School of Information and Physical Sciences

COMP6140: Databases and Information Management Online

Semester 2 - 2023

OVERVIEV	V	
Course Description	This course provides students with theoretical knowledge and practical skills in the use of databases and database management systems. The conceptual and logical design and implementation of relational databases are covered.	
Requisites	This course has similarities to INFT2040. If you have completed INFT2040 you cannot enrol in this course.	R
Assumed Knowledge Contact Hours	Knowledge of and experience in programming Online Online Activity Online 4 hour(s) per Week for Full Term For the online version of this course, four hours per week is a minimum recommendation and may vary with individual student learning styles.	
Unit Weighting Workload	10 Students are required to spend on average 120-140 hours of effort (contact and non-contact) including assessments per 10 unit course.	



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CRICOS Provider 00109J

CONTACTS

Course Coordinator	Online A/Pr Suhuai Luo Suhuai.Luo@newcastle.edu.au (02) 4985 4508 Consultation: Online, by email
Teaching Staff	Other teaching staff will be advised on the course Canvas site.
School Office	School of Information and Physical Sciences SR233, Social Sciences Building Callaghan CESE-SIPS-Admin@newcastle.edu.au +61 2 4921 5513 9am-5pm (Mon-Fri)
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SYLLABUS

•	Data Modelling (ER Model and Conceptual Design)
•	Relational Algebra and Relational Calculus
•	SQL
•	Transaction Management and Concurrency Control
•	Schema Refinement, Functional Dependencies, Normalisation
•	Security and Authorisation
•	Database Administration
	• • • •

Course Learning Outcomes	On successful completion of this course, students will be able to: 1. Design data models and execute database normalisation
	2. Evaluate the role of database management systems
	3. Identify and use contemporary logical design methods and tools for databases
	4. Master database languages (e.g. SQL)
	5. Implement a database solution to a computing problem
	6. Develop sophisticated queries to extract information from large datasets
	7. Maintain key aspects of data security and data quality management
	8. Explore research aspects of databases and information management
Course Materials	Lecture Materials: Please check the course Canvas site.
	Required Text:
	 Thomas Connolly, Carolyn Begg, Database Systems: A Practical Approach to Design, Implementation & Management, Addison Wesley, 6th Edition (Global), 2015, ISBN-10 1292061189, ISBN-13 97812920611840020
	- Note: the eBook can be purchased from: http://pearson.com.au/9781292061184



COMPULSORY REQUIREMENTS

In order to pass this course, each student must complete ALL of the following compulsory requirements:

Course Assessment Requirements:

- Assessment 5 - Formal Examination: Minimum Grade / Mark Requirement - Students must obtain a specified minimum grade / mark in this assessment item to pass the course. Students whose overall mark in the course is 50% or more, but who score less than 40% in the compulsory item and thus fail to demonstrate the required proficiency, will be awarded a Criterion Fail grade, which will show as FF on their formal transcript. However, students in this position who have scored at least 25% in the compulsory item will be allowed to undertake a supplementary 'capped' assessment in which they can score at most 50% of the possible mark for that item.

SCHEDULE

Week	Week Begins	Торіс	Learning Activity	Assessment Due
1	17 Jul	Introduction to Course,	Get familiar with course	
		DBMSs	structure and requirements	
2	24 Jul	Assignment Requirements,	Learn and practice the first	
		Tools for DBMS, Introduction	step of database system	
		to SQL	design; practice on T-SQL	
			and SQL Server	
3	31 Jul	Conceptual DB Design	Learn and practice the	
			second step of database	
			system design; work on	
			assignment 1	
4	7 Aug	Logical DB Design, EER/	Learn and practice the third	
		Relational Mapping	step of database system	
F	11 0.00	Normalization	Drastics on relation	Assignment 1 due et
Э	14 Aug	Normalisation	Practice on relation	
			normalisation	Sunday
6	21 Aug	SOL(DDL + DML) with Data	Practice on T-SOI	Sunday
U U	ZIAug	Management		
7	28 Aug	Advanced SQL and	Continue practice on T-SQL	
		Relational Algebra		
8	4 Sep	Views, Transactions and	Study and practice several	
		Triggers	key techniques of database	
			system	
9	11 Sep	SQL Review and Test	Summary and test on SQL	Assignment 2 due at
			skill	11:59pm, Sept 17,
				Sunday
10	18 Sep	Database Security & Data	Learn and practice other	SQL test in the week.
		Access: Users, Roles,	important aspects of system	
		Privileges	maintenance and the	
			foundation of SQL	
			programming	
		Mid Terr	n Break	
	0.0.1	Mid Terr	n Break	
11	9 Oct	Physical DB Design: Files,	Learn and practice last step	
		indexes and Query Plans,	or database system design	
40	10 Oct	system implementation		
12	TO UCI	Course Summary	Course summary;	
			assignment 3 assessment	



