COIT11237 *Database Design & Implementation*
Term 2 - 2022

All details in this unit profile for COIT11237 have been officially approved by CQUniversity and represent a learning partnership between the University and you (our student).The information will not be changed unless absolutely necessary and any change will be clearly indicated by an approved correction included in the profile.

General Information

Overview

Relational databases are pervasive in information technology; designing and building these databases is a challenging yet rewarding occupation. This unit will introduce you to data modelling, relational database theory, and normalisation. These are essential skills for the design and implementation of relational databases. The problems associated with poorly designed and implemented databases are demonstrated. The important database language Structured Query Language (SQL) is covered in sufficient depth to allow you to appreciate its potential and limitations. Other topics covered in this unit include multi-user database processing and other front-end applications. During the unit, you will design and implement a small database application. The unit aims to give you a solid theoretical foundation while also providing you with an opportunity to apply the theory through the assignment work.

Details

Career Level: *Undergraduate*
Unit Level: *Level 1*
Credit Points: *6*
Student Contribution Band: *8*
Fraction of Full-Time Student Load: *0.125*

Pre-requisites or Co-requisites

Pre-requisite COIT11226 System Analysis Note: Students who are currently enrolled in or who have previously completed COIT12167 Database Use and Design cannot enrol in this unit.
Important note: Students enrolled in a subsequent unit who failed their pre-requisite unit, should drop the subsequent unit before the census date or within 10 working days of Fail grade notification. Students who do not drop the unit in this timeframe cannot later drop the unit without academic and financial liability. See details in the Assessment Policy and Procedure (Higher Education Coursework).

Offerings For Term 2 - 2022

- Brisbane
- Cairns
- Melbourne
- Online
- Rockhampton
- Sydney
- Townsville

Attendance Requirements

All on-campus students are expected to attend scheduled classes – in some units, these classes are identified as a mandatory (pass/fail) component and attendance is compulsory. International students, on a student visa, must maintain a full time study load and meet both attendance and academic progress requirements in each study period (satisfactory attendance for International students is defined as maintaining at least an 80% attendance record).

Website

This unit has a website, within the Moodle system, which is available two weeks before the start of term. It is important that you visit your Moodle site throughout the term. Please visit Moodle for more information.

Class and Assessment Overview

Recommended Student Time Commitment

Each 6-credit Undergraduate unit at CQUniversity requires an overall time commitment of an average of 12.5 hours of study per week, making a total of 150 hours for the unit.

Class Timetable

Regional Campuses

Bundaberg, Cairns, Emerald, Gladstone, Mackay, Rockhampton, Townsville

Metropolitan Campuses

Adelaide, Brisbane, Melbourne, Perth, Sydney

Assessment Overview

1. **Written Assessment**
Weighting: 30%
2. **Written Assessment**
Weighting: 30%
3. **Online Quiz(zes)**
Weighting: 40%

Assessment Grading

This is a graded unit: your overall grade will be calculated from the marks or grades for each assessment task, based on the relative weightings shown in the table above. You must obtain an overall mark for the unit of at least 50%, or an overall grade of 'pass' in order to pass the unit. If any 'pass/fail' tasks are shown in the table above they must also be completed successfully ('pass' grade). You must also meet any minimum mark requirements specified for a particular assessment task, as detailed in the 'assessment task' section (note that in some instances, the minimum mark for a task may be greater than 50%). Consult the University's Grades and Results Policy for more details of interim results and final grades.

CQUniversity Policies

All University policies are available on the CQUniversity Policy site.
You may wish to view these policies:

- Grades and Results Policy
- Assessment Policy and Procedure (Higher Education Coursework)
- Review of Grade Procedure
- Student Academic Integrity Policy and Procedure
- Monitoring Academic Progress (MAP) Policy and Procedure – Domestic Students
- Monitoring Academic Progress (MAP) Policy and Procedure – International Students
- Student Refund and Credit Balance Policy and Procedure
- Student Feedback – Compliments and Complaints Policy and Procedure
- Information and Communications Technology Acceptable Use Policy and Procedure

This list is not an exhaustive list of all University policies. The full list of University policies are available on the CQUniversity Policy site.

