SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY
SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE: DATA BASE MANAGEMENT I

CODE NO.: EDP215-5 **SEMESTER:** FOUR

PROGRAM: COMPUTER PROGRAMMER

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New:_____ Revision: x

APPROVED: _____ _____
DEAN, SCHOOL OF BUSINESS & HOSPITALITY **DATE**

Length of Course: Five periods per week for one semester

Texts:

DATABASE PROCESSING: Fundamentals - Design - Implementation, 5th edition, by David Kroenke

EXPLORING MICROSOFT ACCESS, Version 2.0, by Robert Grauer and Maryann Barber, Prentice Hall Publishing

I. Philosophy/Goals:

This course focuses on the data modelling skills required to effectively design and implement database-oriented systems.

The course begins with a study of the necessary terminology and concepts to gain an appreciation of databases/database management systems. Data modelling and design skills are developed by defining logical relationships among entities using the Entity-Relationship Model, and defining objects using the Semantic Object Model.

Practical skills are developed through the study and use of MicroSoft Access, a relational database management system. Case studies will be used to illustrate the analysis, design, and implementation of a database system.

II. Student Performance Objectives(Outcomes):

1. Learn the role of databases and database applications in organizations.
2. Learn and practice data modelling using the Entity-Relationship Model and the Semantic Object Model.
3. Understand the impact that user requirements have on database designs and application program structure.
4. Learn the fundamentals of a relational database management system and the concept of normalization.
5. Design and implement a relational database.

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III. Learning Activities

PART 'A': The following modules pertain specifically to the theoretical concepts discussed in the course.

Module 1: **Introduction to Database Concepts**
(chapters 1 and 2 - Kroenke)

When this module is completed, the student should be able to:

1. define or describe the meanings of the following terms:

   database, database management system, schema, subschema, internal view, data redundancy

2. compare database processing with file processing.

3. understand the advantages and disadvantages of database processing.

4. identify and describe the functions of a database management system.

5. identify the role of various components of a database system.

Module 2: **Data Modelling Using The Entity-Relationship Model**
(chapters 3 - Kroenke)

Objectives: When this module is completed, the student should be able to:

1. define or describe the meanings of the following terms:

   Entity-Relationship Model, entity, relationship, cardinalities, views, conceptual model, logical model, physical model, recursive relationship, subtypes/supertypes.

2. relate this course to systems analysis and design.

3. understand the importance for data modelling and design tools and techniques.

4. understand how entities and relationships are represented.

5. understand how connectivities and cardinalities are used.

6. understand how many-to-many relationships are resolved.

7. understand how "pieces" of a database design come together to form the overall design.

8. demonstrate the use of E-R diagrams to build a data model.

Module 3: **Data Modelling Using The Semantic Object Model**
(chapters 4 - Kroenke)

When this module is completed, the student should be able to:

1. define or describe the meanings of the following terms:

   Semantic Object Model, semantic object, object diagram, property, domain

2. define and illustrate the six basic types of semantic objects.

3. demonstrate the use of object diagrams to build a data model.

4. compare the Entity Relationship Model to the Semantic Object Model.

Module 4: **The Relational Model and Normalization**
(chapters 5 - Kroenke)

When this module is completed, the student should be able to:

1. define or describe the meanings of the following terms:

   relation, table, row, column, attribute, normal forms, modification anomalies, deletion/insertion anomaly, functional dependency, determinant, primary key, foreign key, candidate key, referential integrity

2. understand anomalies and the need for normalization.

3. understand how to assign primary keys to tables.

4. determine the functional dependencies among attributes.

5. compose relations using normalization and functional dependencies.

Module 5: **Database Design Using the Entity-Relationship and the Semantic Object Models**
(chapters 6 and 7 - Kroenke)

When this module is completed, the student should be able to:

1. define or describe the meanings of the following terms:

   tree structure, simple network, complex network

2. understand how trees, simple networks and complex networks are represented in the Relational Model.

3. transform E-R models into relational designs.

4. transform Semantic Object models into relational designs.

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PART 'B': The following modules pertain specifically to MicroSoft Access a relational database management system. These topics will be discussed concurrently with the theoretical concepts in PART 'A'.
(refer to chapters 8 and 11 - Kroenke,
chapters 1 to 5 - Grauer & Barber)

Module 1: **Implementing the Database Design**

When this module is completed, the student should be able to:

1. create a database structure.
2. create table structures from within the database.
3. create and enforce validation rules.
4. join tables to create the required relationships.
5. enforce referential integrity rules.
6. modify table structures and contents.
7. show the table structures and contents.

Module 2: **Form Development**

When this module is completed, the student should be able to:

1. describe and create a form in Access.
2. explain why forms are important to the applications designer and the end user.
3. design forms used to present and manipulate data in more than one table.
4. use forms to tie a database's components together.

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Module 3: **Query and Report Development**

When this module is completed, the student should be able to:

1. develop and use selected queries.
2. develop and use action queries.
3. develop and use parameter queries.
4. use selected query tools.
5. develop reports of varying degrees of complexity.

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IV. Student Evaluation:

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

Quizzes (5 @ 12%)	60%
Assignments (6 @ 3%)	18%
Project	20%
	100%

Grading:

A+	90 - 100%
A	80 - 89%
B	70 - 79%
C	60 - 69%
R	under 60% - Repeat Course

V. Special Notes:

1. In order to pass this course the student must obtain an average of 60% or better on the **quiz** portion of the Student Evaluation.

2. Students are advised to maintain a copy of all files on a backup disk. Loss of an assignment due to a lost or damaged disk is not an acceptable reason for a late or incomplete assignment.

3. Students with special needs, due to such things as physical limitations, visual and/or hearing impairments, or learning disabilities, are encouraged to discuss required accommodations, confidentially, with the instructor.

4. There will be **no re-writes** in this course except in situations out of the control of the student (such as illness, urgent family matters, etc.) in which a re-write may be issued at the discretion of the instructor.

5. Assignments received after the due date are subject to grade of zero except in situations as specified in #3 above.

6. The instructor reserves the right to modify the course material and/or the assessment process to meet any changing needs of the class. Consultation with the class will be done prior to any changes.

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Assignment/Project Specific Information

1. Assignments/Projects will be assigned to student "project teams", each consisting of two or three students.

2. It is the responsibility of the project team to clarify any system requirements with the instructor.

3. At various intervals, the instructor will require each project team to report on the progress made on their respective assignment/project. At that time, each team member will be required to complete a Peer Evaluation Form used to "grade" each team member's contribution to the project. A sample of the evaluation form is attached.

4. At the completion of a project, the respective project team will present and demonstrate the functionality of their system to the instructor.

5. The grade assigned to the overall assignment/project and to each team member will be determined using three sources:

    a) Peer Evaluation Form
    b) Presentation of project to instructor(s)

    ** Note: When a project is presented to the instructor, each team member will be required to demonstrate his/her assigned task(s). The project will receive an overall grade and each team member will receive an individual grade which may or may not be equivalent to the overall project grade or to the grades of other team members.