SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Outline: DATA BASE MANAGEMENT I

Code No.: EDP215-5

Program: PROGRAMMER AND PROGRAMMER/ANALYST

Semester: FOUR

Date: JANUARY 1987

Author: DENNIS OCHOSKI

New: _____ Revision: X _____

APPROVED: _____ 86-12-17
Chairperson   Date

DATA BASE MANAGEMENT I

EDP215-5

Length of Course: 5 periods per week for one semester

Texts: Database Processing - David Kroenke

SEED A.D.S. (Application Development System) Pocket Guide

SEED D.S.O. (Decision Support Option) Pocket Guide

Other References: Principles of Data-Base Management - James Martin

SEED KERNEL User Guide

SEED BLOOM User Guide

SEED HARVEST User Guide

Purpose: This is an introductory course in database management systems.

The course begins with a study of the necessary terminology and concepts to gain an appreciation of what a database management system is. Data base design skills are developed by defining and writing schemas, sub-schemas, and set relationships.

Practical skills are developed through the study and use of SEED, a CODASYL data base, including its data manipulation language, online inquiry, and report generator.

Objectives: This course extends the concepts of structured analysis and design to include the data base environment. At the conclusion of the course, the student, having analysed a business application will be able to accomplish the following:

a) define a data base and its purpose,

b) establish relationships between a given set of data attributes,

c) document the logical views of the data structure required by the application,

Objectives cont'd:

d) synthesize the logical views of the data structure into an overall logical SCHEMA,

e) code the logical views (SUB-SCHEMAS) of the data structure and the SCHEMA,

f) implement a data base on a computer,

g) develop and implement COBOL programs that use a data base,

h) use a Query language against the data base,

i) use a Report Generator language,

j) establish and implement data access and controls on the data base.

Student Evaluation

The student's final grade will consist of the following components:

		Grading:	
Tests (2 x 30)	60%	A --	85 to 100%
Assignment #1	10%	B --	70 to 84
Assignment #2	25%	C --	60 to 69
Participation	5%	R --	0 to 59
	100%		

Assignment Deadlines: Each assignment must be handed in ON TIME, otherwise they are subject to a 10% deduction per day late.

All assignments must be handed in, otherwise the student has not fully completed the course and is subject to receiving an "R" grade.

NOTE: There will be no re-write in this course.

Material To Be Covered

PART A:

TOPIC	DESCRIPTION	REFERENCE
1	**Introduction** - data base processing defined - advantages and disadvantages - components of a database system	Kroenke: chapter 1 Lecture notes
2	**File Organization** - sequential file processing - indexed sequential file organization - file indexes - direct file organization - linked and inverted lists	Kroenke: chapter 3 Lecture notes
3	**Data Structures** - flat files - logical record relationships - tree (hierarchical) relationships - record addressing - simple and complex networks - secondary keys	Kroenke: chapter 4 Lecture notes
4	**Data Base Design** - logical database design - physical database design - database models	Kroenke: chapter 5 Lecture notes
5	**CODASYL Data Bases** - overview - architecture of a CODASYL data base - data definition - data manipulation - schema and sub-schema descriptions	Kroenke: chapters 9,10 Lecture notes

TOPIC	DESCRIPTION	REFERENCE
6	<u>Functions of Database Management Systems</u> - responsibility for functions - concurrent processing - database recovery and responsibility - security and privacy	Kroenke: chapter 11 Lecture notes
7	<u>Data Base Administration</u> - functional responsibilities of the DBA - database economics and control - elements of the long-range plan - management issues in the database plan	Kroenke: chapter 14 Lecture notes

PART B: The following topics pertain specifically to the SEED Data Base Management System and will be discussed concurrently with the theoretical concepts in PART A. All references to these topics are taken from the various SEED User Manuals and Guides.

TOPIC   DESCRIPTION

1   Schema and Sub-schema Definition

- schema data definition language (DDL)
        - set relationships
        - record descriptions
        - field definitions
        - storage modes
        - use of pointers
- sub-schema definition

2   Accessing and Updating the Database with DML

- incorporating the data manipulation language in COBOL programs
        - obtaining records
        - storing records
        - deleting records
        - changing records
- using the error status (ERRSTA)
- use of HARVEST to provide easy access to the database

3   Designing Data Base Applications

- development, maintenance, and integrity
- application performance
- optimizing storage space