
CONTENTS

The School of Engineering and Computer Science	2
Degrees In Engineering and Computer Science	4
Overview of the BE Degree	4
Overview of the BSc in Computer Science or in Electronics and Computer Systems.	4
Other programmes	5
Course Codes, Trimesters, CRNs, and points.	5
Entry Requirements for 100-level courses.	6
Second and Third Year Programmes	8
Engineering and Computer Science Scholarships and Prizes	8
Requirements for the BE	9
BE Part 1	9
BE Part 2	9
BE Part 3	9
BE Specialisations	10
Course Map – Computer Systems Engineering and Electronic Engineering	16
Course Map – Network Engineering and Software Engineering	17
Course Map – Computer Science	18
200-Level Courses	23
300-Level Courses	27
400-level	35
General Information	39
Course Materials	39
Examinations	39
Official School Communications	39
Social and Cultural Activities	39
Prizes and scholarships	39
Student Services Group	40
Vic OE (Victoria Overseas Exchange)	42
Faculties of Science and Engineering	43

THE SCHOOL OF ENGINEERING AND COMPUTER SCIENCE

From January 2009 the School of Engineering and Computer Science, along with the School of Mathematics, Statistics and Operations Research, will replace the School of Mathematics, Statistics and Computer Science. The creation of the new School recognises the development of the Bachelor of Engineering at Victoria and its close relationship to Computer Science.

The new School will be responsible for the Computer Science major in the Bachelor of Science (BSc) and for all four specialisations in the Bachelor of Engineering (BE). The focus of the School is the rapid innovation made possible by the accelerating capability of technologies such as electronics, optics, magnetics, software tools, and networks. The School's programmes focus on the development of skilled professionals, both scientists and engineers, who are technically innovative, skilled problem solvers, good communicators and able to take a leading role in New Zealand's future.

The School has a mixture of staff. Some, like myself, have many years experience of both teaching and research. Our younger staff are rapidly developing into tomorrow's leaders. We have staff whom have held or currently hold positions in industry, and staff who advise the government and large national corporations. All of our staff are committed to seeing that you get the best education possible.

Victoria's BE is a four year professional degree focused on the design and implementation of real world systems, and including an essential grounding in management skills. A work placement in a relevant industry is part of the degree, typically taken in the summers following the second and third years of study. This along with a group project in your third year and a research or industry driven project in your fourth year gives real life experience with the practical aspects of engineering design and development.

The BSc in Computer Science shares much of the design and implementation focus of the BE. However, it is a much more flexible degree with fewer specific requirements in its three years. The Computer Science major is easily combined with any other major in the BSc programme. The Computer Science major consists of a collection of courses that will generally give you a broader appreciation of the possibilities of computer science.

We are glad you have chosen Victoria for your study. We are confident that when you complete you will also be happy to have chosen Victoria. You will always be welcome at the Faculties Office on the ground floor of Cotton or the School reception at Cotton 358.

John H. Hine
Head of School
Dean of Engineering

School of Engineering and Computer Science

Te Kura Mātai Pūkaha, Pūrōrohiko

Location: Cotton Building, P.O. Box 600, Kelburn Parade, Wellington
Telephone: (04) 463-5341 from NZ
Fax: (04) 463-5045 from NZ
Email: office@ecs.vuw.ac.nz
Website: http://ecs.victoria.ac.nz

STAFF	RESEARCH INTERESTS	ROOM	CONTACT
Deans			
Prof John Hine	Dean of Engineering and Head of School	CO337A	463 5670
Shona de Sain	Associate Dean (Students)	CO158	463 5092
Liz Richardson	Deputy Dean (Equity)	CO150	463 5748
Academic Staff			
Dr Peter Andreae	Artificial Intelligence	CO429	463 5834
Dr Kris Bubendorfer	Mobility and Distributed Systems	CO330	463 6484
Prof Dale Carnegie	Mechatronics, Digital Electronics, Embedded Controllers	LB502	463 7485
Dr Pawel Dmochowski	Wireless communications, Signal Processing	LB525A	463 5948
Dr Robin Dykstra			
Dr Marcus Freaun	Artificial Intelligence	CO427	463 5834
Dr Xiaoying Gao	Artificial Intelligence	CO442	463 5978
Dr Gideon Gouws	Sensors and Sensor Systems, Dynamic Systems and Control	LB505	463 5952
A/Prof Lindsay Groves	Formal Software Development	CO443	463 5656
Prof John Hine	Distributed Systems	CO337A	463 5670
Dr Chris Hollitt	Autonomous Mobile Robots	LB524	463 6965
Dr Peter Komisarczuk	Communication Systems, Distributed Systems	CO334	463 5661
A/Prof Thomas Kühne	Software Engineering	CO233	463 5443
Dr Neil Leslie	Computational Logic	CO440	463 6732
Dr Dr Hui Ma	Databases	CO330	463 5657
Dr Petra Malik	Formal Software Engineering, Open Source	CO239	463 6577
Dr Stuart Marshall	Component Reuse, Software Visualisation	CO235	463 6730
Dr Pavle Mogin	Database Systems	CO359	463 5655
Prof James Noble	Object-Oriented Software Design	CO234	463 6736
Dr David Pearce	Graph Algorithms, Program Analysis	CO231	463 5833
Dr Alex Potanin	Ownership Types, Object-Oriented Programming Languages	CO230	463 5302
Dr Mansoor Shafi	Wireless Communications Systems	(Adjunct Professor)	
Dr Paul Teal	Signal Processing and Communications	LB514	463 5966
Dr Ian Welch	Security and Distributed Systems	CO336	463 5664
Dr Mengjie Zhang	Artificial Intelligence, Data Mining, Genetic Programming	CO427	463 5654

DEGREES IN ENGINEERING AND COMPUTER SCIENCE

The School of Engineering and Computer Science offers a four year Bachelor of Engineering with four specialisations: Electronic, Computer Systems, Network, and Software Engineering; and two majors in the three year Bachelor of Science: Computer Science, and Electronic & Computer Systems. The sections below give brief overviews of the degrees, followed by details on how to plan your first year and the rest of your degree programme.

