Wireless and Embedded Systems PG – 7200
Mobile and Wireless Computing G – 7187
Wireless Technologies & Embedded Systems - 7176

Unit Outline 2011

Faculty of Information Sciences and Engineering

University of Canberra

Australian Government Higher Education (CRICOS)
Registered Provider number: #00212K
1: General Information

1a Unit title
Wireless and Embedded Systems PG
Mobile and Wireless Computing G – 7187
Wireless Technologies & Embedded Systems

1b Unit number
7200, 7187, 7176

1c Semester and year offered
S2, 2011

1d Credit point value
3CP

1e Unit level
Post Graduate (PG)

1f Name of Unit Convener and contact details (including telephone and email)
Dr. Girija Chetty, 6201 2512, girija.chetty@canberra.edu.au, Office 11C48.

1g Administrative contact details (including name, location, telephone and email)
The School Office 11B14, Ph: 6201-2417/6201-2153, email: ise@canberra.edu.au
2: Academic Content

2a Unit description and learning outcomes

Unit description: The unit begins with an overview of the characteristics and features of several common wireless technologies. A number of common mobile devices will be studied as well as how applications for such devices are implemented and transferred to the device for execution. Non-mobile embedded systems will then be covered, including residential gateways, firewalls and VPN servers. Two common operating systems for such systems will be introduced, and programming techniques for embedded system applications will be reviewed.

Learning outcomes: On completion of this unit, students will be able to design and implement small Java/C# applications for mobile devices. In addition, students will be able to configure and boot an embedded Operating System with a specified set of features for specific target hardware types.

2b Prerequisites and/or co-requisites

Computer Structures and Networks (G)

3: Delivery of Unit and Timetable

3a Delivery mode

This subject is delivered on campus with weekly lectures and tutorials/labs, as per UC timetable for the semester.

3b Schedule of topics/lectures/tutorials/practicals/field classes by week

<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture</th>
<th>Tutorial Class</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction to the Unit</td>
<td>No Tutorial</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Microsoft Technologies: Windows Phone 7 Platform Architecture Overview</td>
<td>Tutorial Week 2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Introduction to Visual Studio and Silver light</td>
<td>No Tutorial</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>User Interface Design with Silver light</td>
<td>Tutorial Week 4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Data Services Consumption &amp; XNA Overview</td>
<td>No Tutorial</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Programming Windows Phone Applications</td>
<td>Tutorial Week 6</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Using the marketplace to sell solutions</td>
<td>No Tutorial</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>class free period (Assignment 1 Due)</td>
<td>(Assignment 1 Due)</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Introduction to iPhone Appl Development</td>
<td>Tutorial Week 9</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>iPhone App store and App Business Issues</td>
<td>No Tutorial</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Programming iPhone Applications</td>
<td>Tutorial Week 11</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Introduction to Android Wireless App Development</td>
<td>No Tutorial</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Programming Android Applications</td>
<td>Tutorial Week 13</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Revision and Examination Topics.</td>
<td>No Tutorial</td>
<td>(Assignment 2 Due)</td>
</tr>
</tbody>
</table>
4: Unit Resources

4a Lists of recommended readings

Text books:

1. MSDN resources on Windows Phone 7
   

2. Beginning iPhone 4 Development: Exploring the iOS SDK"
   
   By Dave Mark, Jack Nutting, Jeff LaMarche

3. Android ™ Wireless Application Development
   Shane Conder, Lauren Darcey
   Addison-Wesley 2010.

Online materials:
Lecture materials, tutorial questions and answers, assignment specifications, and other details are available on the subject web site.

4b Materials and equipment
Computers and software in the Building 11 networking laboratory are used in this unit. The use of private personal computers and relevant software is highly recommended.

4c Unit website
Please see the Moodle Page for this unit.
5: Assessment

5a Assessment overview

<table>
<thead>
<tr>
<th>Assessment Item (including exams held in the exam period)</th>
<th>Due Date of Assignments</th>
<th>Weighting (total to equal 100%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment 1</td>
<td>5:00pm, Monday of Week 7</td>
<td>20%</td>
</tr>
<tr>
<td>Assignment 2</td>
<td>5:00pm, Monday of Week 15</td>
<td>20%</td>
</tr>
<tr>
<td>Examination</td>
<td>University examination period</td>
<td>60%</td>
</tr>
</tbody>
</table>

5b Details of each assessment item

Assignment 1: Windows Phone 7.
Assignment 2: iPhone and Anroid.

