCTURED ANALYSIS AND DATA MANAGEMENT

Code No.: EDP212-8

Program: COMPUTER PROGRAMMER

Semester: FOUR

Date: JANUARY, 1985

Author: LINDA SHARP

NEW: ________ REVISION: X

APPROVED: ______________________ DATE: 85.01.24
Chairperson Date

This course concentrates on how data and information are used in business and how they are processed by modern computer systems. The structure of information management systems and transaction processing procedures are examined.

This course stresses that transaction processing requires data transaction records be grouped into files (collections of data) for storage and processing. These data records may be organized differently depending on the way in which they are used. The hierarchial structure of files, data access, organization and access modes are studied in relation to their use in typical transaction processing systems (both batch and online).

Basic concepts of file procssing using the COBOL language are studied in depth. The development of problem-solving skills in this area is emphasized rather than the syntax of the COBOL language.

This course is designed to give the student a practical applications-oriented view of information systems and the data management techniques required.

PRE-REQUISITE: Successful completion of EDP232 - Advanced Structured Cobol

EVALUATION METHOD:	
Tests	40%
Assignments	50%
Participation	10%

GRADING:	
80-100%	A
70- 79%	B
55- 69%	C
0- 54%	R

NOTE:

- The assignments are designed to help the student learn by doing. A concerted effort to understand and complete the assignments will be valuable study for the tests.
- Assignments must be handed in by the due date. Late assignments will be penalized 20% per day and will not be accepted after 5 days.
- Program style must reflect or assimilate all new techniques learned.
- Failure to meet course objectives may result in an immediate "R".

STUDENT PERFORMANCE REQUIREMENTS:

At the conclusion of each section the student will be required to complete a programming assignment. These assignments become increasingly complex and require more and more creative thinking and applicable design in order to arrive at an acceptable solution and output.

The student must learn to plan and design carefully so as to avoid imprudent use of computer time. The student must learn to use the COBOL reference manual to avoid syntax errors.

The student is required to participate in the design and code walk thrus as indicated to reduce logic errors. In order to participate the student must have hierarchy charts or current listings available as required.

The student is required to interact positively in a group process. Group criticism, suggestion or praise must be accepted with equal ease and a helpful constructive attitude must be developed for enacting and re-enforcing group learning.

See attached SPECIFIC LEARNING OBJECTIVES and TOPIC OUTLINE.

EXTS AND OTHER MATERIALS:

Vax-11 COBOL Pocket Reference
Structured Methods through COBOL - R.T.Grauer - PRENTICE HALL
Fundamentals of Structured COBOL Programming - C.Feingold - WCB
Template

STRUCTURED ANALYSIS AND DATA MANAGEMENT EDP212-8

TOPIC OUTLINE	LENGTH (WEEKS)	REFERENCE TEXT	 PAGES
1 SUBPROGRAMS - Introduction - Cobol And noncobol Subprograms - Call and Entry Statements - Global and Local variables - Go Exit and Go Back Statements - Passing a single 01 parameter to a subprogram	3	FSC* SMC**	695-701 244-251
2 SORT/MERGE - Concepts of Sorting files - Structure of the Sort process - The COBOL SORT verb (input and output procs) - The SORT UTILITY (file specification included) - Concepts of Merging files - Structure of the Merge process - The COBOL MERGE verb (brief overview) - The MERGE UTILITY	3	FSC SMC	479-512 70- 85
3 FILE REVIEW - Physical mediums - Tape & Disk - Amt of Storage & Speed - Usage (when & why) - Logical - Organization & Access - Usage (when & why) - Other - Labels (what & why) - Coding (how & why) (Blocking factors, Open/Close modes, Variable lengths) - Overview - Why to chosse particular Medium/Organization/Access	1	LECTURE NOTES FSC	 568-577
4 SEQUENTIAL FILES - Concepts of updating sequential files - Structure of the edit/update process - The BALANCE LINE structure - Change,add,delete records and change keys	2	FSC SMC	578-586 139-173
5 INDEXED FILES - concepts of ISAM files - software process behind ISAM files - creating an ISAM file - edit/update of an ISAM file - structure of the random update process - different access methods	5	FSC SMC	587-618 175-204
6 RELATIVE FILES - Concepts of Relative Organization - Access modes (sequential,random,dynamic)	1	FSC	619-624

* FSC: Fundamentals of Structured COBOL Programming - C.Feingold - WCB

** SMC: Structured Methods through COBOL - R.T.Grauer - PRENTICE HALL

SPECIFIC LEARNING OBJECTIVES

UPON COMPLETION OF THE MATERIAL ON EACH TOPIC THE STUDENT IS RESPONSIBLE FOR THE ACTIVITIES LISTED FOR THAT TOPIC

TOPIC 1 - SUBPROGRAMS

1. Given a programming problem, the student will be able to identify the need for a subprogram and what it will consist of.
2. Given a programming problem, the student will be able to design, code and implement a COBOL program with a COBOL subprogram in the time allotted.
3. Given a programming problem, the student will be able to design, code and implement a COBOL program with a BASIC subprogram in the time allotted.
4. The student will be able to define the terms GLOBAL and LOCAL variable and differentiate between the two.

TOPIC 2 - SORT/MERGE

1. Given a programming problem, the student will be able to design, code and implement a COBOL program with an internal SORT using INPUT and OUTPUT procedures.
2. The student will be able explain when and why a SORT INPUT procedure is necessary and identify what special COBOL verb is used and explain how it works.
3. The student will be able explain when and why a SORT OUTPUT procedure is necessary and identify what special COBOL verb is used and explain how it works.
4. Given files to sort, the student will be able to use the SORT UTILITY both with and without the FILE-SPEC parameter to process files as required.
5. Given a SORT UTILITY parameter, the student will be able to explain what it's function is.
6. The student will be able to use the MERGE UTILITY to merge at least 3 files according to specifications.

TOPIC 3 - FILE REVIEW

1. List and describe 2 file mediums, 3 types of file organization, and 3 access modes.
2. The student will be able to explain when and why you would choose a particular file medium/organization/access over another.
3. Given data specifications the student will be able to determine the physical storage requirements.
4. Given application specifications the student will be able to determine proper file medium, organization and access method.

SPECIFIC LEARNING OBJECTIVES...CONT'D

TOPIC 4 - SEQUENTIAL FILES (BALANCE LINE ALGORITHM/BATCH PROCESSING)

1. Given a programming problem, the student will be able to design, code and implement a COBOL program to edit/update a master file from a transaction using the BALANCE LINE ALGORITHM.
2. Given a properly designed sequential edit/update program using the balance line algorithm, the student will be able to add the logic to process additional files.
3. The student will be able to write the COBOL code to change, add and delete records on a sequential file with proper error handling techniques.

TOPIC 5 - INDEXED FILES (ONLINE PROCESSING)

1. Given specifications, the student will be able to design and create the appropriate ISAM file.
2. Given a programming problem, the student will be able to design, code and implement an COBOL online program to edit/update an ISAM file.
3. The student will be able to write the COBOL code to change, add and delete records and keys on an ISAM file with propr error handling techniques.
4. The student will be able to design and write a COBOL online query program for an ISAM file.

TOPIC 6 - RELATIVE FILES (AN OVERVIEW)

1. Given specifications, the student will be able to design and create the appropriate relative file.