

Mobile Computing - Course Outline

NWEN 404: 2016 Trimester 1

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.

Learning Objectives

"Have you ever 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 13:10 - 14:00** in **VZ105**
- ~~**Thu 13:10 - 14:00**~~ in **VZ105**
- **Thu 12:00 - 12:50** in **VZ509** <-- Please note change in time and venue

Tutorials are conducted on:

- **Fri 13:10 - 14:00** in **VZ105**. (Please refer to [schedule](#) for most updated information.)

Assignments & Projects

(I) Project (Assesses Learning Objectives - 2, 3, 4 & 5.)

The project will be handed out and explained on Friday 4 March 2016.

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](#).

The deadline for the submission of the project report (and source code) is **Monday 18 April 2016 at 12:00hrs**. A demonstration of your implementation will be carried out on **Tuesday 19 April 2016 at 13:10-16:00hrs** (details will be explained during lecture.)

(II) Term Paper (Assesses Learning Objectives - 1, 2, 4 & 5.)

The term paper assignment will be handed out and explained on Friday 22 April 2016.

Theme: [The Mobile Internet of Things](#)

Write a term paper on the theme that is based on one or combination of the following:

- design and validation of algorithm/protocol/scheme pertaining to mobile computing;
- performance analysis of selected mobile computing system(s) using analytical/simulation/experimental approach;
- read technical papers on related mobile computing topics and write a critique;

The entire term paper assignment will comprise the following steps:

1. Selection of term paper topic and write an abstract (150-250 words); [abstract submission deadline - **Monday 2 May 2016 12:00hrs**]
2. Write term paper (BE graduate attributes [2\(b\)](#), [3\(a\)](#), [3\(b\)](#), [3\(c\)](#)); [deadline - **Monday 23 May 2016 at 12:00hrs**]
3. Term paper presentation (BE graduate attribute [2\(b\)](#)): each student will prepare and give a short (12-15min + 5min Q&A) presentation on his/her term paper in **Week 12**.
4. Term paper peer review (BE graduate attributes [3\(d\)](#)): each student will be tasked to review two other students' term papers and provide constructive comments to help the author revise and improve his/her term paper; a set of criteria will be provided to guide the students in the review process; [deadline - **Thursday 2 June 2016 at 12:00hrs**]
5. Revise term paper taking into consideration the review feedback on the term paper (BE graduate attributes [2\(b\)](#), [3\(d\)](#), [3\(e\)](#), [3\(f\)](#)); [deadline - **Sunday 19 June 2016 at 23:59hrs**]

More details on the term paper assignment 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
- [Alan MacDarmid 416](#)
- +64 4 463 5233 x8493
- Winston.Seah@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_2016T1/ 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:

<u>Item</u>	<u>Weight</u>
Project	40%
Term Paper	30%
Term Paper Peer Review	5%
Presentation	5%
Term Tests	20%

Tests and Exams

There is **NO** final exam for this course but there will be **two** Term Tests on **Friday 15 April 2016** and **Friday 3 June 2016**. Venue is *to be confirmed*.

Practical Work

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

- Week 2 ~ 7: Project - design, implementation and testing. Project demonstration on Tuesday 19 April 2016 at 13:10-16:00hrs.
- Week 8 ~ 11: Writing of term paper (including topic selection, planning, reading of related references, writing, proofreading, etc);
- Week 12: Peer-review of term papers, term paper presentations, and preparation of review reports; presentation scheduling arrangements will be done prior to this week;
- Week 13 onwards: Revision of term paper based on feedback (review report & during presentations).

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 (including source codes); a medical certificate is required in the case of late work due to illness.
- all assignments/projects will be submitted using the submission system.
- all reports must be submitted online in PDF - work submitted in any other format will NOT be marked; the only exception is the source code for the project which must be submitted in a form that can be compiled and built on the designated platform for verification and testing.
- 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. Cutoff date for submission of all term papers and project reports -- not later than **1 week after set deadline** (note: penalty for late submission above). 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 11 March 2016. The last date for withdrawal without being regarded as having failed the course is Friday 13 May 2016 -- 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](#)
