Description: Database Applications Development

<table>
<thead>
<tr>
<th>Subject</th>
<th>Cat-Nbr</th>
<th>Class</th>
<th>Term</th>
<th>Mode</th>
<th>Units</th>
<th>Campus</th>
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<tr>
<td>CIS</td>
<td>2004</td>
<td>24694</td>
<td>2, 2003</td>
<td>ONC</td>
<td>1.00</td>
<td>WIBAY</td>
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Academic Group: FOBUS
Academic Org: FOB005
HECS Band: 2
ASCED Code: 020303

STAFFING
Examiner: Glen Van Der Vyver
Moderator: Srecko Howard

PRE-REQUISITES
Pre-requisite: CIS2002 and CIS1001

RATIONALE
Large-scale relational databases have become the core tool in modern Information Technology. The major contenders for the leadership role in the large-scale database market are ORACLE and DB2. Oracle appears to have a position of market dominance when it comes to the provision of development tools which are tightly integrated with the database. Oracle's products are also at the forefront of Internet and e-Commerce initiatives and it is touted as the leading database on UNIX platforms. The overwhelming majority of IT professionals are exposed to databases in their jobs, and they are often expected to develop high levels of expertise in more than one database product. It is imperative that students acquire a solid understanding of a major database package and the rationale behind its development and mutation. Beyond this, students must also develop the capacity to think critically about database theory and the application thereof.

SYNOPSIS
This course reviews and extends the relational database theory introduced in previous courses. Students gain an understanding of the practical considerations of the theory and in particular the application of the theory using Oracle tools. Students will extend their knowledge of SQL to cover Oracle's SQL dialect and will gain a working knowledge of Oracle's procedural extension to SQL known as PL/SQL. The course will cover client-side as well as server-side PL/SQL, the latter component focusing on stored procedures and triggers. Students extend the knowledge and skills gained in Database Design to create small database systems. Finally, students choose between selected topics in database theory.
or an introduction to Oracle's GUI tools Forms and Reports. The Oracle RDBMS and components of the Oracle toolset are used extensively in this course.

**OBJECTIVES**

On completion of this course students will be able to:

- explain key relational database concepts;
- explain how relational database theory impacts applications development practice;
- apply the skills acquired in CIS2002 to the design of small databases;
- build simple relational data bases implementing key design concepts from data models;
- construct data base applications using SQL and Procedural SQL;
- implement integrity constraints and transaction support;
- demonstrate a knowledge of selected topics in database theory;
- explain the key concepts behind client/server systems;
- explain the role and function of the DBA;
- explain key issues related to open systems, distributed databases, data warehousing and data mining;
- explain the crucial importance of the database in applications development for the 'Net;
- construct SQL statements to solve relatively complex problems;
- write PL/SQL programs to solve business problems;
- prepare to take paper 1 of the Oracle Certified Professional (OCP) programme (successful completion of the paper would depend on the knowledge and skills of the student); and
- explain the architecture of Oracle and the extent to which it meets the requirements of selected theoretical architectures.

**TOPICS**

<table>
<thead>
<tr>
<th>Description</th>
<th>Weighting (%)</th>
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<tbody>
<tr>
<td>1. RDBMS Theory: client/server systems; tools for database connectivity;</td>
<td>30.00</td>
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<tr>
<td>database integrity and security; data manipulation; database backup and</td>
<td></td>
</tr>
<tr>
<td>recovery; concurrency control; database environment; database architecture;</td>
<td></td>
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<tr>
<td>the role and tasks of the DBA; databases on the Net; data warehousing and</td>
<td></td>
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<tr>
<td>mining; distributed databases</td>
<td></td>
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<tr>
<td>2. RDBMS Applications Programming (Oracle)</td>
<td>70.00</td>
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**TEXT and MATERIALS required to be PURCHASED or ACCESSED:**

Books can be ordered by fax or telephone. For costs and further details use the 'Book Search' facility at http://bookshop.usq.edu.au by entering the author or title of the text.

CIS2004 study package available from the USQ Bookshop.

REFERENCE MATERIALS

Reference materials are materials that, if accessed by students, may improve their knowledge and understanding of the material in the course and enrich their learning experience.


STUDENT WORKLOAD REQUIREMENTS

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>HOURS</th>
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<tbody>
<tr>
<td>Lectures</td>
<td>22</td>
</tr>
<tr>
<td>Practical Experience</td>
<td>26</td>
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<tr>
<td>Private Study</td>
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ASSESSMENT DETAILS

<table>
<thead>
<tr>
<th>Description</th>
<th>Marks Out of</th>
<th>Wtg(%)</th>
<th>Required</th>
<th>Due Date</th>
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<tr>
<td>PRACTICAL TEST (LAB)</td>
<td>100.00</td>
<td>20.00</td>
<td>Y</td>
<td>22 Jul 2003</td>
</tr>
<tr>
<td>PROJECT WORK</td>
<td>100.00</td>
<td>10.00</td>
<td>Y</td>
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<td>EXAM PART A (MULTI-CHOICE)</td>
<td>60.00</td>
<td>42.00</td>
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<tr>
<td>EXAM PART B (WRITTEN)</td>
<td>40.00</td>
<td>28.00</td>
<td>Y</td>
<td>END S2</td>
</tr>
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NOTES:
- Due final week of semester.
- Due final week of semester.
- The examination is scheduled to be held in the end-of-semester examination period. Students will be advised of the official examination date after the timetable has been finalised.