Previous Student Feedback

Feedback, Recommendations and Responses

Every unit is reviewed for enhancement each year. At the most recent review, the following staff and student feedback items were identified and recommendations were made.

Feedback from Student Evaluation

Feedback

Students appreciate the tutorial exercises which give them practical experience

Recommendation

From Term 1, 2022, the software is being changed from MS Access to MySQL. It is recommended to retain the current tutorial exercises appropriately modifying to the new software.

Unit Learning Outcomes

On successful completion of this unit, you will be able to:

1. Differentiate database applications, systems, and their role in supporting business processes
2. Demonstrate competency in using Structured Query Language
3. Design models using a specified data modelling approach
4. Create Relational Models
5. Normalise tables using concepts relating to functional dependency
6. Identify database implementation issues.

The aim of this unit is to provide an understanding of database theory, technology, the database environment, and the role of database applications in support of enterprise. The focus is the use and design of databases using contemporary technology: relational database technology and SQL. An introduction is provided to database implementation issues and emerging database technology.

The Australian Computer Society (ACS) recognises the Skills Framework for the Information Age (SFIA). SFIA is in use in over 100 countries and provides a widely used and consistent definition of ICT skills. SFIA is increasingly being used when developing job descriptions and role profiles.

ACS members can use the tool MySFIA to build a skills profile at
https://www.acs.org.au/professionalrecognition/mysfia-b2c.html

This unit contributes to the following workplace skills as defined by SFIA. The SFIA code is included:

- Database Repository Design (DBDS)
- Programming/Software Development (PROG)
- Database Administration (DBAD)

Alignment of Learning Outcomes, Assessment and Graduate Attributes

| — N/A Level | ○ Introductory Level | ○ Intermediate Level | ● Graduate Level | ○ Professional Level | ○ Advanced Level |

Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes					
	1	**2**	**3**	**4**	**5**	**6**
1 - Written Assessment - 30%	●	●				
2 - Written Assessment - 30%			●	●	●	●
3 - Online Quiz(zes) - 40%	●	●	●	●	●	●

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes					
	1	2	3	4	5	6
1 - Communication	•	•	•	•	•	•
2 - Problem Solving	•	•	•	•	•	•
3 - Critical Thinking	•	•	•	•	•	•
4 - Information Literacy						
5 - Team Work						
6 - Information Technology Competence	•	•	•	•	•	•
7 - Cross Cultural Competence						
8 - Ethical practice	•	•	•	•	•	•
9 - Social Innovation						
10 - First Nations Knowledges						
11 - Aboriginal and Torres Strait Islander Cultures						

Alignment of Assessment Tasks to Graduate Attributes

Assessment Tasks	Graduate Attributes										
	1	2	3	4	5	6	7	8	9	10	11
1 - Written Assessment - 30%	•	•	•			•		•			
2 - Written Assessment - 30%	•	•	•			•		•			
3 - Online Quiz(zes) - 40%	•	•	•	•		•		•			

Textbooks and Resources

Textbooks
COIT11237

Prescribed

DATABASE CONCEPTS
Edition: 9th edn (2019)
Authors: David M. Kroenke, David J. Auer, Scott L. Vandenberg, Robert C. Yoder
Pearson Higher Education
Hoboken , New Jersey , USA
ISBN: 9780135188149
Binding: Paperback

Additional Textbook Information
Paper copies can be purchased at the CQUni Bookshop here: http://bookshop.cqu.edu.au (search on the Unit code).

View textbooks at the CQUniversity Bookshop

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- MySQL Workbench 6.3 CE (https://dev.mysql.com/downloads/file/?id=474210)
- MySQL Database Server 8.0.21 or later (https://dev.mysql.com/downloads/mysql)

Referencing Style

All submissions for this unit must use the referencing style: Harvard (author-date)
For further information, see the Assessment Tasks.

