Course Title and Code	IT131 **Database**

I. Course Identification and General Information:

Course Title	Database	Course Code	IT131	Pre-requisite	CSC111
Department	Information Technology	Course Level	3	Credit Hours	3(2+1)

II. Course Description/Topics: The following course topics will be covered.

- Data, Database, and DBMS definition.
- Database system.
- Overview of database management.
- Database system architecture.
- Database Languages and models.
- Relational databases and database Algebra.
- Structured Query Language (SQL), outer join, and views.
- Database Integrity.
- Entity Relationship Model.
- Database design.
- Relational Mapping.
- Normalization.

III. Course Outcomes: Summary of the main learning outcomes for students enrolled in the course.

- Differentiate and use key terms such as: information, data, database, database management system, and metadata and give a brief history of database models
- Explain the advantages of a database approach compared to traditional file processing.
- Describe the features of the relational model including relations, tuples, attributes, domains and operators.
- Formulate and test SQL queries using SELECT, FROM, WHERE, ORDER BY blocks, set operators, UNION, DISTINCT, LIKE, and BETWEEN operators, GROUP BY HAVING clause, sub-queries, VIEWS, INSERT, UPDATE and DELETE options, project, union, intersection, set difference, natural join, and outer join.
- Define entity integrity and referential integrity and give examples of user defined integrity constraints. Create, design, describe, and interpret Entity Relationship diagram.
- Explain the relationship between functional dependencies and keys and give examples.
- Label 1NF, some of 2NF, 3NF, or BCNF violations given a set of relations and a set of functional dependencies.

IV. Required Text:

- Database System Concepts, 6/E edition, Henry F. Korth, McGraw-Hill, 2011.

V. References:

- Fundamentals of Database Systems, 6/E, Elmasri , Addison-Wesley, 2011.
- An Introduction to Database Systems, 8/E, Date, Addison-Wesley, 2004.