Mobile Computing - Course Outline

NWEN 404: 2012 Trimester 2

This document sets out the workload and assessment requirements for NWEN 404. It also provides contact information for staff involved in the course. If the contents of this document are altered during the course, you will be advised of the change by an announcement in lectures and/or on the course web site. A printed copy of this document is held in the School Office.

Objectives

"Have you every wondered how you can be reached on your mobile phone wherever you are?"

By the end of the course, students should:

1. Know how networks track mobile users and devices, i.e. the mobility management function of current and emerging networks, and be able to analyze and compare the degree of granularity in which mobile user/device tracking is done; (BE graduate attributes 3(a), 3(b))
2. Be able to apply the knowledge they have acquired to the design, implementation and validation of mobility management components as part of a larger system; (BE graduate attributes 3(a), 3(b), 3(c), 3(d))
3. Be able to apply the knowledge to the operation, deployment and management of mobile/wireless communications networks and relate to other relevant technologies, e.g. location and positioning; (BE graduate attributes 3(c), 3(d), 3(e), 3(f))
4. Be aware of standardization efforts and state-of-the-art research areas being pursued by academia and industry; (BE graduate attributes 3(d))
5. Be able to communicate mobility management and related issues, problems and solutions clearly and concisely. (BE graduate attributes 2(b))

Textbook

There is no specific textbook for NWEN 404. The materials covered in the course can be found in the recommended references listed below, along with any other publications, notes or materials required. The following are the main sources for technical publications:

- IEEE Explore
- ACM Digital Library
- SpringerLink
- IETF Datatracker for RFCs and Internet Drafts

Most (if not all) of the publications will be available online through the VUW Library website or made available on the course website for students to download.

Recommended references:

1. Ricky Y.K. Kwok and Vincent K.N. Lau, *Wireless Internet and Mobile Computing*, Wiley, 2007.
2. Azzedine Boukerche (Ed), *Handbook of algorithms for wireless networking and mobile computing*, Chapman & Hall/CRC Press, 2006.
3. Yi-Bing Lin and Ai-Chun Pang, *Wireless and Mobile All-IP Networks*, Wiley, 2005.

Lectures, Tutorials, Laboratories, and Practical work

A schedule of lecture topics, readings, and assignment due dates is available online.

Lectures for NWEN 404 are conducted on **Tue/Thu** at **12-1pm** in Cotton Building Room **CO228**.

Tutorials are conducted on **Mon** at **12-1pm** in **CO228**.

Assignments

(I) Term Paper (BE graduate attributes 2(b), 3(a), 3(b), 3(c))

Write a term paper on the topic of Indoor Positioning Systems (IPS). The goal of the term paper is to survey the state-of-the-art in indoor positioning systems based on wireless technologies, in particular, WiFi or IEEE802.11. Review two other students' term papers and provide constructive feedback to help improve the term papers. More details are available here.

(II) Project (BE graduate attributes 2(b), 3(d), 3(e), 3(f))

Based on the findings of the term paper, design and implement an Indoor Positioning System that uses WiFi access points as known reference locations. For fairness and consistency, each student will be allocated an Android-based smartphone to implement and demonstrate his/her implementation. A report explaining the design and presenting validation results is to be submitted at the end of the project. More details are available here.

(III) Presentation (BE graduate attributes 2(b))

Each student will prepare and give a presentation on Indoor Positioning Systems that covers the findings of his/her term paper and the design of his/her IPS scheme. More details are available here.

Workload

In order to maintain satisfactory progress in NWEN 404, you should plan to spend an average of **10~12** hours per week on this paper. A plausible and approximate breakdown for these hours would be:

- Lectures and tutorials: 3
- Readings: 2~3
- Assignments: 5~6

School of Engineering and Computer Science

The School office is located on level three of the Cotton Building (Cotton 358).

The notice board for NWEN 404 is located on the second floor of the Cotton Building.

Staff

The course organiser and lecturer for NWEN 404 is Winston Seah. His contact details are:

- Prof Winston Seah
- Cotton 336
- +64 4 463 5233 x8493
- Winston.Seah@ecs.vuw.ac.nz

The project advisor is Radek Hes. You may consult him regarding smartphone implementation issues. His contact details are:

- Radek Hes
- Cotton 360
- +64 4 463 6496
- radek.hes@ecs.vuw.ac.nz

Announcements and Communication

The main means of communication outside of lectures will be the NWEN 404 web area at http://ecs.victoria.ac.nz/Courses/NWEN404_2012T2/ and the NWEN 404 class mailing list - nwen404-class@ecs.vuw.ac.nz. On the course web area you will find, among other things, this document, the lecture schedule and assignment handouts, and the NWEN 404 Forum. The forum is a web-based bulletin board system. Questions and comments can be posted to the forum, and staff will read these posts and frequently respond to them.