Teaching Contacts

Michael Li Unit Coordinator
m.li@cqu.edu.au

Schedule

Week 1 - 11 Jul 2022		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Introduction to Databases	Chapter-1 Getting started	
Week 2 - 18 Jul 2022		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Structured Query Language (SQL) Part 1	Chapter-3 Structured Query Language	
Week 3 - 25 Jul 2022		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Structured Query Language (SQL) Part 2	Chapter-3 Structured Query Language	

Week 4 - 01 Aug 2022

Module/Topic	Chapter	Events and Submissions/Topic
Entity-Relationship model - Part 1	Chapter-4 Data Modeling and the Entity-Relationship Model	

Week 5 - 08 Aug 2022

Module/Topic	Chapter	Events and Submissions/Topic
Entity-Relationship model- Part 2	Chapter-4 Data Modeling and the Entity-Relationship Model	**Assessment 1 - Practical and Written Assessment** Due: Week 5 Friday (12 Aug 2022) 11:45 pm AEST

Vacation Week - 15 Aug 2022

Module/Topic	Chapter	Events and Submissions/Topic

Week 6 - 22 Aug 2022

Module/Topic	Chapter	Events and Submissions/Topic
Relational model and Normalization	Chapter-2 The Relational Model	

Week 7 - 29 Aug 2022

Module/Topic	Chapter	Events and Submissions/Topic
Database Design	Chapter-5 Database Design	

Week 8 - 05 Sep 2022

Module/Topic	Chapter	Events and Submissions/Topic
Database Administration Part 1	Chapter-6 Database Administration	

Week 9 - 12 Sep 2022

Module/Topic	Chapter	Events and Submissions/Topic
Database Administration Part 2	Chapter-6 Database Administration	

Week 10 - 19 Sep 2022

Module/Topic	Chapter	Events and Submissions/Topic
Big Data, Data Warehouses, and Business Intelligence Systems	Chapter-8 Data Warehouses, Business Intelligence Systems, and Big Data	**Assessment 2 - Practical and Written Assessment** Due: Week 10 Friday (23 Sept 2022) 11:45 pm AEST

Week 11 - 26 Sep 2022

Module/Topic	Chapter	Events and Submissions/Topic
Cloud Databases	Week11 online materials	

Week 12 - 03 Oct 2022

Module/Topic	Chapter	Events and Submissions/Topic
Revision		

Review/Exam Week - 10 Oct 2022

Module/Topic	Chapter	Events and Submissions/Topic

Exam Week - 17 Oct 2022

Module/Topic	Chapter	Events and Submissions/Topic

Unit Coordinator: Dr. Michael Li
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phone: (07)49306337

Assessment Tasks

1 Assessment 1 - Practical and Written Assessment

Assessment Type
Written Assessment

Task Description
Assessment 1 consists of the following database related activity:

- writing SQL queries to perform various processing and to retrieve data from the given database(s)

For further information, please refer to the assessment specification and marking guide/criteria available on the unit website.

Assessment Due Date
Week 5 Friday (12 Aug 2022) 11:45 pm AEST

Return Date to Students
Week 6 Friday (26 Aug 2022)

Weighting
30%

Assessment Criteria
Your assessment solution will be assessed mainly on your SQL statements that solve the business requirements and involve the following:

- using appropriate clauses such as SELECT, FROM, WHERE, GROUP BY, HAVING and ORDER BY
- selecting relevant tables and joining them

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
Assignment files must be submitted via Moodle. Specific instructions are provided in the assessment task description.

Learning Outcomes Assessed

- Differentiate database applications, systems, and their role in supporting business processes
- Demonstrate competency in using Structured Query Language

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Technology Competence
- Ethical practice

2 Assessment 2 - Practical and Written Assessment

Assessment Type
Written Assessment

Task Description

Assessment 2 consists of the following types of database related activities:

- designing databases to satisfy the requirements of the given case study(s)
- developing conceptual data model diagram(s)
- performing logical design, normalization and physical design
- implementing the database(s) by using MySQL server

For further information, please refer to the assessment specification and marking guide/criteria available on the unit website.

