

# Internet Engineering - Course Outline

## NWEN 402: 2012 Trimester 1

This document sets out the workload and assessment requirements for NWEN 402. 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.

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## Objectives

NWEN 402 is designed to:

- Investigate the science and technology of distributed systems and networking in real systems, in particular, the Internet;
- Provide insight into aspects of real-world projects such as scalability, reliability/availability and economics; and
- Provide an overview of emerging and new aspects of Internet technology.

By the end of the course, students should:

1. Know the real world issues involved in the deployment and operation of IP networks. (BE graduate attribute [3\(d\)](#), [3\(e\)](#))
2. Be able to design, implement and configure fundamental IP networks, network devices, and network services. (BE graduate attribute [3\(a\)](#), [3\(b\)](#), [3\(c\)](#))
3. Be aware of standardization efforts and research pursued by academia and industry. (BE graduate attribute [3\(d\)](#), [3\(e\)](#))

## Textbook

There is no specific textbook for NWEN 402. The materials covered in the course can be found in the following recommended references, along with any other publications, notes or materials required. 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:

- Douglas E. Comer, *Computer Networks and Internets*, 5th Edition, Pearson International Edition, 2009. -- this book covers the fundamental topics as well as advanced topics discussed in this course
- William Stallings, *High-Speed Networks - TCP/IP and ATM Design Principles*, Prentice Hall, 1997.
- Ying-Dar Lin, Ren-Hung Hwang and Fred Baker, *Computer Networks - An Open Source Approach*, McGraw Hill, 2012.

## Lectures, Tutorials, Laboratories, and Practical work

A [schedule](#) of lecture topics, readings, and assignment due dates is available online

Activity	Venue/Day/Time
Lectures	C0523A

	Wed/Thu 1200hrs-1250hrs
<b>Tutorials</b>	<b>CO523A</b>
	Mon (Week 1 to 6) 1410hrs-1500hrs
<b>Labs</b>	<b>CO246</b>
	Mon (Week 7 to 12) 1400hrs-1700hrs

## Assignments and Projects

**Term Paper** : This requires the students to conduct a study of advanced technologies that have been developed to enhance the capability of the Internet to address the requirements of new applications and services, typically those that require Quality of Service levels beyond the inherent Best Effort service. (BE graduate attribute [2\(b\)](#),[3\(a\)](#),[3\(d\)](#))

**Seminar Presentation** : each student will read a published technical paper, prepare and give a short presentation on the topic discussed in the paper (BE graduate attribute [2\(b\)](#))

**Project** : The aim of this project is to emphasise a key aspects of Internet computing. The project is an integral part of NWEN 402, and is based on the topic of the Domain Name System – Students will work individually and in groups to design and develop the blueprint for a company DNS system. Based on the design, they will then construct a DNS system in the laboratory and explore DNS configuration and operations. (BE graduate attribute [1\(b\)](#),[2\(a\)](#),[3\(b\)](#),[3\(c\)](#),[3\(e\)](#),[3\(f\)](#))

## Workload

In order to maintain satisfactory progress in NWEN 402, you should plan to spend an average of at least 10 - 12 hours per week on this paper. A plausible and approximate breakdown for these hours would be:

- Lectures and tutorials: 2 - 3 hours
- Readings: 3 - 4 hours
- Assignments: 5 - 6 hours

## 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 402 is located on the second floor of the Cotton Building.

## Staff

The course organiser and lecturer for NWEN 402 is [Winston Seah](#). His contact details are:

- **Winston Seah**
- [Cotton 336](#)
- +64 4 463 5233 ext 8493
- [Winston.Seah@ecs.vuw.ac.nz](mailto:Winston.Seah@ecs.vuw.ac.nz)

Tutor for Lab Assignment

- **Jonathan Hart**
- [Cotton 239](#)
- [Jonathan.Hart@ecs.vuw.ac.nz](mailto:Jonathan.Hart@ecs.vuw.ac.nz)

## Announcements and Communication

The main means of communication outside of lectures will be the NWEN 402 web area at [http://ecs.victoria.ac.nz/Courses/NWEN402\\_2012T1/](http://ecs.victoria.ac.nz/Courses/NWEN402_2012T1/). There you will find, among other things, this document, the [lecture schedule](#) and [assignment handouts](#), class mailing list ([nwen402-class@ecs.vuw.ac.nz](mailto:nwen402-class@ecs.vuw.ac.nz)) and the [NWEN 402 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. After you have enrolled for the course, your ECS email ID will be automatically added to this mailing list; to ensure that you receive emails promptly, you may want to [redirect](#) the emails to your preferred Email account.

## Assessment

Your grade for NWEN 402 will be determined based on the following assessment weightings:

Item	Weight
Term Paper	25%

Seminar Presentation	5%
Project	30%
Final Examination	40%

## Tests and Exams

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The timetable for final examinations will be available from the University web site and will be posted on a notice board outside the faculty office. The final examination will be three hours long. No computers, electronic calculators or similar device will be allowed in the final examination. Paper non-English to English dictionaries will be permitted. The examination period for trimester 1 is 15 June - 4 July.

## Practical Work

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**Term Paper** : details of the assignment will be announced in Week 3; submission deadline is 29 April (Sunday) at 23:59hrs.

**Seminar Presentation** : this will be done in Week 6 on 23 Apr (Monday) during the tutorial starting at 1410hrs in CO523A.

Presentation Schedul	
Presenter	Paper Title
Daniel	Relationship Between Quality-of-Service and Quality-of-Experience for Public Internet Service
Sally	SCTP: state of the art in research, products, and technical challenges
Waleed	Designing DCCP: congestion control without reliability
Tim	TCP HACK: a mechanism to improve performance over lossy links
Wei	Enhancing Wireless TCP: A Serialized-Timer Approach
Cam	Concurrent multipath transfer using SCTP multihoming over independent end-to-end paths

**Project** : The details will be announced in Week 6.

### Policies and penalties for late submission

- all students must adhere strictly to the deadlines for submission of assignments; a medical certificate is required in the case of late work due to illness.
- penalties for late submission will be as follows: for each day late, 20% of the final grade will be deducted; e.g. if the assignment is submitted 3 days after the deadline, 60% of the final grade will be deducted.

## Plagiarism

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### 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

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1. You must participate in the group project, attempt the term paper assignment and participate in the seminar presentation.
2. To pass the course you should achieve a minimum of a grade **D** on all individual assessment component.

## Passing NWEN 402

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To pass NWEN 402, a student must satisfy mandatory requirements and gain at least a **C** grade overall.

## Withdrawal

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The last date for withdrawal from NWEN 402 with entitlement to a refund of tuition fees is Friday 16 March 2012. The last date for withdrawal without being regarded as having failed the course is Friday 18 May 2012 -- though later withdrawals

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may be approved by the Dean in special circumstances.

## Rules & Policies

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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.

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