Faculty of Science & Information Technology

School of Design, Communication and Info Tech

INFT2040: Database Management Systems

Ourimbah

Semester 1 - 2016

COURSE OUTLINE

OVERVIEW

Course Description Provides students with theoretical knowledge and practical skills in the use of databases and database management systems in information technology applications. The logical design, physical design and implementation of relational databases are covered.

Assumed Knowledge SENG1110 or INFT1004 or INFT1001 or equivalent.

Contact Hours

Computer Lab
Face to Face On Campus
2 hour(s) per Week for Full Term
Computer Laboratory can incorporate a practical session or tutorial.

Lecture
Face to Face On Campus
2 hour(s) per Week for Full Term

Unit Weighting 10

Workload Students are required to spend on average 120-140 hours of effort (contact and non-contact) including assessments per 10 unit course.

CONTACTS

Course Coordinator

Callaghan
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Ourimbah
Deb Spindler
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Consultation: Monday 1-2pm; Thursday 1-2pm

Teaching Staff

Other teaching staff will be advised on the course Blackboard site.

School Office

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SYLLABUS

Course Content

Topics will generally include:

1. The role of databases and database management systems.
2. Algebra and the relational database.
3. Logical design of databases.
4. Physical design of databases.
5. SQL
6. Data Warehouses

Course Learning Outcomes

On successful completion of this course, students will be able to:

1. Understand and evaluate the role of database management systems in information technology applications within organisations;

2. Recognise and use contemporary logical design methods and tools for databases;

3. Derive a physical design for a database from its logical design;

4. Implement a database solution to an information technology problem;

5. Understand the SQL data definition and SQL query languages;

6. Have been introduced to the alternative design techniques utilised for Management Reporting applications.

7. Develop sophisticated queries to extract information from large datasets.

Course Materials

Lecture Materials:
Please check the course Blackboard site.

Recommended Reading:
JA Hoffer, V Ramesh, H Topi,, Modern Database Management, 10th Edition, 2010, Pearson Education International, ISBN 978-1-4082-6431-7.
C Coronel, S Morris, P Rob, Database Systems: Design, Implementation, and Management, 9th Edition, 2011, Course Technology, ISBN-13: 978-0-538-74884-1.
DM Kronke, Database Processing: Fundamentals, Design & Implementation, 9th edition, Prentice Hall 2004, ISBN 013120971X.

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

SCHEDULE

Week	Week Begins	Topic	Learning Activity	Assessment Due
1	22 Feb	Introduction to Course, DBMSs	Get familiar with course structure and requirements	
2	29 Feb	Assignment Requirements, Tools for DBMS	Learn and practice first step of database system design; practice on T-SQL and SQL Server	
3	7 Mar	Conceptual DB Design, Assignment specs	Learn and practice second step of database system design; work on assignment 1	
4	14 Mar	Logical DB Design, EER/ Relational Mapping	Learn and practice third step of database system design; work on EER	
5	21 Mar	Normalisation	Practice on relation normalisation; complete assignment 1	Assignment 1 due
Mid Semester Break				
Mid Semester Break				
6	11 Apr	Relational Algebra	Study the foundation of SQL programming	
7	18 Apr	SQL (DDL + DML) with Data Management	Practice on T-SQL	Assignment 2 due
8	25 Apr	Advanced SQL	Continue practice on T-SQL	
9	2 May	Views, Transactions and Triggers	Study and practice several key techniques of database system	
10	9 May	SQL Review and Test	Summary and test on SQL skill	SQL test
11	16 May	Physical DB Design: Files, Indexes and Query Plans	Learn and practice last step of database system design	
12	23 May	Data Access: Users, Roles, Privileges; Course Summary	Learn and practice other important aspects of system maintenance; course summary; Assignment 3 assessment	Assignment 3 due
13	30 May	Review Week	No lecture, no lab	
Semester 1 Examinations Week 1				
Semester 1 Examinations Week 2				
Semester 1 Examinations Week 3				
Mid Year Break				
Mid Year Break				
Mid Year Break				
Mid Year Break				

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

ASSESSMENTS

This course has 4 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	March 21	Individual	10%	1, 4
2	Practical Test - Lab test on SQL	Week 10	Individual	15%	4, 5,7
3	Final Examination	Examination period	Individual	50%	2, 3, 4, 5, 6
4	Assignment 2, Database Project - Logical Database Design	April 18	Individual	10%	2, 3, 4
5	Assignment 3 - Database Project - Physical Database Design	May 23	Individual	15%	2, 3, 4, 5, 7

