MODULE 10	RELATIONAL DATABASES	
CREDIT POINTS	7.5	
STATUS	Core	
ASSESSMENT	Continuous Assessment	50%
	Examination	50%
TOTAL CONTACT HOURS: 48		
Lecture: 24	Practical: 24	
Tutorial:	Other:	
TOTAL STUDENT EFFORT: 150		

Aims

This module teaches you the basic theoretical ideas that underpin modern database management systems. In parallel with this it shows you how to design and implement databases. You will learn techniques such as entity-relationship modelling and normalisation in order to more effectively design a database. You will also learn the structured query language (SQL) so as to allow you to implement your design in a commercial database management system. From a technical viewpoint you will gain 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 you will learn how to create a communication between a programming language such as Java and the database itself. This will lead to the development of applications following the N-tier model.

Learning Outcomes

Upon successful completion of this module, you should 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. critically evaluate more advanced topics in database systems

Indicative Content

Topic	**Description**
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