Overview of the BE Degree

Overview

The four year Bachelor of Engineering consists of at least 480 points, including

- Part 1, consisting of six or seven 100-level courses providing the scientific foundation for the BE. There is open entry to Part 1 of the BE; but to obtain full admission to the BE, you must pass your Part 1 courses with at least a B average.
- Part 2, consisting of four core Engineering courses and a collection of courses meeting the requirements of one of the specialisations of the BE: electronic engineering, computer system engineering, network engineering or software engineering. You will need full admission to the BE in order to take some of the core courses of Part 2, though it may be possible to take some of the Part 2 courses before you have completed all of the Part 1 courses.
- Part 3, consisting of three courses outside of your specialisation forming a coherent addition to your programme of study and approved by the Dean.
- 800 hours of work experience, giving on-the-job experience in analysis and design of practical aspects of engineering problem solving and system development.
- a significant design project in your final year.

Work Programme

As part of the BE programme you must undertake 800 hours of approved work experience in an engineering environment, approved by the Dean of the BE. This work is normally undertaken in the summers following the second and third years of study, but part time work for some of the 800 hours may be approved. With permission, some of the hours may be undertaken overseas. Full details of the BE work experience programme will be available on the school website.

BE with Honours

If you achieve good grades during your degree, and particularly in your third and fourth year work, you will be awarded the degree with Honours, either First Class Honours, Second Class Honours (first division), or Second Class Honours (second division). To be eligible for the award of Honours you would normally complete your third and fourth year courses in two consecutive years.

Overview of the BSc in Computer Science or in Electronics and Computer Systems.

The Bachelor of Science is a three year degree with a flexible choice of courses. The rules for the BSc have just been changed to give students starting from 2009 even greater flexibility in designing their degree programme, particularly when taking double majors. You must satisfy the requirements for at least one major subject of the BSc, but it is possible to complete two (or more) majors, and one of the majors may be from outside the Science faculty. The degree consists of 360 points, of which at least 210 points must be above 100-level and at least 75 points at 300-level. The full details of the requirements of the degree are given on page 14.

The Computer Science major will require 60 points at 200-level and 60 points at 300-level of courses from Computer Science, Software Engineering, and Network Engineering, along with 45 points of mathematical courses.¹

The Electronic and Computer Systems major will require 45 points at 200-level and 60 points at 300-level of relevant courses from Physics, Electronics, and Computer Systems, and a 200-level calculus course.¹

Note that students who started a BSc before 2009 will be able to complete their degree under the old regulations. In some cases, it may be possible to complete under the new regulations, but this will be less likely for the Computer Science major.

Other programmes

The Conjoint BCA/BSc programme allows students to complete a BCA and BSc concurrently in four years. This is an excellent option for students wanting to combine expertise in science with an understanding of the commercial environment. Particularly relevant majors in the BCA include Information Systems, Electronic Commerce, and Management.

The Graduate Diploma in Computer Science and the Graduate Diploma in Science enable a graduate with a degree in another subject to gain another qualification in computer science (or another science discipline) with the equivalent of one year of study. The graduate diplomas consist of 200- and 300-level courses.

Course Codes, Trimesters, CRNs, and points.

Course codes include a 4-letter subject code and a 3-digit number – the first digit denotes the level of the course. The subject codes for courses taught by the School of Engineering and Computer Science include

COMP	Computer Science
CSEN	Computer System Engineering
ELEN	Electronic Engineering
ENGR	Engineering
NWEN	Network Engineering
SWEN	Software Engineering

Courses are offered in three trimesters: some are offered more than once and some are completed over two consecutive trimesters. Each version of a course has a unique Course Reference Number (CRN) which you will need for enrolment forms and accessing information online. The trimesters, including the exam periods, are:

- 1st trimester (Tri 1): 2 March – 1 July
- 2nd trimester (Tri 2): 13 July – 14 November
- 3rd trimester (Tri 3): 16 November – Mid February 2010

The school is not currently planning to offer any of its courses in the 3rd trimester.

A full time load in one trimester is 60 points. From 2009, all courses in the school will be 15 points, except for 200-level COMP, SWEN, and NWEN courses, which will be changed to 15 points from 2010.

¹ The new major requirements are still subject to CUAP approval.

Entry Requirements for 100-level courses.

Entry to the first year of the Bachelor of Engineering depends upon entry to first year Mathematics and Physics courses.

COMP 102, 103: [*BSc (Comp) and all BE specialisations*]

COMP 102 is open entry and has no prerequisites.

COMP 103 requires passing COMP 102 first.

PHYS 114, 115: [*BSc (ELCO), BE (ELEN), (CSEN)*]

Both courses require 14 credits of level-3 NCEA Calculus or MATH 141.

PHYS 114 requires at least 14 credits of level-3 NCEA Physics or PHYS 130.

PHYS 115 requires PHYS 114 or a B+ (or better) in PHYS 130.

MATH 142: [*BSc (ELCO), BE (ELEN), (CSEN), (NWEN)*]

Requires at least 18 credits of NCEA Level-3 Calculus or its equivalent, preferably with some at Merit or Excellence. Alternatively, students can take MATH 141 first.

MATH 151 [*BSc (ELCO), BE (ELEN), (CSEN), (NWEN)*]

MATH 161 [*BSc (COMP), BE (NWEN), (SWEN)*]

MATH 141 [*alternate prereq for MATH 142*]

All these courses require 16 NCEA Level-3 mathematics credits. Alternatively, students can take MATH 132 first.

MATH 132 [*alternate prerequisite for MATH 141, 151, 161, STAT 131*]

Open entry; no prerequisites.

STAT 131 [*BSc (COMP); BE (SWEN), (NWEN)*] requires 16 NCEA Level-3 mathematics credits, of which 12 must be from the Calculus domain. Alternatively, students can take MATH 132 first.