Assessment Due Date

Week 10 Friday (23 Sept 2022) 11:45 pm AEST

Return Date to Students

Week 12 Friday (7 Oct 2022)

Within 2 weeks from the due date or within 2 weeks of submission (whichever is later).

Weighting

30%

Assessment Criteria

Your assessment solution will be assessed mainly on your ability to:

- create appropriate Entity Relationship model diagrams using proper symbols
- develop Relations by mapping ERDs and normalizing them
- provide column specifications for the developed Relations
- create tables and make appropriate relationships among them

Referencing Style

- [Harvard (author-date)](#)

Submission

Online

Submission Instructions

Assignment files must be submitted via Moodle. Specific instructions are provided in the assessment task description.

Learning Outcomes Assessed

- Design models using a specified data modelling approach
- Create Relational Models
- Normalise tables using concepts relating to functional dependency
- Identify database implementation issues.

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Technology Competence
- Ethical practice

3 ONLINE QUIZ(ZES)

Assessment Type

Online Quiz(zes)

Task Description

The online quiz(zes) will contain questions related to analysing case studies, interpreting the ER diagrams, writing SQL queries to meet the business requests and short answer questions related to various topics that have been covered in this unit.

Number of Quizzes

1

Frequency of Quizzes
Other

Assessment Due Date

During exam week as per University schedule

Return Date to Students

Marks will be released on certification date

Weighting
40%

Assessment Criteria
The online quiz(zes) will test your ability to answer the questions related to the following:

- developing and or analyzing conceptual data model diagrams
- performing logical design and normalization
- writing SQL queries to perform various processing and to retrieve data from the given database(s)
- database design and administration, Data Warehouses, Big data and Cloud databases
- definitions and key terms used in this unit

Referencing Style

- Harvard (author-date)

Submission
Online

Learning Outcomes Assessed

- Differentiate database applications, systems, and their role in supporting business processes
- Demonstrate competency in using Structured Query Language
- Design models using a specified data modelling approach
- Create Relational Models
- Normalise tables using concepts relating to functional dependency
- Identify database implementation issues.

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence
- Ethical practice

Academic Integrity Statement

As a CQUniversity student you are expected to act honestly in all aspects of your academic work.

Any assessable work undertaken or submitted for review or assessment must be your own work. Assessable work is any type of work you do to meet the assessment requirements in the unit, including draft work submitted for review and feedback and final work to be assessed.

When you use the ideas, words or data of others in your assessment, you must thoroughly and clearly acknowledge the source of this information by using the correct referencing style for your unit. Using others' work without proper acknowledgement may be considered a form of intellectual dishonesty.

Participating honestly, respectfully, responsibly, and fairly in your university study ensures the CQUniversity qualification you earn will be valued as a true indication of your individual academic achievement and will continue to receive the respect and recognition it deserves.

As a student, you are responsible for reading and following CQUniversity's policies, including the **Student Academic Integrity Policy and Procedure**. This policy sets out CQUniversity's expectations of you to act with integrity, examples of academic integrity breaches to avoid, the processes used to address alleged breaches of academic integrity, and potential penalties.

What is a breach of academic integrity?
A breach of academic integrity includes but is not limited to plagiarism, self-plagiarism, collusion, cheating, contract cheating, and academic misconduct. The Student Academic Integrity Policy and Procedure defines what these terms mean and gives examples.

Why is academic integrity important?
A breach of academic integrity may result in one or more penalties, including suspension or even expulsion from the University. It can also have negative implications for student visas and future enrolment at CQUniversity or elsewhere. Students who engage in contract cheating also risk being blackmailed by contract cheating services.

Where can I get assistance?
For academic advice and guidance, the Academic Learning Centre (ALC) can support you in becoming confident in completing assessments with integrity and of high standard.

What can you do to act with integrity?

Be Honest
If your assessment task is done by someone else, it would be dishonest of you to claim it as your own

Seek Help
If you are not sure about how to cite or reference in essays, reports etc, then seek help from your lecturer, the library or the Academic Learning Centre (ALC)

Produce Original Work
Originality comes from your ability to read widely, think critically, and apply your gained knowledge to address a question or problem