

Liverpool John Moores University

Title: DATABASE DESIGN AND CONNECTIVITY
Status: Definitive
Code: **5000ONLINE** (103090)
Version Start Date: 01-08-2011

Owning School/Faculty: Computing and Mathematical Sciences
Teaching School/Faculty: Computing and Mathematical Sciences

Team	Leader
Dhiya Al-Jumeily	Y

Academic Level: FHEQ5 **Credit Value:** 24.00 **Total Delivered Hours:** 72.00
Total Learning Hours: 240 **Private Study:** 168

Delivery Options

Course typically offered: Runs Twice - S1 & S2

Component	Contact Hours
Lecture	24.000
Online	24.000
Practical	12.000
Tutorial	12.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	Create a Conceptual and Logical Model of a Relational Database	25.0	
Practice	AS2	Design and implementation of a simple relational database	25.0	
Report	AS3	Group based assessment - Design and develop a simple online database accessed through a simple web form	50.0	

Aims

*To develop an ability to model data and implement it in a relational database.
To introduce different methods and techniques that define how a middleware is used
to integrate databases with the Internet (web database systems).*

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 Demonstrate the ability to implement a given logical model using a relational database and query it using SQL.
- 3 Develop a basic understanding of web technologies applied to databases and database connectivity.

Learning Outcomes of Assessments

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

Conceptual data model	1
Implement logical model	2
Web technologies	3

Outline Syllabus

Database concepts and terminology:

- Introduction to Databases*
- DBMS architecture, Data independence*
- Entities, attributes, identifiers and relationships.*

Conceptual data model:

- Entity-relationship model*
- Normalisation, functional dependency, 3NF*

Logical data model:

- Relational data model*
- Mapping conceptual schema to a relational schema*
- Relations, relational structures and relational algebra*

Physical data model:

- Data types*
- Database languages*
 - SQL: DDL, DML, and DCL*
- SQL to create, manipulate, and query a database.*

Databases Connectivity and Web Technologies:

- Web Database Architectures
- Client-side and Server-side Processing

Semantic Web Technologies:

- Simple Semantic Web Application as an example of Web-base application

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.

References

Course Material	Book
Author	Connolly, T. and Begg, C.
Publishing Year	2009
Title	Database Systems
Subtitle	A Practical Approach to Design, Implementation and Management
Edition	5th Edition
Publisher	Addison Wesley
ISBN	0321523067

Course Material	Book
Author	Coronel, C., Morris, S. and Rob, P.
Publishing Year	2010
Title	Database Systems
Subtitle	Design, Implementation, and Management
Edition	10th Edition
Publisher	Cengage Learning
ISBN	

Course Material	Book
Author	Hitzler, P., Krötzsch, M. and Rudolph, S.
Publishing Year	2009
Title	Foundations of Semantic Web Technologies
Subtitle	
Edition	10th Edition
Publisher	Chapman & Hall Books
ISBN	9781420090505

Notes

This module prepares the student for the basics of Web database development. Practicals will give the students a chance to try out different approaches and methods for creating Web database front ends.

The course should provide a practical understanding of how relational databases support Web-based applications. All online activities are scheduled.