STAT 193 [*BSc (COMP); BE (SWEN), (NWEN)*] is open entry and has no prerequisites

Planning your First Year Programme

Many students are not certain what major, or even what degree, they want to take. A sensible plan is to choose a set of courses for your first year that could lead to several different majors or degrees. A key principle is to ensure that you will have satisfied the prerequisites of the courses that you might want to take in your second year. The suggested programmes below provide some examples that you can follow or build on. The detailed requirements for each degree and major are given in the next section.

Programme A

First year programme if you want to do a **BE (CSEN)** or **BE (ELEN)**.
The programme would also lead to a **BSc (ELCO)** or **BSc (PHYS)**

Tri 1	ENGR 101 COMP 102 MATH 151 PHYS 114	Engineering Technology Introduction to Computer Program Design Algebra Physics 1A
Tri 2	COMP 103 MATH 142 PHYS 115	Introduction to Data Structures and Algorithms Calculus 1B Physics 1B <i>Elective</i>

Programme B

First year programme for students wanting to do a BE on the computing side, but are not sure whether to do a **BE (NWEN)** or **BE (SWEN)**.
The programme would also lead to a **BSc (COMP)** or **BSc (MATH)**

Tri 1	ENGR 101 COMP 102 MATH 151 STAT 193	Engineering Technology Introduction to Computer Program Design Algebra Statistics for Natural and Social Sciences
Tri 2	COMP 103 SWEN 102 MATH 142 MATH 161	Introduction to Data Structures and Algorithms Introduction to Software Modelling Calculus 1B Discrete Mathematics and Logic

Programme C

First year programme for students wanting to do a **BE (SWEN)**.
The programme would also lead to a **BSc (COMP)**

Tri 1	ENGR 101 COMP 102 STAT 193 <i>Elective</i>	Engineering Technology Introduction to Computer Program Design Statistics for Natural and Social Sciences
Tri 2	COMP 103 MATH 161 SWEN 102 <i>Elective</i>	Introduction to Data Structures and Algorithms Algebra and Discrete Mathematics Introduction to Software Modelling

Programme D

First year programme for students wanting to do a **BSc (COMP)**.

By choosing the electives appropriately, this could also lead to a second major from a very wide range of disciplines. SWEN 102 is not in the requirements for the BSc (COMP), but it makes a wider range of choices available for the 2nd and 3rd years.

Tri 1	COMP 102 STAT 193 <i>Elective</i> <i>Elective</i>	Introduction to Computer Program Design Statistics for Natural and Social Sciences
Tri 2	COMP 103 MATH 161 SWEN 102 <i>Elective</i>	Introduction to Data Structures and Algorithms Algebra and Discrete Mathematics Introduction to Software Modelling (<i>optional</i>)

Programme E

First year programme for students who want to do a degree in the general ICT area, but are not sure whether they want to be more on the technical side or the information systems side. The programme would lead to a **BE (SWEN)** or **BSc (COMP)** or **BBIS** or **BCA (INFO)** or **BCA (ELCM)**.

Tri 1	ENGR 101 COMP 102 INFO 101 STAT 193	Engineering Technology Introduction to Computer Program Design Foundations of Information Systems Statistics for Natural and Social Sciences
Tri 2	COMP 103 MATH 161 SWEN 102 INFO 102	Introduction to Data Structures and Algorithms Algebra and Discrete Mathematics Introduction to Software Modelling Information Systems Development

Second and Third Year Programmes

When planning your second year, you should also look ahead to your third (and even your fourth) year, in order to be sure that you will meet all the prerequisite requirements. The diagrams later in this prospectus showing the prerequisite structure of the courses may be helpful.

Engineering and Computer Science Scholarships and Prizes

A number of prizes and scholarships are available to Engineering and Computer Science students. See p.44 for further scholarship details. A significant scholarship is the Datacom Scholarship, awarded to a top computer science or engineering student enrolling in their third year.

REQUIREMENTS FOR THE BE

The BE requires 480 points, including 120 points at 400-level. The set of courses taken must satisfy the requirements of Parts 1, 2, and 3 below. You must also complete 800 hours of approved work experience.

BE Part 1

Part 1 of the BE consists of seven prescribed courses (just six courses for Software Engineering) which you would normally complete in your first year. Some of the courses can be delayed to your second year. Students with a lower level of NCEA mathematics or physics may need to take additional courses (MATH 141, 132, and/or PHYS 130) in the first trimester.

<i>Course</i>	<i>Title</i>	<i>Points</i>	<i>Offered</i>	
<i>All specialisations</i>				
ENGR 101	Engineering Technology	15	Tri 1	
COMP 102	Introduction to Computer Program Design	15	Tri 1, Tri 2	
COMP 103	Introduction to Data Structures and Algorithms	15	Tri 1, Tri 2	
<i>Electronic Engineering and Computer System Engineering specialisations</i>				
MATH 142	Calculus 1B	15	Tri 2	
MATH 151	Algebra	15	Tri 1	
PHYS 114	Physics 1A	15	Tri 1 (or Tri 2)	
PHYS 115	Physics 1B	15	Tri 2	
<i>Network Engineering specialisation</i>				
MATH 142	Calculus 1B	15	Tri 2	
MATH 151	Algebra	15	Tri 1	
MATH 161	Discrete Mathematics and Logic	15	Tri 2	
SWEN 102	Introduction to Software Modelling	15	Tri 2	
<i>Software Engineering specialisation</i>				
MATH 161	Discrete Mathematics and Logic	15	Tri 2	
SWEN 102	Introduction to Software Modelling	15	Tri 2	
{ STAT 131	Probability and Decision Modelling	OR	15	Tri 2
{ STAT 193	Statistics for Natural and Social Sciences		15	Tri 1 or Tri 2

BE Part 2

Part 2 of the BE consists of four engineering courses and the requirements of at least one of the specialisations as outlined on the following pages. The four engineering courses for all specialisations are:

ENGR 301	Project Management	15	Tri 1
ENGR 302	Group Project	15	Tri 2
ENGR 401	Professional Practice	15	Tri 1
ENGR 489	Engineering Project	30	Full Year

The last three of these courses are open only to students who have gained full admission to the BE, based on passing their Part 1 courses with a B average. The other 200- and 300-level courses in Part 2 are open to any student who has passed the prerequisites for the course.

