MONASH University
Information Technology

FIT5046
Mobile and distributed computing systems

Unit Guide

Semester 1, 2012

Last updated: 14 Feb 2012

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FIT5046 Mobile and distributed computing systems - Semester 1, 2012

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.

Mode of Delivery

- Caulfield (Day)
- South Africa (Day)

Contact Hours

2 hrs lectures/wk, 2 hrs laboratories/wk

Workload

Unit Relationships

Prohibitions

CSE5501

Prerequisites

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

Chief Examiner

Dr Maria Indrawan

Campus Lecturer

Caulfield

Dr. Prem Jayaraman

South Africa

Tarirai Chani

Tutors

Caulfield

Dr. Prem Jayaraman

South Africa

Tarirai Chani

Academic Overview

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.

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

In-semester assessment: 100%

Assessment Task	Value	Due Date
Assignment 1	20%	Week 5
Assignment 2	40%	Weeks 7
Presentations	10%	Weeks 8 -10
Assignment 3	30%	Week 11

Teaching Approach

Lecture and tutorials or problem classes

This 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.monash.edu.au/about/monash-directions/directions.html
http://www.policy.monash.edu/policy-bank/academic/education/quality/student-evaluation-policy.html

Previous Student Evaluations of this unit

The materials have been updated to reflect a strong relationship between lectures and tutorials. In the past years (prior to 2011), the lectures and tutorials work were not well aligned.

Some changes to the materials were made last year (2011) taking this feedback into consideration. Further changes have been made this year by introducing another practical programming component well aligned with theory delivered in lectures around the area of mobile computing.

If you wish to view how previous students rated this unit, please go to
https://emuapps.monash.edu.au/unitevaluations/index.jsp

Recommended text(s)

George Coulouris, Jean Dollimore, Tim Kindberg, Gordon Blair. (2012). *Distributed Systems, Concepts and Design*. (Fifth) Addison-Wesley.

Unit Schedule

Week	Activities	Assessment
0		No formal assessment or activities are undertaken in week 0
1	Introduction to distributed and mobile computing. Architectural models for mobile & distributed computing systems	
2	Enabling wireless technologies and networks Part 1. Location management.	
3	Enabling wireless technologies and networks Part 2. Wireless LANs. IEEE 802.11	
4	Enabling wireless technologies and networks Part 3. Bluetooth, WiMax, WAP, MIP, GPRS	
5	Mobile Operating systems	Assignment 1: Practical Assignment Due
6	Internet mobility and Mobile IP	
7	Transaction management	Assignment 2: Research survey Paper Due
8	Reliability & fault-tolerance in MDCS	Research Paper Presentations
9	Sensor networks and RFID technology	Research Paper Presentations
10	Mobile agent technology	Research Paper Presentations
11	Security & protection in MDCS	Assignment 3: Practical Assignment Due
12	Research trends- Context awareness. Pervasive computing.	
	SWOT VAC	No formal assessment is undertaken SWOT VAC
	Examination period	LINK to Assessment Policy: http://policy.monash.edu.au/policy-bank/academic/education/assessment/assessment-in-coursework-policy.html

*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-hu

Assessment Tasks

Participation

- **Assessment task 1**

  Title:
  Assignment 1
  Description:
  Practical Assignment

  This assignment requires student to work on software development on Android-based devices. The completed assignments needs to be demonstrated using Android emulator.

  Details of the assignment will be released once semester begins.
  Weighting:
  20%
  Criteria for assessment:
  Individual.

  Student work will be assessed based on

  1. The degree to which programs meet the problem specification
  2. How well the code is written and how easy it is to understand
  Due date:
  Week 5

- **Assessment task 2**

  Title:
  Assignment 2
  Description:
  Research Survey Paper
  Weighting:
  40%
  Criteria for assessment:
  Individual

  Student work will be assessed based on

  1. How well underlying problem has been addressed demonstrated in-depth research
  2. The appropriateness of the formatted report style
  3. The quality of the student's argument
  Due date:

Weeks 7

- **Assessment task 3**

Title:
Presentations
Description:
Research Paper Presentation
Weighting:
10%
Criteria for assessment:
Individual

Student work will be assessed based on

1. How well the presentation is organised
2. How well visual aids are presented
3. Clarity of presentation
Due date:
Weeks 8 -10

- **Assessment task 4**

Title:
Assignment 3
Description:
Practical Assignment

Students are to develop an application in Java using Ekahau indoor Wi-Fi based positioning system.
Weighting:
30%
Criteria for assessment:
Group assignment (Group of 2 students)

Students work will be assessed based on

1. The degree to which programs meet the problem specification
2. The level of testing demonstrated
3. How well the code is written and how easy it is to understand and be maintained
4. How well the program is documented.

Students will be assessed together and members of the group will get the same marks.

More details will be provided during the semester.
Due date:
Week 11

Examinations

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 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.

You must negotiate any extensions formally with your campus unit leader via the in-semester special consideration process: http://www.infotech.monash.edu.au/resources/student/equity/special-consideration.html.

Returning assignments

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

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)
- Assessment
  (http://www.policy.monash.edu/policy-bank/academic/education/assessment/assessment-in-coursework-po
- Special Consideration
  (http://www.policy.monash.edu/policy-bank/academic/education/assessment/special-consideration-policy.h
- 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
- Academic and Administrative Complaints and Grievances Policy
  (http://www.policy.monash.edu/policy-bank/academic/education/management/complaints-grievance-policy.
- Codes of Practice for Teaching and Learning
  (http://www.policy.monash.edu/policy-bank/academic/education/conduct/suppdocs/code-of-practice-tea

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 Commuity Services at 03 55146018 at Sunway