Assessment

Your grade for NWEN 404 will be determined based on the following assessment weightings:

Item	Weight
Term Paper	30%
Term Paper Peer Review	10%
Project	30%
Presentation	10%
Term Test	20%

Tests and Exams

There is NO final exam for this course but there will be a Term Test on Mon 15 Oct 2012 in Week 12.

Practical Work

The work will be carried during the periods as shown below:

- Week 2 ~ 5: Writing of term paper (including reading of related references, planning, writing, proofreading, etc);
- Week 6: Peer-review of term papers and preparation of review reports
- Week 7: Revision of term paper
- Week 7 ~ 11: Project - design, implementation and testing.
- Week 12: Term test on Mon; on Tue & Thu, presentations of term paper & project demonstration (scheduling arrangements will be done prior to this week)

Policies and penalties for late submission:

- all students must adhere strictly to the deadlines for submission of term paper, review report, final revised version of term paper and project report; a medical certificate is required in the case of late work due to illness.
- all assignments/projects will be submitted using the submission system.
- penalties for late submission will be as follows:
    - **term paper**: for each day late, 10% of the final (term paper) grade will be deducted;
    - **review report**: for each day late, 5% of the review report grade will be deducted;
    - **final revised version of term paper**: for each day late, 10% of the final grade will be deducted; e.g. if the term paper is submitted 3 days after the deadline, 30% of the final grade will be deducted (this is in addition to any deduction for late submission of the (first version) term paper, if any);
    - **project report**: for each day late, 20% of the project report grade will be deducted;

Plagiarism

Working Together and Plagiarism

We encourage you to discuss the principles of the course and assignments with other students, to help and seek help with programming details, problems involving the lab machines. However, any work you hand in must be your own work.

The School policy on Plagiarism (claiming other people's work as your own) is available from the course home page. Please read it. We will penalise anyone we find plagiarising, whether from students currently doing the course, or from other sources. Students who knowingly allow other students to copy their work may also be penalised. If you have had help from someone else (other than a tutor), it is always safe to state the help that you got. For example, if you had help from someone else in writing a component of your code, it is not plagiarism as long as you state (eg, as a comment in the code) who helped you in writing the method.

Mandatory Requirements

1. Students must attempt the term test and gain at least a **C** grade.
2. Students must submit the term paper according to the stated procedure.
3. Students must attempt the project and submit the project report.
4. All term papers and project reports must be submitted by Sat 27 Oct 2012 at 23:59hrs. No submission will be accepted after this deadline.

Passing NWEN 404

To pass NWEN 404, a student must satisfy mandatory requirements and gain at least a **C** grade overall.

Withdrawal

The last date for withdrawal from NWEN 404 with entitlement to a refund of tuition fees is Friday 27 July 2012. The last date for withdrawal without being regarded as having failed the course is Friday 28 Sept 2012 -- though later withdrawals may be approved by the Dean in special circumstances.

Rules & Policies

Find key dates, explanations of grades and other useful information at http://www.victoria.ac.nz/home/study.

Find out about academic progress and restricted enrolment at http://www.victoria.ac.nz/home/study/academic-progress.

The University's statutes and policies are available at http://www.victoria.ac.nz/home/about/policy, except qualification statutes, which are available via the Calendar webpage at http://www.victoria.ac.nz/home/study/calendar (See Section C).

Further information about the University's academic processes can be found on the website of the Assistant Vice-Chancellor (Academic) at http://www.victoria.ac.nz/home/about/avcacademic

All students are expected to be familiar with the following regulations and policies, which are available from the school web site:

Grievances
Student and Staff Conduct
Meeting the Needs of Students with Disabilities
Student Support
Academic Integrity and Plagiarism
Dates and Deadlines including Withdrawal dates
School Laboratory Hours and Rules
Printing Allocations
Expectations of Students in ECS courses

The School of Engineering and Computer Science strives to anticipate all problems associated with its courses, laboratories and equipment. We hope you will find that your courses meet your expectations of a quality learning experience.

If you think we have overlooked something or would like to make a suggestion feel free to talk to your course organiser or lecturer.

Course Outline as PDF