BE Part 3

You are required to complete three approved courses from outside your specialisation that form a coherent addition to your programme of study. At least one of the courses must be at 200 level or above.

BE Specialisations

Note, some of the 200-level courses will be restructured in 2010, and the requirements of the specialisations will be modified to accommodate these changes. The courses that are likely to be restructured are marked with an *asterisk.

Part 2 Requirements for the Electronic Engineering Specialisation (ELEN)

Required courses

CSEN 201	Data Acquisition and Analysis	15	Tri 1
ELEN 201	Analogue Circuits and Systems	15	Tri 1
ELEN 202	Digital Electronics	15	Tri 2
ENGR 201	Electronic Design	15	Tri 2
MATH 206	*Calculus 2	22	Tri 1
CSEN 301	Embedded Systems	15	Tri 1
ELEN 301	Analogue Electronics	15	Tri 2
ELEN 302	Control System Engineering	15	Tri 1
ELEN 401	Advanced Electronics	15	Tri 1
ELEN 402	Power Electronics	15	Tri 1

Elective courses

At least two courses chosen from:

CSEN 302	Advanced Digital Electronics	15	Tri 2
CSEN 303	Communications Engineering	15	Tri 2
ELEN 303	Introductory Signal Processing	15	Tri 1
ELEN 310	Engineering Physics	15	Tri 2
PHYS 304	Electromagnetism	15	Tri 2

And at least two courses chosen from:

CSEN 401	Adv Mechatronic Engineering 1: Hardware and Control	15	Tri 1
CSEN 402	Adv Mechatronic Engineering 2: Intelligence and Design	15	Tri 2
CSEN 403	Adv Communications Engineering	15	Tri 2
ELEN 403	Applications of Signal Processing	15	Tri 2
ELEN 410	Directed Study	15	tba

Part 2 Requirements for the Computer System Engineering Specialisation (CSEN)*Required Courses*

CSEN 201	Data Acquisition and Analysis	15	Tri 1
ELEN 201	Analogue Circuits and Systems	15	Tri 1
ELEN 202	Digital Electronics	15	Tri 2
ENGR 201	Electronic Design	15	Tri 2
CSEN 301	Embedded Systems	15	Tri 1
CSEN 302	Advanced Digital Electronics	15	Tri 2
CSEN 401	Adv Mechatronic Engineering 1: Hardware and Control	15	Tri 1
CSEN 402	Adv Mechatronic Engineering 2: Intelligence and Design	15	Tri 2

Elective Courses

At least one course chosen from:

NWEN 201	*Computer Architecture	20	Tri 1
SWEN 201	*Program and Data Structures	20	Tri 2
IDDN 211	Industrial Design	20	Tri 2

And at least two courses chosen from:

COMP 307	Artificial Intelligence	15	Tri 1
CSEN 303	Communications Engineering	15	Tri 2
ELEN 301	Analogue Electronics	15	Tri 2
ELEN 302	Control System Engineering	15	Tri 1
NWEN 301	Operating System Design	15	Tri 1
NWEN 302	Computer Network Design	15	Tri 2
SWEN 303	User Interface Design	15	Tri 2

And at least two courses chose from:

CSEN 403	Advanced Communications Engineering	15	Tri 2
ELEN 402	Power Electronics	15	Tri 1
NWEN 401	Distributed System Design	15	Tri 1
NWEN 404	Design of Mobile Systems	15	Tri 2
SWEN 403	Human Computer Interaction	15	Tri 2
CSEN 410	Directed Study	15	tba

Part 2 Requirements for the Network Engineering Specialisation (NWEN)
Required Courses

ELEN 201	Analogue Circuits and Systems	15	Tri 1
ENGR 202	*Software Design	20	Tri 1
NWEN 201	*Computer Architecture	20	Tri 1
SWEN 201	*Program and Data Structures	20	Tri 2
NWEN 301	Operating System Design	15	Tri 1
NWEN 302	Computer Network Design	15	Tri 2

Elective Courses

At least 20 points chosen from:

CSEN 201	Data Acquisition and Analysis	15	Tri 1
ELEN 202	Digital Electronics	15	Tri 2
SWEN 202	*Formal Foundations of Software Engineering	20	Tri 2
SWEN 203	*Software Engineering Analysis	20	Tri 1

And at least one course chosen from

CSEN 201	Data Acquisition and Analysis	15	Tri 1
STAT 131	Probability and Decision Modelling	15	Tri 2
STAT 193	Statistics for Natural and Social Sciences	15	Tri 1 or 2

And at least two courses chosen from:

CSEN 301	Embedded Systems	15	Tri 1
CSEN 303	Communications Engineering	15	Tri 2
NWEN 303	Concurrent Programming	15	Tri 1

And at least four courses chosen from:

CSEN 403	Advanced Communications Engineering	15	Tri 2
NWEN 401	Distributed System Design	15	Tri 1
NWEN 402	Internet Engineering	15	Tri 2
NWEN 403	Advanced Network Engineering	15	Tri 1
NWEN 404	Design of Mobile Systems	15	Tri 2
NWEN 405	Internet Security	15	Tri 2
NWEN 410	Directed Study	15	tba

Part 2 Requirements for the Software Engineering Specialisation (SWEN)*Required Courses*

ENGR 202	*Software Design	20	Tri 1
NWEN 201	*Computer Architecture	20	Tri 1
SWEN 201	*Program and Data Structures	20	Tri 2
SWEN 202	*Formal Foundations of Software Engineering	20	Tri 2
SWEN 203	*Software Engineering Analysis	20	Tri 1
SWEN 301	Structured Methods	15	Tri 1
SWEN 302	Agile Methods	15	Tri 2
SWEN 303	User Interface Design	15	Tri 2
SWEN 401	Software Engineering Case Study Practice	15	Tri 1

Elective Courses

At least two courses chosen from:

COMP 304	Programming Languages	15	Tri 1
NWEN 301	Operating System Design	15	Tri 1
NWEN 302	Computer Network Design	15	Tri 2
NWEN 303	Concurrent Programming	15	Tri 1
SWEN 304	Database System Engineering	15	Tri 2