13 23 Oct	Review Week	No lecture, no lab	Assignment 3 due	
Examination Period				
Examination Period				

Note: The weekly topics and learning activities are provisional. Details might change according to circumstances.

ASSESSMENTS

This course has 5 assessments. Each assessment is described in more detail in the sections below.

	Assessment Name	Due Date	Involvement	Weighting	Learning Outcomes
1	Assignment 1: Database Project - Description and EER model	week 5, due at 11:59pm, Aug 20, Sunday	Individual	15%	1, 2, 5
2	Assignment 2: Database Project - Logical Database Design	week 9, due at 11:59pm, Sept 17, Sunday	Individual	15%	3
3	Practical Test - Lab test on SQL	Week 10 (Date and time will be advised on Canvas)	Individual	15%	4, 6
4	Assignment 3: Database Project - Physical Database Design	week 13 (Date and time will be advised in Assessment Requirements Document)	Individual	15%	4, 5, 6, 8
5	Final Examination*	In semester exam period.	Individual	40%	1, 3, 4, 5, 7, 8

* This assessment has a compulsory requirement.

Late Submissions The mark for an assessment item submitted after the designated time on the due date, without an approved extension of time, will be reduced by 10% of the possible maximum mark for that assessment item for each day or part day that the assessment item is late. Note: this applies equally to week and weekend days.

Assessment 1 - Assignment 1: Database Project - Description and EER model

Assessment Type	Project
Description	The stage of conceptual database design will be completed.
Weighting	15%
Due Date	week 5, due at 11:59pm, Aug 20, Sunday
Submission Method	Online
	As advised in Assessment Requirements Document
Assessment Criteria	As advised in Assessment Requirements Document
Return Method	Online
Feedback Provided	Online

Assessment 2 - Assignment 2: Database Project - Logical Database Design

Assessment Type	Project
Description	The stage of logical database design will be completed.
Weighting	15%
Due Date	week 9, due at 11:59pm, Sept 17, Sunday
Submission Method	Online
	As advised in Assessment Requirements Document
Assessment Criteria	As advised in Assessment Requirements Document
Return Method	Online
Feedback Provided	Online



Assessment 3 - Practical Test - Lab test on SQL

Assessment Type	Quiz
Description	SQL Test
Weighting	15%
Due Date	Week 10
Submission Method	Online
Assessment Criteria	As advised in Assessment Requirements Document
Return Method	Online
Feedback Provided	Online

Assessment 4 - Assignment 3: Database Project - Physical Database Design

Assessment Type Description Weighting	Project The stage of physical database design will be completed. 15%
Due Date	week 13 (Date and time will be advised in Assessment Requirements Document)
Submission Method	Online
	As advised in Assessment Requirements Document
Assessment Criteria	As advised in Assessment Requirements Document
Return Method	Online
Feedback Provided	Online

Assessment 5 - Final Examination

Assessment Type	Formal Examination
Description	Final formal examination
Weighting	40%
Compulsory	Minimum Grade / Mark Requirement - Students must obtain a specified minimum grade /
Requirements	mark in this assessment item to pass the course
Due Date	In semester exam period.
Submission Method	Online
Assessment Criteria	
Return Method	Not Returned
Feedback Provided	No Feedback
Opportunity to	Students WILL be given the opportunity to reattempt this assessment.
Reattempt	Refer to Course Assessment Requirements for details

