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**FIT5043 Distributed database - Semester 2, 2012**

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FIT5043 Distributed database - Semester 2, 2012

This unit focuses on designing, developing and deploying distributed database systems. The unit introduces various contemporary issues including data model partitioning, fragmentation, replication issues, query optimisation, concurrency control, restart and recovery, distributed database design, client-server and distributed database applications. Particular attention will be paid to detailed consideration of distributed database management issues.

Mode of Delivery

Caulfield (Evening)

Contact Hours

2 hrs lectures/wk, 2 hrs laboratories/wk

Workload

Students will be expected to spend a total of 12 hours per week during semester on this unit as follows:

Lectures: 2 hours per week
Tutorials/Lab Sessions: 2 hours per week per tutorial
Personal study and completing assignments: 8 hours per week (2 hours for every 1 contact hour)

Unit Relationships

Prohibitions

CSE5200

Chief Examiner

Associate Professor David Taniar

Campus Lecturer

Caulfield

Pari Delir Haghighi
Academic Overview

Outcomes

At the completion of this unit students will:

- be familiar with the currently available models, technologies for and approaches to building distributed database systems;
- have developed practical skills in the use of these models and approaches, so that they will be able to select and apply the appropriate tools for a particular case;
- be aware of the current research directions in the field and their possible outcomes;
- be able to carry out research on a relevant topic, identify primary references, analyse them and come up with meaningful conclusions;
- be able to apply learned skills to solving practical database related tasks.

Graduate Attributes

Monash prepares its graduates to be:

1. responsible and effective global citizens who:
   a. engage in an internationalised world
   b. exhibit cross-cultural competence
   c. demonstrate ethical values
critical and creative scholars who:
   a. produce innovative solutions to problems
   b. apply research skills to a range of challenges
   c. communicate perceptively and effectively

Assessment Summary

Assignments/Tutorial exercises and attendance: 90%; Presentation: 10%

<table>
<thead>
<tr>
<th>Assessment Task</th>
<th>Value</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab Exercises and Attendance</td>
<td>10% (2% each)</td>
<td>Weekly (Weeks 2 to 6 Labs)</td>
</tr>
<tr>
<td>Research Paper Proposal</td>
<td>10%</td>
<td>Week 4</td>
</tr>
<tr>
<td>Practical Assignment</td>
<td>40%</td>
<td>Week 8</td>
</tr>
<tr>
<td>Research Paper Assignment</td>
<td>30%</td>
<td>Week 10</td>
</tr>
<tr>
<td>Research Paper Presentation</td>
<td>10%</td>
<td>Week 12</td>
</tr>
</tbody>
</table>
Teaching Approach

Lecture and tutorials or problem classes

The teaching and learning approach provides facilitated learning, practical exploration and peer learning.

Feedback

Our feedback to You

Types of feedback you can expect to receive in this unit are:

- Informal feedback on progress in labs/tutes
- Graded assignments with comments

Your feedback to Us

Monash is committed to excellence in education and regularly seeks feedback from students, employers and staff. One of the key formal ways students have to provide feedback is through SETU, Student Evaluation of Teacher and Unit. The University's student evaluation policy requires that every unit is evaluated each year. Students are strongly encouraged to complete the surveys. The feedback is anonymous and provides the Faculty with evidence of aspects that students are satisfied and areas for improvement.

For more information on Monash's educational strategy, and on student evaluations, see:
http://www.policy.monash.edu/policy-bank/academic/education/quality/student-evaluation-policy.html

Previous Student Evaluations of this unit

Previous feedback has been mainly encouraging and positive and to improve the unit further we will be introducing and discussing a few advanced topics.

If you wish to view how previous students rated this unit, please go to

Required Resources

Please check with your lecturer before purchasing any Required Resources. Limited copies of prescribed texts are available for you to borrow in the library, and prescribed software is available in student labs.

Oracle 10g R2 and JDeveloper

Software will be available in computer labs and on Moodle.

To use Oracle at home you need to install the Monash VPN from:
- https://secure.monash.edu/its/vpn/
# Unit Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Activities</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Students need to allocate themselves to tutorials and visit unit website</td>
<td>No formal assessment or activities are undertaken in week 0</td>
</tr>
<tr>
<td>1</td>
<td>Introduction to distributed database systems and computing</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Distributed database design I</td>
<td>Lab Exercise 1 Due and Attendance</td>
</tr>
<tr>
<td>3</td>
<td>Distributed database design II</td>
<td>Lab Exercise 2 Due and Attendance</td>
</tr>
<tr>
<td>4</td>
<td>Distributed Query Processing I and Semantic Data Control</td>
<td>Lab Exercise 3 Due and Attendance and Research Paper Proposal Due</td>
</tr>
<tr>
<td>5</td>
<td>Distributed query processing II</td>
<td>Lab Exercise 4 Due and Attendance</td>
</tr>
<tr>
<td>6</td>
<td>Distributed query optimisation</td>
<td>Lab Exercise 5 Due and Attendance</td>
</tr>
<tr>
<td>7</td>
<td>Transaction Management in Distributed DB</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Distributed Concurrency Control I</td>
<td>Practical Assignment Due</td>
</tr>
<tr>
<td>9</td>
<td>Distributed Concurrency Control II</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Reliability and Fault Tolerance in Distributed Databases</td>
<td>Research Paper Assignment Due</td>
</tr>
<tr>
<td>11</td>
<td>Parallel and Grid Databases</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Advanced Topics and Future Directions</td>
<td>Research Paper Presentation</td>
</tr>
<tr>
<td></td>
<td>SWOT VAC</td>
<td>No formal assessment is undertaken during SWOT VAC</td>
</tr>
</tbody>
</table>

