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FIT5046 Mobile and distributed computing systems - Semester 2, 2015

This unit provides a high level coverage of mobile and distributed computing. It will focus on the underlying concepts and standards of mobile computing and current technologies for mobile and distributed systems. It will discuss cellular networks, wireless networks and their standards and technologies, context-aware computing, location-awareness, wireless sensor networks, internet mobility, web services and service-oriented technology, cloud computing and current research trends and case studies.

Mode of Delivery

Caulfield (Evening)

Workload Requirements

Minimum total expected workload equals 12 hours per week comprising:

(a.) Contact hours for on-campus students:

- Two hours of lectures
- One 2-hour laboratory

(b.) Additional requirements (all students):

- A minimum of 8 hours independent study per week for completing lab and project work, private study and revision.

See also Unit timetable information

Unit Relationships

Prohibitions

CSE5501

Prerequisites

((FIT9131 or FIT5131 or FIT9017) and (FIT9134 or FIT5134 or FIT9018) and (FIT9135 or FIT5135 or FIT9020)) or equivalent

Prerequisite knowledge includes advanced programming skills, sound knowledge of Java, and basic/advanced knowledge of SQL.

Chief Examiner

Dr Pari Delir Haghighi
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 the Student Evaluation of Teaching and Units (SETU) survey. 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, see:

www.monash.edu.au/about/monash-directions/ and on student evaluations, see:
www.policy.monash.edu/policy-bank/academic/education/quality/student-evaluation-policy.html

Previous Student Evaluations of this Unit

Since this unit covers current mobile computing technologies, students find the lecture topics interesting. They suggest that the unit discusses a broad range of technologies that can be applied in today's IT industry. All the teaching materials in lectures and tutorials are revised every semester to make sure they are up to date, and to create a close alignment between lectures, tutorials and assignments.

Assessment tasks in this unit reflect real world programming scenarios and require students to be independent learners. The assessment tasks are designed in a way that they assess a number of key learning skills including programming, design, problem solving, research, critical thinking, literature review, analysis, academic writing and presentation. Therefore, students might find them first difficult and challenging. We have made changes to the structure of practical assignments such that their tasks include different level of difficulties and support incremental learning.

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

Learning Outcomes

At the completion of this unit students will:

1. identify and describe different approaches and methods for building distributed and mobile computing systems;
2. evaluate several models and approaches and select suitable mobile computing solution to a particular case;
3. propose and develop a mobile or distributed system that is appropriate to a problem domain;
4. identify the current research directions in the field and their impacts.
**Unit Schedule**

<table>
<thead>
<tr>
<th>Week</th>
<th>Activities</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No formal assessment or activities are undertaken in week 0</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Introduction to distributed and mobile computing</td>
<td>No Tutorials</td>
</tr>
<tr>
<td>2</td>
<td>Web Services: SOAP</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>RESTful Web Services</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Web Services: WSDL, UDDI, BPEL</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Cellular networks and radio communications</td>
<td>Practical Assignment 1 Due</td>
</tr>
<tr>
<td>6</td>
<td>Wireless LAN and IEEE 802.11</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Enabling wireless technologies</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Wireless Sensor Networks</td>
<td>Practical Assignment 2 Due</td>
</tr>
<tr>
<td>9</td>
<td>Ubiquitous Computing and Context-Awareness</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Location-Awareness in mobile environments</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Internet mobility and Mobile IP</td>
<td>Research Paper Presentations</td>
</tr>
<tr>
<td>12</td>
<td>Advanced Topics in Mobile Computing</td>
<td>Research Paper Assignment Due</td>
</tr>
<tr>
<td>SWOT VAC</td>
<td></td>
<td>No formal assessment is undertaken in SWOT VAC</td>
</tr>
</tbody>
</table>

*Unit Schedule details will be maintained and communicated to you via your learning system.