And at least three courses chosen from:

SWEN 402	Formal Software Engineering	15	Tri 1
SWEN 403	Human Computer Interaction	15	Tri 2
SWEN 404	Advanced Software Engineering: Program Analysis	15	Tri 2
SWEN 405	Object Oriented Paradigms	15	Tri 1
SWEN 406	Adv Software Engineering: Implementation & Development	15	Tri 1
SWEN 407	Adv Software Engineering: Requirements and Design	15	Tri 2
SWEN 410	Directed Study	15	tba

Requirements for the BSc in Computer Science

For students beginning their degree from 2009, the requirements for the Computer Science major of the BSc will be*:

- COMP 102, COMP 103, MATH 161 (or 114); one of STAT 131, 193 or QUAN 102,
- 60 points from 200-level COMP, SWEN, or NWEN courses,
- A further 15 points from MATH, STAT, or OPRE (except MATH 103,104, or 132) or SWEN 202,
- 60 points from 300-level COMP, SWEN, or NWEN courses.

There will be some additional constraints on the choice of courses at 200- and/or 300-level, but these constraints have not yet been determined.

To complete the BSc you would require:

1. 15 further 300-level points of Science courses (these may include COMP, SWEN, or NWEN courses).
2. 150 further points, including enough courses above 100-level and enough Science courses to make a total of at least 210 points above 100-level and at least 270 points of science.

The 2008 requirements for the BSc, for students who started before 2009, are

- COMP 102, COMP 103, MATH 114; one of STAT 131, 193 or QUAN 102,
- Three of COMP 201 - 206
- 60 300-level COMP points
- One of MATH 207, 214, OPRE 251, or STAT 231

Requirements for the BSc in Electronic and Computer Systems

The BSc in Electronic and Computer Systems is a three-year qualification intended for students with strong interests in Electronics and Computer Systems. The requirements for the major in Electronic and Computer Systems are being revised; for students beginning their degree from 2009, they will be*

- PHYS 114, 115, MATH 142, 151
- 15 points of 200-level calculus; COMP 102; 45 points from (CSEN 201-299, ELEN 201-299, ENGR 201, PHYS 217, 234, 235)
- 60 points from (CSEN 301-399, ELEN 301-399, PHYS 340, 341)

The 2008 requirements for the ELCO major are PHYS 340 and 341, two of COMP 305, 306, 310, and 15 further 300-level points from PHYS or COMP, along with the prerequisites for these courses.

BSc Requirements

From 2009 Victoria University will be offering a new and more flexible BSc degree. This is the outcome of a three-year evaluation of the degree that provides more flexible study options and clearer pathways to degree completion. Most of the changes will be introduced in 2009; some courses will not change until 2010 or 2011.

* New major requirements are still subject to CUAP approval

Main features

- All 100-level science courses will be 15 points; all 200 and 300 level science courses will be 15 or 20 points (all courses in Engineering and Computer Science will be 15 points); all field courses taught outside normal teaching time will be 10 points.
- A second major from outside of science will be allowed: you will therefore be able to complete a BSc with a first major in science and a second major from any other degree, such as a foreign language or a commerce subject.
- Majors will have a consistent size which will allow double majors in science to be achieved within three years.
- A total of 360 points are still required, but you will need at least 210 points at 200- and 300-level, of which 120 points must be science and 75 points from 300-level science.
- You still require 270 science points except when a major from outside of science is included in a programme of study in which case at least 210 science points will be required.

Graduate Diploma in Computer Science

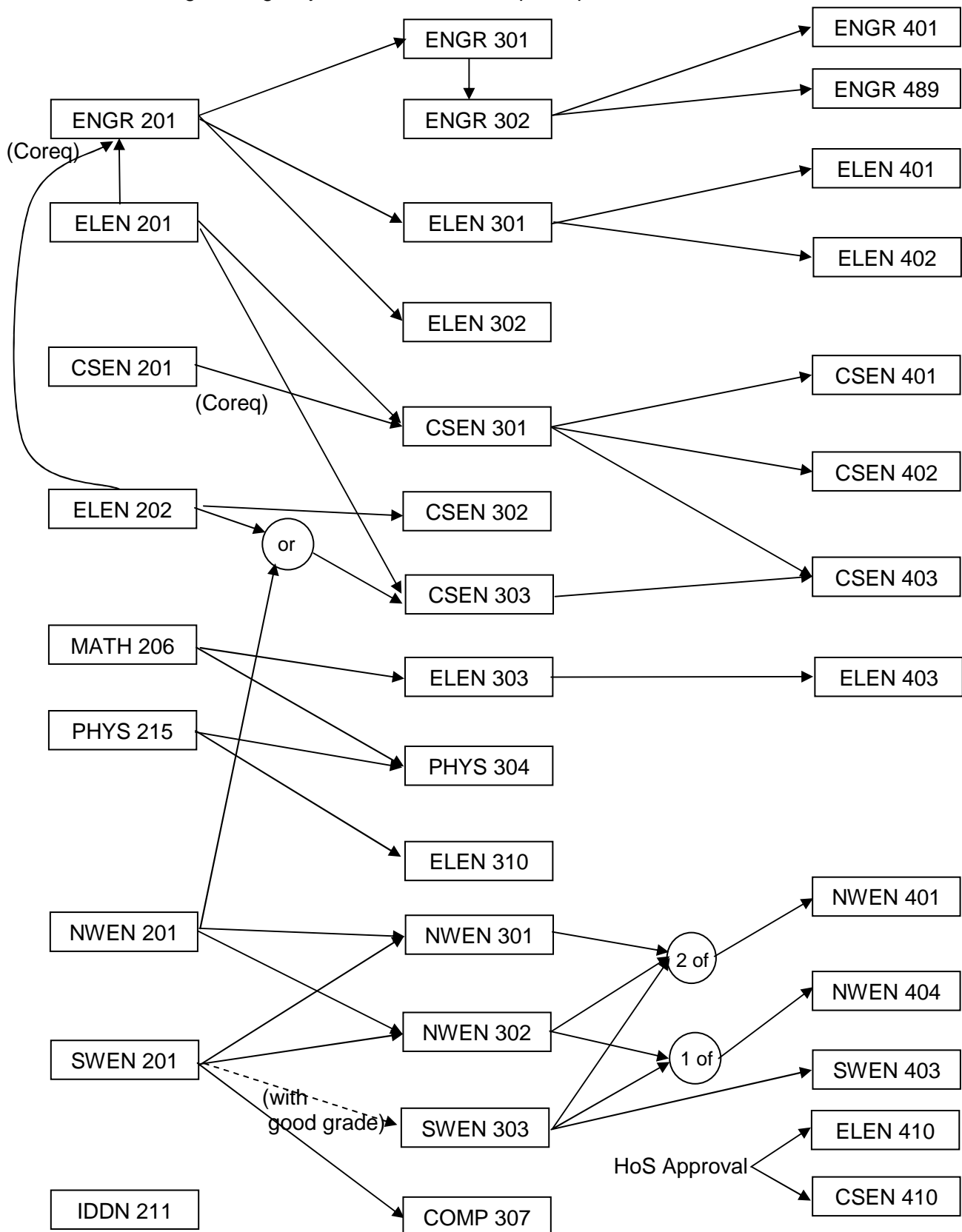
The Graduate Diploma in Computer Science is designed to be undertaken on a part-time basis by professionals wishing to add a formal qualification in computer science to their experience. The programme is likely to appeal to graduates in other subjects who did a few computer science courses in their degree, professional computer programmers and software engineers with several years' experience, and professionals in fields that are making increased use of computers.

