Liverpool John Moores University

Title:	DATABASE DESIGN, APPLICATIONS AND MANAGEMENT
Status:	Definitive
Code:	**5019COMP** (102963)
Version Start Date:	01-08-2019
Owning School/Faculty:	Computer Science
Teaching School/Faculty:	Computer Science

Team	Leader
Glyn Hughes	Y
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Academic Level:	FHEQ5	**Credit Value:**	24	**Total Delivered Hours:**	74
Total Learning Hours:	240	**Private Study:**	166		

Delivery Options
Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	24
Practical	24
Tutorial	24

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	Conceptual and logical database design.	30	
Artefacts	AS2	SQL based database implementation.	30	
Exam	AS3	Examination	40	2

Aims

To develop the ability to organize data logically and model it conceptually given the relational data model.

To implement a relational database using suitable tools and languages such as SQL.
To introduce development aspects of data connected applications.
To investigate the database administration tasks and key concepts of data management, quality and security.

Learning Outcomes

After completing the module the student should be able to:

1 Produce a conceptual data model by applying various data modelling techniques.
2 Implement a logical model using a relational database and query it using SQL.
3 Perform database administration tasks.
4 Explain the role of databases, applications and database management systems in the context of enterprise systems.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Database design	1	
Database implementation	2	
Examination	3	4

Outline Syllabus

Module Overview & DBMS Architecture
Defining Entities, Attributes & Relationships
ERM Notation & Design
Functional Dependency & Normalisation
1NF - 2NF - 3NF
Relational Algebra
SQL Components & DDL (for Tables)
DML (for basic SELECT)
DML (for JOINS & INSERT - UPDATE - DELETE)
Views & Indices (DDL & DML)
SPROCs & Triggers (DDL & DML)
Case Study
Java DB & JDBC
Database Administration (Role & Responsibility)
Performance Monitoring
Optimization (Indices - Partitioning - DML Hints)
Security Management
Availability (Backup & Recovery)
The Enterprise DBMS
Online Analytical Processing

Learning Activities

Application problems are analysed and appropriate structures for database solutions are designed and implemented. Learning activities will be through lectures and tutorials where students will be encouraged to ask questions and discuss case studies and supported labs where students will be encouraged to put theory gained in lectures and tutorials into practice.

Notes

This module provides the student with the fundamental principles for the design and Implementation of appropriate database structures for information systems, using ER modelling as the primary technique. Logical data modelling using the relational data model (including ER – relational conversion and normalization) will also be covered.