*Unit Schedule details will be maintained and communicated to you via your MUSO (Blackboard or Moodle) learning system.*
Assessment Requirements

Assessment Policy

Faculty Policy - Unit Assessment Hurdles (http://www.infotech.monash.edu.au/resources/staff/edgov/policies/assessment-examinations/unit-assessment-hurdles.html)

Academic Integrity - Please see the Demystifying Citing and Referencing tutorial at http://lib.monash.edu/tutorials/citing/

Assessment Tasks

Participation

- **Assessment task 1**
  
  **Title:** Lab Exercises and Attendance
  
  **Description:** Weekly exercises in the lab will focus on the practical aspect of learning distributed database concepts. The total number of exercises to be completed is 5. The exercises will be performed using Oracle and JDeveloper.
  
  **Weighting:** 10% (2% each)
  
  **Criteria for assessment:** Completion of lab exercises and attendance.

  How well the solutions/programs address the weekly exercises and questions.

  **Due date:** Weekly (Weeks 2 to 6 Labs)

- **Assessment task 2**
  
  **Title:** Research Paper Proposal
  
  **Description:** Students will write a one-page research paper proposal for investigating and analysing an area related to Distributed Databases.
  
  **Weighting:** 10%
  
  **Criteria for assessment:** How well the research issue and related paper have been selected and described.

  The level of writing and referencing skills demonstrated.

  **Due date:** Week 4
Assessment Requirements

• Assessment task 3

Title: Practical Assignment
Description: Students will design a client-server and distributed database application using Oracle and JDeveloper.
Weighting: 40%
Criteria for assessment: How well the code (PL/SQL and Java) is written.
How well the triggers, procedures and functions are designed.
Due date: Week 8

• Assessment task 4

Title: Research Paper Assignment
Description: This task requires students to examine and analyse several papers from high quality publications about a certain research problem related to Distributed Databases.
Weighting: 30%
Criteria for assessment: How well the research issue has been studied, investigated, understood and analysed.
The level of writing and referencing skills demonstrated.
Due date: Week 10

• Assessment task 5

Title: Research Paper Presentation
Description: Students will deliver a PowerPoint presentation of the research paper they have written for the Research Paper Assignment.
Weighting: 10%
Criteria for assessment: The level of oral presentation skills.
The structure and effectiveness of the content.
Due date: Week 12

Assignment submission

It is a University requirement (http://www.policy.monash.edu/policy-bank/academic/education/conduct/plagiarism-procedures.html) for students to submit an assignment coversheet for each assessment item. Faculty Assignment
Assessment Requirements

coversheets can be found at http://www.infotech.monash.edu.au/resources/student/forms/. Please check with your Lecturer on the submission method for your assignment coversheet (e.g. attach a file to the online assignment submission, hand-in a hard copy, or use an online quiz).

Online submission

If Electronic Submission has been approved for your unit, please submit your work via the VLE site for this unit, which you can access via links in the my.monash portal.

Extensions and penalties

Submission must be made by the due date otherwise penalties will be enforced.


Returning assignments

Students can expect assignments to be returned within two weeks of the submission date or after receipt, whichever is later.

Referencing requirements

APA style is recommended.

Refer to:

Other Information

Policies

Monash has educational policies, procedures and guidelines, which are designed to ensure that staff and students are aware of the University’s academic standards, and to provide advice on how they might uphold them. You can find Monash’s Education Policies at: http://policy.monash.edu.au/policy-bank/academic/education/index.html

Key educational policies include:

- Plagiarism (http://www.policy.monash.edu/policy-bank/academic/education/conduct/plagiarism-policy.html)
- Special Consideration (http://www.policy.monash.edu/policy-bank/academic/education/assessment/special-consideration-policy.html)
- Grading Scale (http://www.policy.monash.edu/policy-bank/academic/education/assessment/grading-scale-policy.html)
- Discipline: Student Policy (http://www.policy.monash.edu/policy-bank/academic/education/conduct/student-discipline-policy.html)
- Academic Calendar and Semesters (http://www.monash.edu.au/students/key-dates/)
- Orientation and Transition (http://www.infotech.monash.edu.au/resources/student/orientation/)
- and
- Codes of Practice for Teaching and Learning (http://www.policy.monash.edu/policy-bank/academic/education/conduct/suppdocs/code-of-practice-teaching-and-learning.html)

Student services

The University provides many different kinds of support services for you. Contact your tutor if you need advice and see the range of services available at www.monash.edu.au/students. For Sunway see http://www.monash.edu.my/Student-services, and for South Africa see http://www.monash.ac.za/current/.

The Monash University Library provides a range of services and resources that enable you to save time and be more effective in your learning and research. Go to http://www.lib.monash.edu.au or the library tab in my.monash portal for more information. At Sunway, visit the Library and Learning Commons at http://www.lib.monash.edu.my/. At South Africa visit http://www.lib.monash.ac.za/.

Academic support services may be available for students who have a disability or medical condition. Registration with the Disability Liaison Unit is required. Further information is available as follows:

- Website: http://monash.edu/equity-diversity/disability/index.html
- Email: dlu@monash.edu
- Drop In: Equity and Diversity Centre, Level 1 Gallery Building (Building 55), Monash University, Clayton Campus, or Student Community Services Department, Level 2, Building 2, Monash University, Sunway Campus
- Telephone: 03 9905 5704, or contact the Student Advisor, Student Community Services at 03 55146018 at Sunway
Reading list