Entry to the Diploma requires a *first degree in any subject* and *experience in computer science* equivalent to at least our 100-level courses. Candidates must complete a total of eight courses, chosen from 200-, 300- and 400-level courses in Computer Science, including not less than five courses from 300- and 400-level courses. The Diploma may be studied either full-time or part-time but very few students are able to complete the Diploma in one full-time year because of the prerequisite structure of the courses. See the Computer Science Graduate Prospectus for more details about the Diploma.

Prospective students who have not already taken COMP 102 and COMP 103 (or equivalents at other universities) should do the "Entry to COMP 200 Self Test", obtainable from the School office or <http://www.ecs.vuw.ac.nz/comp/Policies/Admissions/self-test.shtml>, to determine whether they have sufficient background in computer science to enter directly into the 200-level computer science courses.

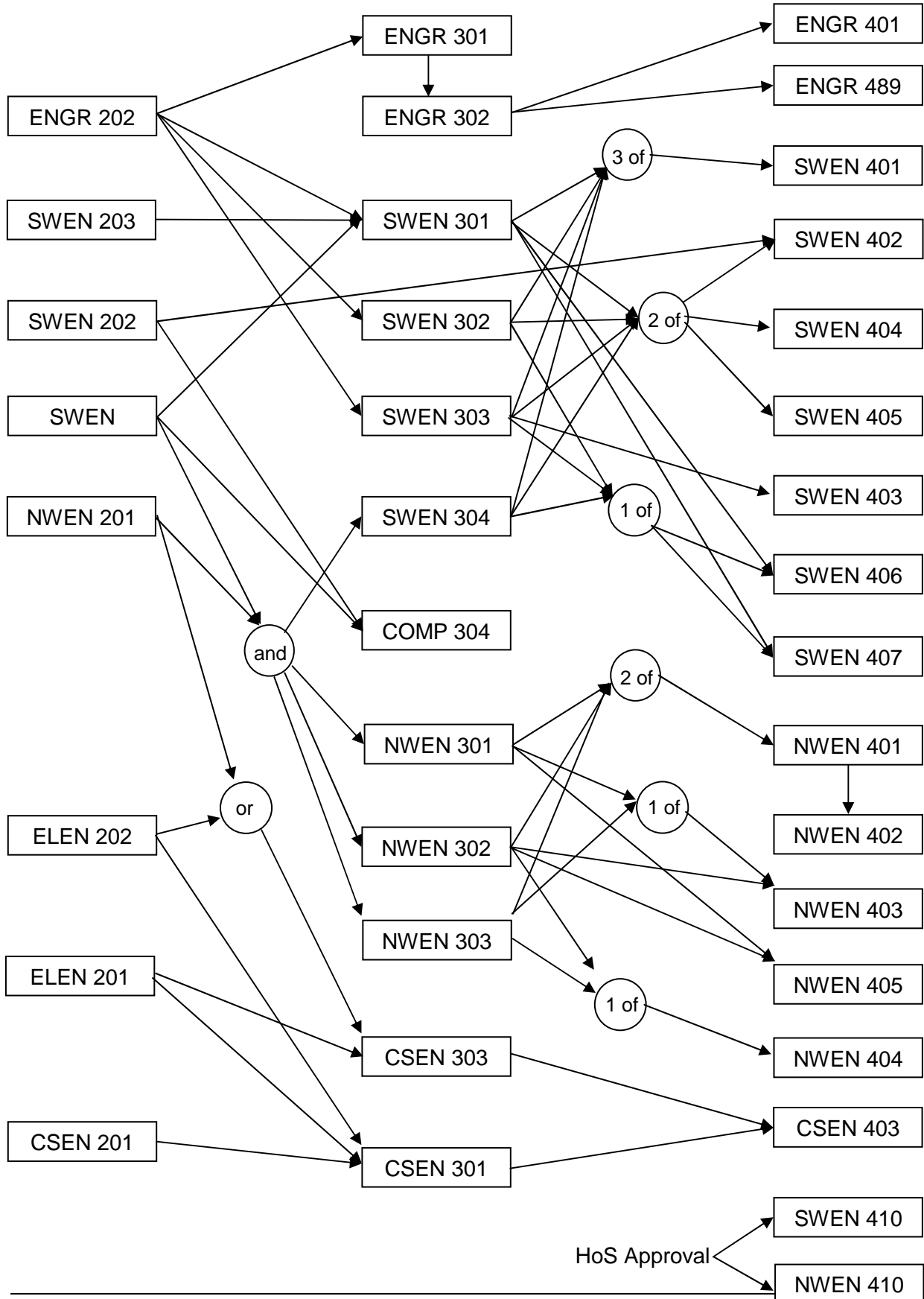
Course Map – Computer Systems Engineering and Electronic Engineering

The following diagram shows the courses for part two of the Computer Systems and Electronic Engineering majors, and the relevant prerequisites.



