Liverpool John Moores University

Title: DATABASE DESIGN & CONNECTIVITY
Status: Definitive
Code: **5003HCOM**   (118825)
Version Start Date: 01-08-2011

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

Team	emplid	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: Standard Year Long

Component	Contact Hours
Lecture	16.000
Practical	32.000
Tutorial	24.000

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	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:

Database model	1
Relational database	2
Online database	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 and supported labs where students will be encouraged to put theory gained in lectures and tutorials into practice.

References

Course Material	Book
Author	Connolly,T. Begg,C. and Strachan, A.
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	Carlos Coronel, Steven Morris and Peter Rob
Publishing Year	2010
Title	Database Systems
Subtitle	Design, Implementation, and Management
Edition	10th Edition
Publisher	Cengage Learning
ISBN	

Course Material	Book
Author	Pascal Hitzler, Pascal Hitzler, Markus Krötzsch and Sebastian Rudolph
Publishing Year	2009
Title	Foundations of Semantic Web Technologies
Subtitle	
Edition	
Publisher	Chapman and Hall
ISBN	978-1420090505

Notes

This module prepares the student for the basics of Web database development. A

hands-on approach, 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.