

Database Systems

Module handbook

2010/2011

Module Title: Database Systems

Module Code: BB3103

Level: 6

Module availability: BUMP students

Lecturers

Name	Room	Email
Barry Avery	340	b.avery@kingston.ac.uk
Serhiy Kovala	339	s.kovala@kingston.ac.uk

Administrators

Name	Room	Email
Louise Moss	301	Louise.Moss@kingston.ac.uk

Barry Avery will deliver lectures in Semester 1; Serhiy Kovala will take the 2-hour lectures in the second semester.

Aims and Objectives

The principle aims are:

1. To identify the theory and practice of:
 - relational database systems
 - distributed database systems
 - Internet database systems
2. To equip students with data management techniques

Learning Outcomes

By the end of the module students should be able to

- use various data modelling techniques
- apply suitable techniques to design and implement database systems
- critically appraise the various database approaches to data management
- contrast the suitability of different approaches to data management within an environment and hence be in a position to advise on choice of database management systems
- appreciate the theoretical basis of distributed database systems
- to advise on data management issues such as security, integrity and availability

Approach to teaching and learning

This module will be a mixture of lectures, tutorials and case studies. Practical classes will be used to equip the students with a mixture of database skills. Over the period of the course students will present one piece of coursework on theoretical and practical database design.

Assessment

One piece of coursework (20%), together with an unseen end of year examination (80%).

Required reading and other Resources

The main course text is

Connolly, T. and Begg, C. (2004) **Database Systems**, Fourth Edition, Addison Wesley (ISBN 0-321-21025-5)

There is a newer edition of the text, but for the purposes of this module you can use either.

Semester One materials will be available through the web site barryavery.com or through studentspace. These materials (and the course schedule) will be updated as the course progresses so ensure that this is looked at regularly.

Other texts:

None of these texts are required for the course, but almost all of them are available in the library and have been used successfully in the past by students looking for background reading

- [1] Date, C.J. (2000) **An Introduction to Database Systems**, Seventh Edition, Addison Wesley
- [2] Rob, P. and Coronel, C. (2004) **Database Systems: Implementation, and Management**, Sixth Edition, Course Technology (ISBN 0-619-21372-8)
- [3] Abiteboul, Hull and Viannu (1995), **Foundations of Databases**, First Edition, Prentice Hall
- [4] Ramakrishnan, R., Gehrke, J. (2000) **Database Management Systems**, Second Edition, McGraw Hill
- [5] Elmasri, R., Navathe, S. (2000) **Fundamentals of Database Systems**, Third Edition, Addison Wesley
- [6] Ceri & Pelagatti (1985) **Distributed Databases**, First Edition, McGraw Hill
- [7] Yarger, R., Reese, G., King, T., (1999) **MySQL and mSQL**, First Edition, O'Reilly

Teaching Programme (Indicative)

The current set of topics covered includes:

1. Introduction to Databases / Database Models and Architectures
2. The Relational Model
3. SQL: Data Definition / SQL: Data Manipulation and Retrieval
4. Database System Development Lifecycle
5. Database Modelling Through Entity-Relationship Diagrams and Normalization
6. Using Views To Create Individual DB User Profiles
7. Database Design Methodology Overview
8. Database Design: Conceptual / Logical for the Relational Model / Physical for Relational Databases
9. Data Warehousing Concepts / Design
10. OLAP / Data Mining
11. Distributed Databases
12. Mobile Databases
13. Web Technology and Databases

Appendix A – Based on last year

Week	Theme
Week 1	Introduction into Rules of Play Introduction to Databases
Week 2	Database Models / Architectures
Week 3	The Relational Model
Week 4	SQL: Data Definition / SQL: Data Manipulation
Week 5	SQL: Data Retrieval
Week 6	Added Value Week
Week 7	SQL: Relational Algebra Illustrated
Week 8	SQL: Relational Algebra Illustrated (cont.)
Week 9	Database System Development Lifecycle
Week 10	Database Modeling Through E/R Diagrams and Normalization
Week 11	Methodology: Conceptual Database Design
Week 12	Methodology: Logical Database Design
	Christmas vacation
Week 13	Methodology: Physical Database Design
Week 14	Data Warehousing – Concepts
Week 15	Data Warehousing – Design
Week 16	OLAP
Week 17	Data Mining
Week 18	Data Mining (cont.)
Week 19	Distributed Databases – Concepts
Week 20	Distributed Databases – Design
	Easter Vacation
Week 21	Mobile Databases
Week 22	Web Technology and Databases
Week 23	Web Technology and Databases
	Revision week

Note that these dates may vary – current information will be available studentspace / online

Additional info:

1. **Coursework assignment** will be available at the beginning of Semester 2 and due by the start of the Easter vacation (date to follow)