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FIT5046 Mobile and distributed computing systems - Semester 1, 2010

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FIT5046 Mobile and distributed computing systems - Semester 1, 2010

Chief Examiner:
None provided

Lecturer(s) / Leader(s):
Caulfield
Dr. Ruwini Kodiara
Introduction

Welcome to FIT5046, this unit presents concepts of Mobile and distributed computing systems.

Unit synopsis

Theoretical foundations of mobile computing systems, wireless networks, advanced mobile applications. Architectures of mobile distributed computing systems; wireless network classification and management; mobile distributed file systems; failure recovery, fault tolerance and reliability of mobile computing systems; replication in mobile distributed systems; case studies for distributed mobile database systems; mobile information systems; advanced mobile computing applications and the Internet; research trends; synchronisation and global time concepts; transaction management mechanisms for mobile computing.

Learning outcomes

At the completion of this unit students will:

- develop knowledge of the approaches and methods for building distributed and mobile computing systems;
- be familiar with the currently available models and approaches to building mobile and distributed computing 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.

Contact hours

2 hrs lectures/wk, 2 hrs laboratories/wk

Unit relationships

Prerequisites

Recommended background in Data Communications, Networking, Databases, Java Programming.

Prohibitions

CSE5501
Teaching and learning method

Teaching approach

Timetable information

For information on timetabling for on-campus classes please refer to MUTTS, http://mutts.monash.edu.au/MUTTS/

Tutorial allocation

On-campus students should register for tutorials/laboratories using the Allocate+ system: http://allocate.its.monash.edu.au/

Unit Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Date*</th>
<th>Topic</th>
<th>Key dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>01/03/10</td>
<td>Introduction to distributed and mobile computing.</td>
<td>03/03/2010</td>
</tr>
<tr>
<td>2</td>
<td>08/03/10</td>
<td>Enabling wireless technologies and networks Part 1. Location management.</td>
<td>10/03/2010</td>
</tr>
<tr>
<td>3</td>
<td>15/03/10</td>
<td>Enabling wireless technologies and networks Part 2. Wireless LANs. IEEE 802.11</td>
<td>17/03/2010</td>
</tr>
<tr>
<td>4</td>
<td>22/03/10</td>
<td>Enabling wireless technologies and networks Part 3. Bluetooth, WiMax, WAP, MIP, GPRS</td>
<td>24/03/2010</td>
</tr>
<tr>
<td>5</td>
<td>29/03/10</td>
<td>Transaction management</td>
<td>31/03/2010</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mid semester break</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>12/04/10</td>
<td>Operating systems; File Systems</td>
<td>14/04/2010</td>
</tr>
<tr>
<td>7</td>
<td>19/04/10</td>
<td>Reliability &amp; fault-tolerance in MDCS</td>
<td>21/04/2010</td>
</tr>
<tr>
<td>8</td>
<td>26/04/10</td>
<td>Internet mobility and Mobile IP.</td>
<td>28/04/2010</td>
</tr>
<tr>
<td>9</td>
<td>03/05/10</td>
<td>Sensor networks and RFID technology</td>
<td>05/05/2010</td>
</tr>
<tr>
<td>10</td>
<td>10/05/10</td>
<td>Mobile agent technology</td>
<td>12/05/2010</td>
</tr>
<tr>
<td>11</td>
<td>17/05/10</td>
<td>Security &amp; protection in MDCS</td>
<td>19/05/2010</td>
</tr>
<tr>
<td>12</td>
<td>24/05/10</td>
<td>Research trends Part 1. Context awareness. Pervasive computing.</td>
<td>26/05/2010</td>
</tr>
<tr>
<td>13</td>
<td>31/05/10</td>
<td>Research trends Part 2. Context awareness. Pervasive computing.</td>
<td>02/06/2010</td>
</tr>
</tbody>
</table>

*Please note that these dates may only apply to Australian campuses of Monash University. Off-shore students need to check the dates with their unit leader.
Unit Resources

Prescribed text(s) and readings

Text books are available from the Monash University Book Shops. Availability from other suppliers cannot be assured. The Bookshop orders texts in specifically for this unit. You are advised to purchase your text book early.