Full details are available on the unit web site (see 4c).

Final Examination: open book, no electronic materials are permitted.

All assessment items are compulsory.

5c Special assessment requirements

The final assessment in the subject will result in one of the following grades: HD, DI, CR, P or Fail. Please note that PX grades are no longer available at UC.

\[
\text{total mark} = \text{assignment}_1\_\text{mark} \text{ (out of 20)} + \text{assignment}_2\_\text{mark} \text{ (out of 20)} + \text{examination\_mark} \text{ (out of 60)}
\]

The grade for the subject is then determined according to the following rules:

<table>
<thead>
<tr>
<th>Total mark (out of 100)</th>
<th>Exam mark (out of 60)</th>
<th>Final Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>\geq 85</td>
<td>and \geq 51</td>
<td>HD</td>
</tr>
<tr>
<td>\geq 75</td>
<td>and \geq 45</td>
<td>DI</td>
</tr>
<tr>
<td>\geq 65</td>
<td>and \geq 39</td>
<td>CR</td>
</tr>
<tr>
<td>\geq 50</td>
<td>and \geq 30</td>
<td>P</td>
</tr>
<tr>
<td>&lt; 50</td>
<td>or &lt; 30</td>
<td>(NX, NS, NC or NN)</td>
</tr>
</tbody>
</table>

5d Supplementary assessment

There will be no supplementary test or exam. Students who miss the final exam due to illness will be able to sit for a deferred examination. A doctor's certificate stating that the student was not able to sit for the exam should be given to the lecturer in charge as soon as possible - generally within 3 days of the examination.

5e Text-matching software

No text-matching software will be used in this Unit. You are encouraged to use Google and Wikipedia for researching the covered topics.
6: Student Responsibility

6a Workload
The amount of time you will need to spend on study in this Unit will depend on a number of factors including your prior knowledge, learning skill level and learning style. Nevertheless, in planning your time commitments you should note that for a 3cp Unit the total notional workload over a fifteen-week semester is assumed to be 150 hours or an average of 10 hours per week. These hours include time spent in classes. The total workload for Units of different credit point value should vary proportionally. For example, for a 6cp Unit the total notional workload over a fifteen-week semester is assumed to be 300 hours or an average of 20 hours per week.

6b Special needs
Students who need assistance in undertaking the unit because of disability or other circumstances should inform their Unit Convener or the Disabilities Office as soon as possible so the necessary arrangements can be made.

6c Attendance requirements
Attendance records will be kept. Students who do not attend regularly will almost certainly fail the final exam.
6d **Required IT skills**
See Section 2b

6e **Costs**
Textbooks, software and consumables. Information about the DETYA guidelines on student charges for HECS students can be found on OSIS.

6f **Additional information**
All assignments will require background reading, intelligent criticism, keen observation and the development of a line of argument to support an adopted stance. It is also a requirement that each assignment is solely the work of the individual submitting it (unless explicitly stated otherwise) and that it is produced specifically for the subject in question. The reproduction, paraphrasing, summarizing or otherwise presenting in altered form, another person’s ideas or arguments without acknowledgment is plagiarism. Plagiarism includes submitting work prepared by another author, including another student, as one's own. Any form of plagiarism will be reported to the Head of School for investigation.

Special Needs: Please notify your lecturer or tutors of any special needs you have, for example, special arrangement for people with disabilities etc.

7: **Authority of this Unit Outline**

Any change to the information contained in Section 2 (Academic content), Section 3 (Delivery of Unit and timetable) and Section 5 (Assessment) of this document, will only be made by the Unit Convener if the written agreement of staff and a majority of students has been obtained; and if written advice of the change is then forwarded to each student enrolled in the Unit at their registered term address. Any individual student who believes him/herself to be disadvantaged by a change is encouraged to discuss the matter with the Unit Convener.