ADDITIONAL INFORMATION

Grading Scheme

Range of Marks	Grade	Description				
85-100	High Distinction (HD)	Outstanding standard indicating comprehensive knowledge and understanding of the relevant materials; demonstration of an outstanding level of academic achievement; mastery of skills*; and achievement of all assessment objectives.				
75-84	Distinction (D)	Excellent standard indicating a very high level of knowledge and understanding of the relevant materials; demonstration of a very high level of academic ability; sound development of skills*; and achievement of all assessment objectives.				
65-74	Credit (C)	Good standard indicating a high level of knowledge and understanding of the relevant materials; demonstration of a high level of academic achievement; reasonable development of skills*; and achievement of all learning outcomes.				
50-64	Pass (P)	Satisfactory standard indicating an adequate knowledge and understanding of the relevant materials; demonstration of an adequate level of academic achievement; satisfactory development of skills*; and achievement of all learning				



			outcomes.						
	0-49	Fail (FF)	Failure to satisfactorily achieve learning outcomes. If all compulsory course components are not completed the mark will be zero. A fail grade may also be awarded following disciplinary action.						
	*Skills are th	nose identified	l for the purposes of assessment task(s).						
Communication Methods	Communication methods used in this course include:								
Course Evaluation	Each year feedback is sought from students and other stakeholders about the courses offered in the University for the purposes of identifying areas of excellence and potential improvement.								
Oral Interviews (Vivas)	As part of the evaluation process of any assessment item in this course an oral examination (viva) may be conducted. The purpose of the oral examination is to verify the authorship of the material submitted in response to the assessment task. The oral examination will be conducted in accordance with the principles set out in the <u>Oral Examination (viva)</u> <u>Procedure</u> . In cases where the oral examination reveals the assessment item may not be the student's own work the case will be dealt with under the <u>Student Conduct Rule</u> .								
Academic Misconduct	All students are required to meet the academic integrity standards of the University. These standards reinforce the importance of integrity and honesty in an academic environment. Academic Integrity policies apply to all students of the University in all modes of study and in all locations. For the Student Academic Integrity Policy, refer to https://policies.newcastle.edu.au/document/view-current.php?id=35.								
Adverse Circumstances	 The University acknowledges the right of students to seek consideration for the impact allowable adverse circumstances that may affect their performance in assessment item(s) Applications for special consideration due to adverse circumstances will be made using t online Adverse Circumstances system where: the assessment item is a major assessment item; or the assessment item is a minor assessment item and the Course Co-ordinator h specified in the Course Outline that students may apply the online Adverse Circumstance system; you are requesting a change of placement; or the course has a compulsory attendance requirement. 								
	https://polici	es.newcastle.	edu.au/document/view-current.php?id=236						
Important Policy Information	The Help bu Learning Ma and procedu procedures	utton in the C anagement S ures at https:// that support a	anvas Navigation menu contains helpful information for using the system. Students should familiarise themselves with the policies /www.newcastle.edu.au/current-students/no-room-for/policies-and- safe and respectful environment at the University.						

GRADUATE PROFILE STATEMENTS

The following table illustrates how this course contributes towards building the skills students will need to work in their profession.

Level of capability

- Level 1 indicates an introduction to a topic at a university level
- Levels 2 and 3 indicate progressive reinforcement of that topic
- Level 4 indicates skills commensurate with a graduate entry to professional practice
- Level 5 indicates highly specialist or professional ability

	University of Newcastle Master of Information Technology Graduate Profile Statement	Taught	Practised	Assessed	Level of capability
1	The ability to identify and analyse complex problems within information technology and design solutions to the problems at a highly skilled level	Х	Х	Х	5
2	A depth of technical expertise in at least one facet of information technology sufficient for a career in information technology together with the capacity to continue developing relevant knowledge, skills, and expertise throughout their careers	Х	Х	Х	5
3	The ability to manage projects in aspects of information technology relevant to their field of study, including the ability to develop, manage and participate at all levels in team environments	Х	Х	Х	3
4	An understanding of professionalism and ethics in the context of the global information technology industry	Х			2
5	The ability to communicate effectively through a range of verbal, written and/or presentation skills at an advanced level	Х	Х	Х	4
6	The ability to apply their knowledge and skills to plan and execute a substantial capstone experience or a research-based project and/or piece of scholarship.	Х	Х	Х	4

This course outline was approved by the Head of School. No alteration of this course outline is permitted without Head of School approval. If a change is approved, students will be notified and an amended course outline will be provided in the same manner as the original.

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