FIT3027
Mobile middleware

Unit Guide

Semester 1, 2012

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This unit focuses on how object-oriented abstractions, models, and software can employed in networked, net centric, and mobile computing to manage and address the complexity found in environments that are heterogeneous, span multiple platforms, and are delivered to various client devices. The unit will emphasise hands-on, practical experience with actual devices and emulators. Research topics and ideas will also be covered for potential post-graduate students

Mode of Delivery

Caulfield (Day)

Contact Hours

2 hrs lectures/wk, 2 hrs laboratories/wk

Workload

Students are expected to spend an average of 12 hours per week on this subject. The breakdown of time is the following:

- 2 hours per week: Topic material coverage (lecture attendance for on-campus students).
- 2 hours per week: Peer group involvement (tutorials or labs for on-campus students).
- 8 hours per week: Private study to review topic materials, explore supplementary subject resources and complete practical work and assignments.

Unit Relationships

Prohibitions

CSE3211, CPE3010, FIT4039

Prerequisites

CSE1201 or FIT1001 or FIT1031 AND a second level programming unit - FIT1007 or FIT2034 or CSE1203 or CPE1004 or equivalent

Chief Examiner

Ms Janet Fraser

Campus Lecturer

Caulfield

Trent Mifsud

Consultation hours: Email for appointment

Academic Overview

Outcomes

At the completion of this unit students will be able to:

- understand how object-oriented and other forms of middleware can be used to address the major issues and challenges found in networked, net centric, mobile, and other forms of computing;
- design and implement software for networked, net centric, mobile, and other forms of computing based on middleware such as .NET, Java components, and other technologies;
- design and implement software for networked, net centric and mobile and other forms of computing based contemporary middleware technologies;
- design applications for networked, net centric, mobile, and other forms of computing based on software patterns and architectures, such as federations and brokers;
- understand and be able to explain the differences between various forms of networked, net centric, mobile, and other forms of middleware.

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

Examination (3 hours): 60%; In-semester assessment: 40%

Assessment Task	Value	Due Date
Windows Mobile - Enterprise Application	20%	Week 7
Android (or iPhone) Application	20%	Week 11
Examination 1	60%	To be advised

Teaching Approach

- **Lecture and tutorials or problem classes**
  The aim of the lectures is to introduce one or more concepts in a way, and at a pace, that is adequate for students to learn, not to provide students with everything there is to know about those concepts. In this sense, the lecture notes provide a first step towards learning those

concepts, a first step that will be complemented by tutes and/or pracs, consultation hours and personal reading and working time.
- **Laboratory-based classes**
  The aim of the prac is to increase the knowledge of students on a particular area covered by the associated unit. In pracs this is achieved by each student (or group of students) practicing on their own the concepts already learned previously.

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
- Interviews

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

Based on previous student feedback Android development has been introduced and will be a focus from now on.

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

Required Resources

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

Software may be obtained from the Faculty of IT:

- Visual Studio 2008 with Pocket PC and Smartphone 2005 (or later) add-ons
- Activesync 4.x or later
- Android SDK / Eclipse

Will be made available to students from unit leader and will be available in the labs in Virtual Machines.

Academic Overview

Android development is open source and the Virtual Machine is based on Linux.

Unit Schedule

Week	Activities	Assessment
0		No formal assessment or activities are undertaken in week 0
1	Introduction to Middleware and Revision	
2	Intro to .NET and C#	
3	Compact Framework development for Windows Mobile	
4	Mobility in Industry	
5	Alternative Mobile Development Platforms	
6	Practical Enterprise Mobile Development	
7	Android	Windows Mobile Assignment due
8	Android	
9	iOS Development	
10	iOS Development	
11	Device Management	Android/iPhone Assignment due
12	Exam Discussion and Revision	
	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:
  Windows Mobile - Enterprise Application
  Description:
  Assignment 1 will focus more on a field service mobility application. These applications
  are enterprise / big business based applications for companies that need to replicate data
  when out of range, capture proof of deliver signatures and use features of rugged devices
  such as mobile printing technology.
  Weighting:
  20%
  Criteria for assessment:
  Students will be assessed based on enterprise mobility and usability factors, intuitive
  interface design and well documented and maintainable code.
  Due date:
  Week 7

- **Assessment task 2**

  Title:
  Android (or iPhone) Application
  Description:
  A consumer mobility application will be the focus of Assignment 2. These applications are
  more focused on end-user "marketplace" application in contrast to enterprise mobility.
  Specifically, using mobile devices that end users already own and are not typical of
  enterprise ruggedness. These applications generally have network availability and have
  touch gestures as standard.
  Weighting:
  20%
  Criteria for assessment:
  Students will be assessed based on interface design and interoperability with back end
  systems. Code maintainability and documentation will also be judged.
  Due date:
  Week 11

Examinations

Assessment Requirements

- **Examination 1**

   Weighting:
   > 60%

   Length:
   > 3 hours

   Type (open/closed book):
   > Closed book

   Electronic devices allowed in the exam:
   > None

   Remarks:
   > Lecturer will provide previous exam for students.

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

Other

Online references will be advised throughout the semester.