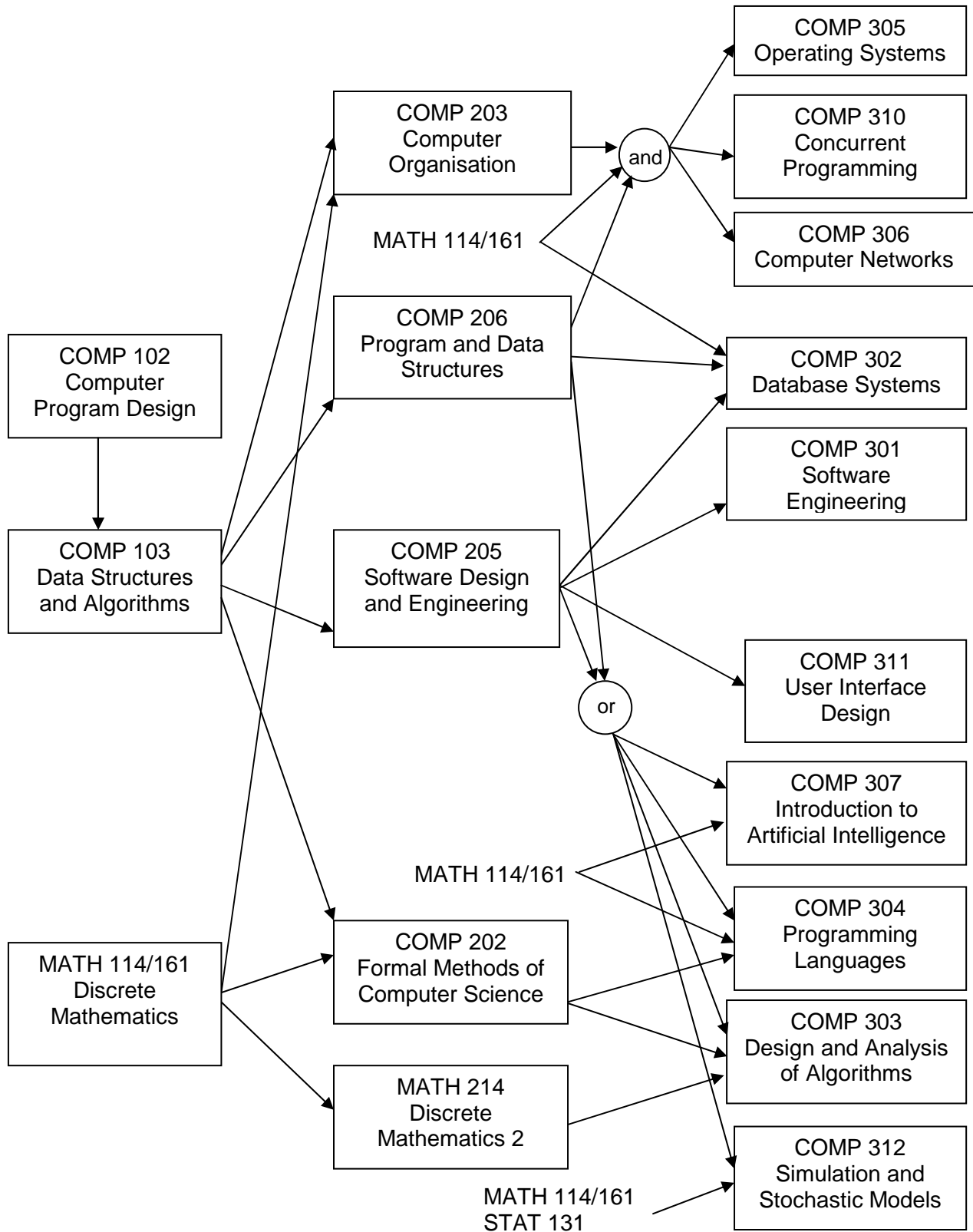
Course Map – Network Engineering and Software Engineering

The following diagram shows the courses for part two of the Network and Software Engineering majors, and relevant prerequisites. Note, 200 level courses will change in 2010



Course Map – Computer Science

The following diagram shows the computer science undergraduate courses offered by the School and the prerequisites for each course. Note that the second year courses will change in 2010.



100 level Courses

COMP 102	Introduction to Computer Program Design	15 POINTS	Tri 1 & Tri 2
Lectures:	Tri 1 Course: Mon, Tue, Fri 2-3 (MCLT101) Tri 2 Course: Mon, Tue, Fri 2-3 (MCLT101)		
Laboratories:	2 hours lab weekly		
CRN:	Tri 1: 943 Tri 2: 9792		

This course introduces the fundamentals of programming in a high-level programming language (Java), using an object oriented approach to program design. Students develop their programming skills by constructing computer programs for a variety of applications. The course provides a foundation for all later courses in computer science, and develops programming skills useful for students in many other disciplines.

COMP 103	Introduction to Data Structures and Algorithms	15 POINTS	Tri 1 & Tri 2
Lectures:	Tri 1 Course: Mon, Wed, Thur 10-11 (MCLT102) Tri 2 Course: Mon, Wed, Fri 2-3 (MCLT102)		
Prerequisites:	COMP 102		
CRN:	Tri 1: 7223 Tri 2: 945		

This course builds on COMP 102, focusing on the techniques for designing, building and analysing computer programs that deal with large collections of data. The course addresses techniques for programming with collections of data, and the data structures and algorithms needed to implement these collections. The course expands programming skills and provides an understanding of the principles of data abstraction, algorithm design, and the analysis of algorithms fundamental to computer science.