IMPORTANT ASSESSMENT INFORMATION

1 Attendance requirements:
   It is the students' responsibility to attend and participate appropriately in all activities (such as lectures, tutorials, laboratories and practical work) scheduled for them, and to study all material provided to them or required to be accessed by them to maximise their chance of meeting the objectives of the course and to be informed of course-related activities and administration. If you are an International student in Australia it is a requirement of your student visa that you attend all classes at your campus.

2 Requirements for students to complete each assessment item satisfactorily:
   To complete each of the assessment items satisfactorily, students must obtain at least 50% of the marks available for each assessment item.

3 Penalties for late submission of required work:
   If students submit assignments after the due date without prior approval then a penalty of 5% of the total marks available for the assignment will apply for each working day late. The assignment is likely to be subject to processing delays.

4 Requirements for student to be awarded a passing grade in the course:
   To be assured of receiving a passing grade a student must submit all of the summative assessment items, achieve a total mark of at least 50% in Part A and Part B of the examination, and at least 50% of the available weighted marks for the summative assessment items.

5 Method used to combine assessment results to attain final grade:
   The final grades for students will be assigned on the basis of the weighted aggregate of the marks (or grades) obtained for each of the summative assessment items in the course.

6 Examination information:
This is a closed examination. Candidates are allowed to bring only writing and drawing instruments into the examination. The examination consists of two parts. Part A is worth 60 marks and Part B is worth 40 marks.

7 Examination period when Deferred/Supplementary examinations will be held: Any Deferred or Supplementary examinations for this course will be held during the next examination period.

8 University Regulations:
Students should read USQ Regulations 5.1 Definitions, 5.6 Assessment, and 5.10 Academic Misconduct for further information and to avoid actions which might contravene University Regulations. These regulations can be found at the URL: http://www.usq.edu.au/SECARIAT/calendar/Part5/ or in the printed version of the current USQ Handbook. Students should also read The Guide to Policies and Procedures of the Faculty which can be found at the URL: http://www.usq.edu.au/handbook/2003/title663.html or in the printed version of the current USQ Handbook.

**ASSESSMENT NOTES**

1 Assignments: (i) The due date for an assignment is the date by which a student must despatch the assignment to the USQ. The onus is on the student to provide proof of the despatch date, if requested by the Examiner. (ii) Students must retain a copy of each item submitted for assessment. This must be produced within 24 hours if required by the Examiner. (iii) The Examiner may grant an extension of the due date of an assignment in extenuating circumstances. Students may apply for an extension before the due date or include an application with the submitted assignment after the due date. Such applications should be in writing and include supporting documentary evidence. The authority for granting extensions rests with the relevant Examiner. (iv) The Examiner will normally only accept assessments that have been written, typed or printed on paper-based media. (v) In the event that a due date for an assignment falls on a local public holiday in their area, such as a Show holiday, the due date for the assignment will be the next day. Students are to note on the assignment cover the date of the public holiday for the Examiner's convenience.

2 Course Weightings: Course weightings of topics should not be interpreted as applying to the number of marks allocated to questions testing those topics in an examination paper.

3 Referencing in Assignments: Unless otherwise directed by the Examiner, all written and oral assignments submitted by students must conform to the guidelines laid out in the 'Communication skills handbook: How to succeed in written and oral communication'. Any work not prepared in accordance with these guidelines may be subject to penalty or requirement for resubmission.

4 Make-up Work: Students who have undertaken all of the required assessments in a course but who have failed to meet some of the specified objectives of a course within the normally prescribed time may be awarded the temporary grade: IM (Incomplete - Make up). An IM grade will only be awarded when, in the opinion of the Examiner, a student will be able to achieve the remaining objectives of the course after a period of non-directed personal study.
5 Deferred Work: Students who, for medical, family/personal, or employment-related reasons, are unable to complete an assignment or to sit for an examination at the scheduled time may apply to defer an assessment in a course. Such a request must be accompanied by appropriate supporting documentation. One of the following temporary grades may be awarded: IDS (Incomplete - Deferred Examination); IDM (Incomplete Deferred Make-up); IDB (Incomplete - Both Deferred Examination and Deferred Make-up).

6 Appeals: Any appeal against the award of a grade in the course will be conducted in accordance with University Regulations. These Regulations are published in the University Handbook.

OTHER REQUIREMENTS

1 E-mail and Internet Access: Students will require access to e-mail and Internet access to USQConnect for this course.