# Database maintenance

The following are guidelines on management and maintenance of DBMS systems should be adopted:

- Performance monitoring and tuning [Recommended]
- Change management [Mandatory]
- Documentation [Mandatory]

# Performance monitoring and tuning [Recommended]

- Implement real-time monitoring to promptly detect and respond to performance issues as they arise
- Implement database performance tuning which involves optimizing the configuration, structure, and queries of a database system to achieve optimal efficiency, responsiveness, and overall performance
- Monitor utilization of key resources such as CPU, memory, disk I/O, and network. Resource bottlenecks can significantly impact database performance

# Change management [Mandatory]

- Establish a formal process for submitting requesting, approval and implementation of changes to a database
- Document all database changes comprehensively. This includes changes to schema, indexes, stored procedures, triggers, and configuration settings
- Use version control systems for database schema and code changes. This helps track modifications, roll back changes if needed, and collaborate effectively
- Have dedicated testing environments where you can validate changes before deploying them to the production database.

# Documentation [Mandatory]

- Maintain accurate and up-to-date database documentation which is crucial for the efficient and effective management of databases within an institution