**Teaching Approach**

Lecture and tutorials or problem classes

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

**Assessment Summary**

In-semester assessment: 100%

<table>
<thead>
<tr>
<th>Assessment Task</th>
<th>Value</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practical Assignment 1</td>
<td>20%</td>
<td>Week 5</td>
</tr>
<tr>
<td>Practical Assignment 2</td>
<td>30%</td>
<td>Week 8</td>
</tr>
<tr>
<td>Research Paper Presentation</td>
<td>10%</td>
<td>Week 11</td>
</tr>
<tr>
<td>Research Paper Assignment</td>
<td>40%</td>
<td></td>
</tr>
</tbody>
</table>
Week 12
Assessment Requirements

Assessment Policy

Faculty Policy - Unit Assessment Hurdles

Academic Integrity - Please see resources and tutorials at
http://www.monash.edu/library/skills/resources/tutorials/academic-integrity/

Assessment Tasks

Participation

• Assessment task 1

  Title: Practical Assignment 1
  Description: Learning Outcomes: 1, 2 and 3. It assess students' practical and programming skills in web services development, deployment and invocation as well as problem solving and evaluation of feasibility of existing technologies. It requires building web services that provide different types of services and also requires learning how to use and consume public APIs.
  Weighting: 20%
  Criteria for assessment: Individual assignment.

   Student work will be assessed based on:

   1. The level of accomplishment in each task.
   2. The degree the developed services meet the specified requirements.
   3. The quality of code and design.

  Due date:
  Week 5

• Assessment task 2

  Title: Practical Assignment 2
  Description: Learning outcomes: 1, 2, and 3. This assignment requires students to work on software development on Android platform communicating with remote web services. The completed assignment needs to be demonstrated using an Android emulator.
  Weighting: 30%
  Criteria for assessment: Individual assignment.

   Student work will be assessed based on:
Assessment Requirements

1. The level of accomplishment in each task.
2. Quality of code and design.
3. The degree that the application meets the specified requirements.
4. The level of efficiency, reuse and extensibility of program

Due date:
Week 8

• Assessment task 3

Title:
Research Paper Presentation

Description:
Learning outcome: 4. Research Paper that reviews and analyses state of the art studies in the mobile computing area.

Weighting:
10%

Criteria for assessment:
Group assignment (groups of 3 to 4).

Student work will be assessed based on:

1. How well the presentation is organised and content is summarised.
2. How well visual aids are used and presented to make the presentation more interesting.
3. Clarity of presentation.

The assignment has a group mark (50%) and an individual component (50%). More details will be provided during the semester.

Due date:
Week 11

• Assessment task 4

Title:
Research Paper Assignment

Description:
Learning outcomes: 1 and 4. Research Paper that reviews and analyses state of the art studies in the mobile computing area.

Weighting:
40%

Criteria for assessment:
Group assignment (groups of 3 to 4).

Student work will be assessed based on:

1. How well the related literature has been studied.
2. How well underlying problem has been addressed demonstrated in-depth research.
3. The appropriateness of the formatted report style.
4. The quality of the student's argument and use of critical thinking and analysis skills.
5. How well in-text citation and referencing are used.
The assignment has a group mark (50%) and an individual component (50%). More details will be provided during the semester.

**Due date:**
Week 12

**Learning resources**

Monash Library Unit Reading List (if applicable to the unit)
http://readinglists.lib.monash.edu/index.html

**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
- Interviews

**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.monash.edu.au/exams/special-consideration.html

There is a 5% penalty per day including weekends for the late submission.

**Returning assignments**

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

**Assignment submission**

It is a University requirement (http://www.policy.monash.edu/policy-bank/academic/education/conduct/student-academic-integrity-managing-plagiarism-collusion-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 electronic submission). Please note that it is your responsibility to retain copies of your assessments.

**Online submission**

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

**Recommended text(s)**


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: www.policy.monash.edu.au/policy-bank/academic/education/index.html

Faculty resources and policies
Important student resources including Faculty policies are located at http://intranet.monash.edu.au/infotech/resources/students/

Graduate Attributes Policy
http://www.policy.monash.edu/policy-bank/academic/education/management/monash-graduate-attributes-policy.html

Student Charter

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 http://www.monash.edu.au/students. For Malaysia see http://www.monash.edu.my/Student-services, and for South Africa see http://www.monash.ac.za/current/.

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

Disability Liaison Unit
Students who have a disability or medical condition are welcome to contact the Disability Liaison Unit to discuss academic support services. Disability Liaison Officers (DLOs) visit all Victorian campuses on a regular basis.

- Website: http://www.monash.edu/equity-diversity/disability/index.html
- Telephone: 03 9905 5704 to book an appointment with a DLO; or contact the Student Advisor, Student Community Services at 03 55146018 at Malaysia
- Email: dlu@monash.edu
- Drop In: Equity and Diversity Centre, Level 1, Building 55, Clayton Campus, or Student Community Services Department, Level 2, Building 2, Monash University, Malaysia Campus