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
Weighting 10%
Due Date March 21
Submission Method In Class
Online
Assessment Criteria The submission will be assessed on the requirements document (which includes data requirements, transaction requirements, and business rules) and EER model.
Return Method In Class
Online
Feedback Provided Yes

Assessment 2 - Practical Test - Lab test on SQL

Assessment Type Quiz
Description Lab test on SQL
Weighting 15%
Due Date Week 10
Submission Method Online
Assessment Criteria In-Lab test on SQL, practical skills on implementing a database solution to an information technology problem using structured query language will be assessed.
Return Method Online
Feedback Provided Yes

Assessment 3 - Final Examination

Assessment Type Formal Examination
Description Final formal exam
Weighting 50%
Due Date In semester exam period
Submission Method Formal Exam

Assessment Criteria	In the final formal exam, the major contents that have been dealt with during the course delivery and have not been comprehensively assessed in the other assessment items will be examined.
Return Method	Not Returned
Feedback Provided	No Feedback

Assessment 4 - Assignment 2, Database Project - Logical Database Design

Assessment Type	Project
Description	The stage of logical database design will be completed.
Weighting	10%
Due Date	April 18
Submission Method	In Class Online
Assessment Criteria	In Assignment 2, the stage of logical database design will be completed. The submission will be assessed on key issues of the stage, including mapping EER to relational model and normalizing scheme to BC normal form.
Return Method	In Class Online
Feedback Provided	Yes

Assessment 5 - Assignment 3 - Database Project - Physical Database Design

Assessment Type	Project
Description	The stage of physical database design will be completed.
Weighting	15%
Due Date	May 23
Submission Method	Online In Class
Assessment Criteria	In Assignment 3, the stage of physical database design will be completed. The submission will be assessed on key issues of the stage, including implementing the database with SQL scripts and maintaining required data integrity.
Return Method	Online In Class
Feedback Provided	Yes

ADDITIONAL INFORMATION

Grading Scheme

This course is graded as follows:

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 ability; 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)	Very Good standard indicating a high level of knowledge and understanding of the relevant materials; demonstration of a high level of academic ability; reasonable development of skills*; and achievement of all assessment objectives.
50-64	Pass (P)	Satisfactory standard indicating an adequate knowledge and understanding of the relevant materials; demonstration of an adequate level of academic ability; satisfactory development of skills*; and achievement of most assessment objectives.
0-49	Fail (FF)	Failure to satisfactorily achieve assessment objectives or compulsory course requirements. A fail grade may also be awarded following disciplinary action.

*Skills are those identified for the purposes of assessment task(s).

Attendance

Students are strongly advised to attend lectures and laboratories in order to gain a full understanding of the theoretical and practical skills required in this discipline. Material additional to the BlackBoard notes will be delivered in lectures. Students who miss lectures and labs may not be able to satisfactorily complete assessment items/exams and may fail the course.

Communication Methods

Communication methods used in this course include:

- Blackboard Course Site: Students will receive communications via the posting of content or announcements on the Blackboard course site.
- Email: Students will receive communications via their student email account.
- Face to Face: Communication will be provided via face to face meetings or supervision.

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.

Details provided by the Course Coordinator about feedback from previous deliveries of the course.

- The assignments for the database project have been divided into three assignments to provide more detailed and timely feedback to students.
- Feedback on student suggestions and concerns will be provided in a timely manner. e.g., questions posted on discussion group will be paid more attention and answered in a timely manner.

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 http://www.newcastle.edu.au/policy/000608.html.

Adverse Circumstances	You are entitled to apply for special consideration because adverse circumstances have had an impact on your performance in an assessment item. This includes applying for an extension of time to complete an assessment item. Prior to applying you must refer to the Adverse Circumstances Affecting Assessment Items Procedure, available at http://www.newcastle.edu.au/policy/000940.html. All applications for Adverse Circumstances must be lodged via the online Adverse Circumstances system, along with supporting documentation.
Important Policy Information	The 'HELP for Students' tab in UoNline contains important information that all students should be familiar with, including various systems, policies and procedures.

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.