**MAKERERE UNIVERSITY**

**MAKERERE UNIVERSITY BUSINESS SCHOOL**

**FACULTY OF COMPUTING AND INFORMATICS**

**DATABASE MANAGEMENT SYSTEMS (DBMS) COURSE OUTLINE**

**MASTER OF BUSINESS ADMINISTRATION**

**YEAR TWO, ACADEMIC YEAR 2025-2026**

**FACILITATORS**: Assoc. Prof. Robert Kyeyune & Mr. Kassim Mukuma

**Credit Units:** 3
**Prerequisite:** Basic knowledge of information systems

**Course Description**

This course provides MBA students with foundational and managerial insights into Database Management Systems (DBMS). It emphasizes database concepts, design, implementation, and management to support decision-making in business environments. The course integrates practical skills in database modeling and querying with strategic applications of databases for business intelligence and enterprise systems.

**Course Objectives**

By the end of the course, the learner should be able to:

1. Understand the principles and components of modern DBMS.
2. Analyze business requirements and translate them into database models.
3. Develop SQL queries for data retrieval and manipulation.
4. Apply database concepts in supporting managerial decision-making and business intelligence.
5. Evaluate database security, privacy, and ethical issues in organizational contexts.

**Learning Outcomes**

Upon successful completion, students will be able to:

1. Design and implement relational databases using conceptual, logical, and physical models.
2. Write and optimize SQL statements for data querying and reporting.
3. Apply database management principles to enhance operational efficiency and data-driven decision-making.
4. Assess data quality, integrity, and security measures for business applications.
5. Recommend database solutions for organizational and managerial problems.

**Detailed Course Outline (14 Weeks)**

| **Week** | **Topic** | **Subtopics / Activities** |
| --- | --- | --- |
| **1** | Introduction to DBMS | - Data, information, and database concepts- Role of DBMS in business- Types of databases (relational, NoSQL, distributed) |
| **2** | DBMS Architecture and Components | - DBMS components- Data models and schemas- Data independence and abstraction layers |
| **3** | Database Planning and Requirements Analysis | - Database lifecycle- Business requirement analysis- Case study: Translating business processes into database requirements |
| **4** | Data Modeling: ER Models | - Entity-Relationship (ER) modeling- Identifying entities, attributes, and relationships- ERD tools (Lucidchart, Draw.io) |
| **5** | Relational Model and Keys | - Relations, tuples, and attributes- Primary, foreign, and composite keys- Referential integrity |
| **6** | Normalization and Database Design | - Functional dependencies- 1NF, 2NF, 3NF, BCNF- Advantages of normalization |
| **7** | Structured Query Language (SQL) – Basics | - DDL: CREATE, ALTER, DROP- DML: INSERT, UPDATE, DELETE- Simple SELECT queries |
| **8** | SQL – Advanced Queries | - Joins, Subqueries, and Aggregations- Views and Indexing- Case study: Generating managerial reports |
| 9 | Database Security and Backup | - User management and privileges- Data encryption and integrity- Backup and disaster recovery strategies |
| 10 | Ethical and Legal Considerations | - Data privacy and protection (e.g., GDPR)- Ethical use of business data- Case study discussion |

**Teaching and Learning Methods**

* Lectures and interactive discussions
* Hands-on SQL lab exercises
* Case studies and business problem-solving sessions
* Group projects and presentations

**Assessment Methods**

* **SQL Lab Exercises / Assignments:** 30%
* **Mid-Semester Test:** 10%
* **Final Examination:** 60%

**Reference Books and Materials**

1. Coronel, C., & Morris, S. (2022). *Database Systems: Design, Implementation, and Management*. Cengage.
2. Elmasri, R., & Navathe, S. (2021). *Fundamentals of Database Systems*. Pearson.
3. Connolly, T., & Begg, C. (2020). *Database Systems: A Practical Approach to Design, Implementation, and Management*. Pearson.
4. Ramakrishnan, R., & Gehrke, J. (2020). *Database Management Systems*. McGraw-Hill.
5. Selected scholarly articles and online SQL tutorials.