

## **OUA DBC Course Overview.**

The Database Concepts course introduces students to the most common tools for information management used in businesses and the internet. There are many ways to store data but the Relational Databases has proved to meet the needs of many applications and this type of database is the focus of this course.

In general, the course looks at the different phases of setting up a database and the tools and techniques required to do this.

To start the course, we define what a relational database is and place some structure on the data they hold.

The first phase of constructing a new database is to understand the information to be recorded in the database so we look at Entity-Relationship diagrams (ER Diagrams) as a means of capturing this. ER Diagrams record the details of what information is to be stored in the database; information about things (entities) and how they relate to each other.

We look at the process for translating an ER diagrams into a relational schema or structure for building a computer database ready to accept data and perform operations on that data.

An important part of operating a database is to be able to “ask questions” of it; to be able to retrieve information from it. A high-level language called SQL (Structured Query Language) is used to do this. It is a very common language used to formulate queries on a database. We spend a significant part of the course looking at SQL.

Another aspect of SQL is the database manipulation functions. These are used to change the structure of the database and we look into these commands.

It is a common requirement in industry to look at problems with existing databases. The analytical tools we look at for this task are Functional Dependencies and Normal Forms.

Although relational databases have been the subject of much research and there is a deep theoretical base, we do not go too deeply into this but we do consider some of the formal structures and concepts that underpin our understanding of the subject.

The course is split into two sections. The first section introduces most of the topics mentioned above to an intermediate level. The second section considers more advanced material in the same areas as well as introducing some other advanced topics.

The SQL language is implemented with slightly different features and functions by different database suppliers. However for this course, all practical work will be done on an Oracle database located here at RMIT. Early prac sessions introduce students to the Oracle system .

The materials available to help you through the course are;

- Edited videos of formal on-campus lectures. This is the primary delivery method.
- Tutorial/Lab work.
- Some support videos to help students with unfamiliar tasks
- Other documents to aid understanding of some of the more difficult concepts.
- Elluminate sessions. A audio-visual whiteboard-sharing tool where students and the tutor can interact live online.
- Discussion forums. Post questions and get answers.

Assessment for this subject is by two assignments and an exam. To pass, you must average 50% or better across both assignments and pass the exam. The weighting used to calculate final grades to exam : 60% and assignments : 40%.

During this course, many examples and scenarios are provided to demonstrate concepts and for practice purposes. All these examples are simplified so that students can concentrate on the database issues. These examples are not meant to reflect real-life situations. Real-life is messy and complex and not suitable for educational purposes.

The Weekly Timetable provides a guide to what material is covered each week. It also has information about assignment release and due dates. A Weekly Activities check list is also provided.

A knowledge of databases and how they work is helpful to have in commercial and IT environments. It can also lead to rewarding personal experiences when these skills are applied outside the workplace. I hope you enjoy your study of Database Concepts.

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