Recommended text(s) and readings

Equipment and consumables required or provided

Students studying off-campus are required to have the minimum system configuration specified by the Faculty as a condition of accepting admission, and regular Internet access. On-campus students, and those studying at supported study locations may use the facilities available in the computing labs. Information about computer use for students is available from the ITS Student Resource Guide in the Monash University Handbook. You will need to allocate up to $h$ hours per week for use of a computer, including time for newsgroups/discussion groups.

Study resources

Study resources we will provide for your study are:

my.monash.edu.au unit website, will have unit book, lecture notes, tutorial questions and assignments.
Assessment

Overview

Research paper and literature survey: 50%; Oral presentation: 15%; Practical work: 35%

Faculty assessment policy

To pass a unit which includes an examination as part of the assessment a student must obtain:

- 40% or more in the unit's examination, and
- 40% or more in the unit's total non-examination assessment, and
- an overall unit mark of 50% or more.

If a student does not achieve 40% or more in the unit examination or the unit non-examination total assessment, and the total mark for the unit is greater than 50% then a mark of no greater than 49-N will be recorded for the unit.

In addition to the faculty assessment policy, to pass the unit a student must obtain

40% or more in the assignment 1.

Assignment tasks

Assignment coversheets

Assignment coversheets are available via "Student Forms" on the Faculty website: http://www.infotech.monash.edu.au/resources/student/forms/

You MUST submit a completed coversheet with all assignments, ensuring that the plagiarism declaration section is signed.

Assignment submission and return procedures, and assessment criteria will be specified with each assignment.

• Assignment task 1

  Title: Assignment 1
  Description: Research paper and literature survey
  Weighting: 45%
  Due date: Wednesday, 14 April, 2010

• Assignment task 2

  Title: Presentation
  Description: Presentation of the research paper
  Weighting: 
Due date:
Weeks 7 - 9

• Assignment task 3

Title: Assignment 2
Description: Practical Assignment
Weighting: 20%
Due date: weeks 11-13

• Assignment task 4

Title: Tutorials
Description: Regular tutorial work
Weighting: 15%
Due date: Throughout the semester
Remarks: Please refer to MUSO blackboard for due dates of each tutorial.

• Assignment task 5

Title: Group Presentation
Description: presentation on a futuristic pervasive application
Weighting: 10%
Due date: Week 12-13

Due dates and extensions

Please make every effort to submit work by the due dates. It is your responsibility to structure your study program around assignment deadlines, family, work and other commitments. Factors such as normal work pressures, vacations, etc. are not regarded as appropriate reasons for granting extensions. Students are advised not to assume that granting of an extension is a matter of course.

Students requesting an extension for any assessment during semester (eg. Assignments, tests or presentations) are required to submit a Special Consideration application form (in-semester exam/assessment task), along with original copies of supporting documentation, directly to their lecturer within two working days before the assessment submission deadline. Lecturers will provide specific outcomes directly to students via email within 2 working days. The lecturer reserves the right to refuse late applications.
A copy of the email or other written communication of an extension must be attached to the assignment submission.

Refer to the Faculty Special consideration webpage or further details and to access application forms: http://www.infotech.monash.edu.au/resources/student/equity/special-consideration.html

**Late assignment**

Assignments received after the due date will be subject to a penalty of 5% per day, including weekends. Assignments received later than one week (seven days) after the due date will not normally be accepted.

**Return dates**

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

Please visit the following URL: http://www.infotech.monash.edu.au/units/appendix.html for further information about:

- Continuous improvement
- Unit evaluations
- Communication, participation and feedback
- Library access
- Monash University Studies Online (MUSO)
- Plagiarism, cheating and collusion
- Register of counselling about plagiarism
- Non-discriminatory language
- Students with disability
- End of semester special consideration / deferred exams