INFS 2002 DATABASE DESIGN AND DEVELOPMENT (ADVANCED)

Credit Points 10

Legacy Code 300941

Coordinator Junda Lu (https://directory.westernsydney.edu.au/search/name/Junda Lu/)

Description This subject covers the principles, methodologies and technologies for the database design and development, exploring in particular the data modelling methods and the use of the language SQL for the database applications. The subject also examines a number of important database concepts such as database administration, concurrency, backup and recovery, and security. Students in this advanced subject are furthermore required to investigate new technological and theory advances in the database industry and apply them to the solution of concrete database problems.

School Computer, Data & Math Sciences

Discipline Database Management

Student Contribution Band HECS Band 2 10cp

Check your fees via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

Level Undergraduate Level 2 subject

Incompatible Subjects LGYA 4371 - Database Management System for Business Information Systems INFS 2001 - Database Design and Development

Restrictions

Students must be enrolled in 3685 Bachelor of Computing (Information Systems) Advanced, 3684 Bachelor of Information and Communication Technology (Advanced), 3688 Bachelor of Information Systems Advanced, 3745 Bachelor of Information Systems Advanced/Bachelor of Business or 2801 Bachelor of Information Systems Advanced/Bachelor of Laws.

Assumed Knowledge

Basic programming skills, including variable declaration, variable assignment, selection statement and loop structure.

Learning Outcomes

On successful completion of this subject, students should be able to:

1. Describe components of a database system, advantages and disadvantages of a database system, roles peoples play and the historical development of a database system in the context of a Relational Database Management System (RDBMS).
2. Apply basic skills in database modeling, including ER diagrams and normalization in RDBMS.
3. Explain the basic concepts of relational algebra and apply them in queries.
4. Describe the general concepts of transaction management.
5. Identify concepts in database administration.
6. Describe concepts in database security and backup.
7. Define and manipulate data using structured query language (SQL)
8. Design and develop a database for a business application using a commercial database management system
9. Investigate and apply advanced database techniques such as higher normal forms, stored procedures, triggers, indexes and limited data denormalization

Subject Content

Introduction to database concepts and ANSI Spark 3 level architecture.
Concepts in data modeling.
Integration of data and data independence.
Translating a case study into relational concepts and integrity constraints.
Introduction to relational algebra.
Data Modelling: Conceptual, logical and physical database design.
Data definition and manipulation using SQL.
EER concepts with generalisation and specialisation.
Anomalies in databases and database normalisation.
Introduction to database security and administration.
Introduction to transaction management, concurrency and locking.
Higher normal forms, stored procedures, triggers, indexes, and limited data denormalization.

Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Type	Length	Percent	Threshold	Individual/ Group Task	Mandatory
Case Study	maximum 2000 words in no more than 20 pages	23	N	Group/ Individual	N
Applied Project	maximum 2000 words (excluding SQL source code) in no more than 20 pages	27	N	Group/ Individual	N
Final Exam	2 hours	50	Y	Individual	Y

Teaching Periods

Spring (2025)

Campbelltown

On-site

Subject Contact Junda Lu (https://directory.westernsydney.edu.au/search/name/Junda Lu/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=INFS2002_25-SPR_CA_1#subjects)

Penrith (Kingswood)

On-site

Subject Contact Junda Lu (https://directory.westernsydney.edu.au/search/name/Junda Lu/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=INFS2002_25-SPR_KW_1#subjects)

Parramatta - Victoria Rd

On-site

Subject Contact Junda Lu (https://directory.westernsydney.edu.au/search/name/Junda Lu/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=INFS2002_25-SPR_PS_1#subjects)