DATABASE MANAGEMENT SYSTEM

UNIT CODE: IT/CU/ICT/CR/7/6

Relationship to Occupational Standards

This unit addresses the unit of competency: Manage database system

Duration of Unit: 250 hours

Unit Description:

This unit specifies competencies required to manage database system. They include identification of database management systems, designing of database, Creation and manipulation of database, database testing e.g. using dummy data, implementation of the designed database, establishing transaction and concurrency mechanism and managing database security

Summary of Learning Outcomes:

1. Identify database management system
2. Design database
3. Create and manipulate database
4. Perform database testing e.g. using dummy data
5. Implement designed database (roll out)
6. Establish transaction and concurrency mechanism
7. Manage database security

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Method
1. Identify database management system	❏ Define database management system, components and terminologies ❏ Classification of databases ❏ Understand various database management system	• Practical exercises • Oral questioning • Written test • Learner portfolio of evidence.
2. Design database	❏ Define data abstraction, instances and schemas	• Practical exercises • Oral questioning

	❑ Types of Database structures
	❑ Database operations
	   ✓ INSERT
	   ✓ SELECT
	   ✓ UPDATE
	   ✓ DELETE
	❑ Data models
	   ✓ ER- Models
	   ✓ Relational Models
	   ✓ Hierarchical models
	   ✓ Network Models
		• Written test
		• Learner portfolio of evidence.

3. Create and manipulate database	❑ Creation of tables • Primary and secondary key ❑ Linking of tables ❑ Data variables ❑ Database integration ❑ Database Querying - SQL	• Practical exercises • Oral questioning • Written test • Learner portfolio of evidence.

4. Perform database testing e.g. using dummy data	❑ Integration testing
	❑ DB Query testing
	❑ Database test techniques
	   ✓ Schema testing
	   ✓ Stored procedure
	   ✓ Trigger
	   ✓ Stress
	   ✓ views
	   ✓ Benchmarking e.t.c
	
	❑ Perform database testing
	❑ Generate test report
		• Practical exercises
		• Oral questioning
		• Written test
		• Learner portfolio of evidence.

5. Implement designed database (roll out)	❑ Run the designed database ❑ Test the design and Database functionality	• Practical exercises • Oral questioning • Written test • Learner portfolio of evidence

6. Establish transaction and concurrency mechanism	❑ Transaction mechanisms ❑ Concurrency mechanisms ❑ Management of multiple transactions	• Practical exercises • Oral questioning • Written test • Learner portfolio of evidence
7.Manage database security	❑ Restriction of access as per Internal policy ❑ Types of restrictions ❑ Backup and recovery methods	• Practical exercises • Oral questioning • Written test

Suggested Methods of Delivery

- Presentations and practical demonstrations by trainer;
- Guided learner activities and research to develop underpinning knowledge;
- Supervised activities and projects in a workshop;

The delivery may also be supplemented and enhanced by the following, if the opportunity allows:

- Visiting lecturer/trainer from the ICT sector;
- Industrial visits.

Recommended Resources

Tools
✓DB Comparer ✓Ad miner ✓Firebird ✓DBeaver ✓phpMyAdmin ✓Navicat for MySQL ✓Test Data Generator ✓ Visual Query Designer
Equipment
• computers • Servers