



DBLN CPSI 3397

This course is being offered at Griffith College, CAPA's academic partner in Dublin. The Irish academic system differs from the US, particularly with grading. Griffith College professors expect students to undertake a good deal of independent study to achieve a high mark in their classes. For additional information about this class, please contact the Boston Program Advising Team at 1-800-793-0334.

Relational Databases

Continuous Assessment: 50%

Exam: 50%

Intended Module Learning Outcomes

On successful completion of this module learners will be able to:

1. Analyse the goals, functions, models, and components of database systems
2. Explain the context, phases, and techniques for designing and building databases
3. Select and apply appropriate design models to a given development environment
4. Design an efficient database system for a business functional area using an appropriate database design technique

5. Implement and manipulate a relational database using SQL
6. Connect a database to a larger software development environment
7. Critically analyse advanced topics in database systems

Module Objectives

This module teaches the learner the basic theoretical ideas that underpin modern database management systems. In parallel with this it shows how to design and implement databases. The learner learns techniques such as entity-relationship modelling and normalisation in order to more effectively design a database. The learner also learns the structured query language (SQL) to allow them to implement their design in a commercial database management system.

From a technical viewpoint the learner gains experience using a modern database management system such as MySQL or Oracle. The integration of databases into our programming languages allows the development of large scale software solutions. In this module they learn how to create a communication between a programming language such as Java and the database itself. This leads to the development of applications following the N-tier model.

Module Curriculum

Databases

- What is a database?
- What is a database management system?
- Generalised functions of a DBMS
- Components of the DBMS

The relational model

- Relational algebra
- Entity-Relationship modelling
- Normalisation

Structured query language

- Introduction to SQL, data manipulation language (DML) and data definition language (DDL)
- Basic DML and DDL commands
- Functions: Aggregates and groups
- Joins and nested queries

Developing database applications

- Developing end-user applications using the N-tier model Database connectivity, using SQL in an embedded environment.
- Practical work with a suitable DBMS

Current developments

- Object-oriented databases
- Future developments in SQL
- Distributed databases
- Deductive databases
- The trans-relational model