ENGR 101	Engineering Technology	15 POINTS	Tri 1
Lectures:	Tue, Wed, Fri 9-10 (KKLT301)		
Prerequisites:	Enrolment in the BE		
Laboratories:	3hrs per week		
CRN:	15243		

This course provides a general introduction to the fundamental physical principles and technical concepts needed to understand the design and engineering of electronic, mechatronic, networked and software systems. Experience is gained in basic engineering workshop practice, with assembly and testing of basic hardware, software and networked systems, and construction of a personal computer.

MATH 132	Introduction to Mathematical Thinking	15 POINTS	Tri 1
Coordinator:	Dr Colin Bailey		
Restrictions:	MATH 100-199; QUAN 103, 111		
Lectures:	Mon, Thu, Fri 3-4 (MCLT102)		

An introduction to some fundamental ideas and methods in mathematics, including solving equations and inequalities in 1 and 2 variable, matrix arithmetic and algebra, trigonometry, sets, relations and logic, the basic ideas of calculus.

MATH 141	Calculus 1A	15 POINTS	Tri 1
Coordinator:	Dr Chris Atkin		
Lecturer:	Prof Matt Visser		
Restrictions:	MATH 113, 142; QUAN 111		
Lectures:	Mon, Tue, Thu 4-5 (HMLT206)		

The properties of functions of one variable and their use for modelling continuous phenomena, including ideas and applications of differential and integral calculus.

MATH 142	Calculus 1B	15 POINTS	Tri 2
-----------------	--------------------	-----------	-------

Coordinator:	Dr Peter Donelan
Lecturer:	Dr Hung Le Pham
Prerequisites:	MATH 141 or a comparable background in calculus
Restrictions:	MATH 113
Assessment:	Weekly assignments (10%), mid-term test (30%), final exam (60%)
Lectures:	Mon, Tue, Thu 4-5 (HMLT206)
Tutorials:	1 hour per week, (to be arranged)
Recommended Reading:	Anton, H., Bivens, I., and Davis, S. <i>Calculus - Early Transcendentals</i> , Eighth Edition, Wiley, 2005. Older editions of Anton are generally fine.

Further topics in differential and integral calculus, including l'Hôpital's Rule; Taylor polynomials; implicit, parametric and polar representation of curves; the Riemann integral, techniques of integration; differential equations; functions of 2 variables and their properties.

MATH 151	Algebra	15 POINTS	Tri 1
-----------------	----------------	-----------	-------

Coordinator:	Dr Noam Greenberg
Prerequisites:	16 credits NCEA 3 Mathematics or MATH 132
Restrictions:	MATH 114
Lectures:	Mon, Wed, Fri 11-12 (EALT006)

An introduction to linear algebra, including matrices and vectors, complex numbers and algebraic structures (including some basic number theory).

MATH 161	Discrete Mathematics and Logic	15 POINTS	Tri 2
-----------------	---------------------------------------	-----------	-------

Coordinator:	Dr Dillon Mayhew
Lecturer:	Prof Geoff Whittle
Prerequisites:	16 credits NCEA 3 Mathematics or MATH 132
Restrictions:	MATH 114
Lectures:	Mon, Tue, Thu 5-6 (HULT119)

An introduction to mathematical logic, including proofs, sets, and relations. Polynomials, complex numbers, and basic number theory will also be covered. The second half of the course is an introduction to graph theory, including trees and networks.

PHYS 114	Physics 1A	15 POINTS	Tri 1 & Tri 2
-----------------	-------------------	-----------	---------------

Coordinator:	Ben Ruck
Lectures & Tutorial:	Tri 1: Tues, Fri 10-11, Wed 12-1, Thu 11-12 (KKLT301) Tri 2: Mon, Wed, Thu, Fri 9-10 (HULT220)
Laboratory:	One 3 hour lab per week
Prerequisites:	14 credits NCEA 3 Physics or PHYS 130; 14 credits NCEA 3 Calculus or MATH 141
Assessment:	15% in-trimester tests, 20% practical work, 5% assignments, 60% final examination
Textbooks:	Serway & Jewitt <i>Physics for Scientists and Engineers with Modern Physics</i> . 7 th edition (Thomson)
CRN:	Tri 1: 7534 Tri 2: 17089

This course covers non-relativistic mechanics, wave motion and quantum mechanics, including kinematics and dynamics, fundamental conservation laws, rotational motion and oscillations, mechanical waves and an introduction to quantum physics. A pass in PHYS 114 enables entry into PHYS 115 and is a prerequisite for PHYS 209 and 214.

PHYS 115	Physics 1B	15 POINTS	Tri 2
Coordinator:	Dr Gillian Turner		
Lecturer:	Prof Alan Kaiser		
Lectures:	Mon, Tue, Thu, Fri 3-4 (MCLT102)		
Laboratory:	One 3 hour lab per week		
Prerequisites:	PHYS 114 or a B+ in PHYS 130; 14 credits NCEA 3 Calculus or MATH 141		
Assessment:	15% in-trimester tests, 20% practical work, 5% assignments, 60% final examination		
Textbook:	Serway & Jewitt <i>Physics for Scientists and Engineers with Modern Physics</i> . 7 th edition (Thomson)		
CRN:	7535		

This course covers electromagnetism, electric circuits, geometric and physical optics, thermal properties of matter and thermodynamics, and their applications. PHYS 115 is a prerequisite for PHYS 215, 234 and 235.

PHYS 130	Introductory Physics	15 POINTS	Tri 1
Lectures & Tutorial:	Tue, Wed 10-11, Wed, Fri 9-10 (MCLT101)		
Restrictions:	PHYS 134; may not enrol concurrently with, or credit after PHYS 114 or PHYS 115.		
Laboratory:	One 2 hour lab per week		
Recommended Reading:	Hewitt, <i>Conceptual Physics</i> (Harper Collins)		
CRN:	1172		

This course is for students with little knowledge of Physics but who wish to be familiar with the principles of the subject. It presents an elementary treatment of mechanics, wave motion, light, electricity, magnetism and modern Physics. For students who do not have the necessary NCEA Level 3 credits for direct entry into PHYS114 in Trimester 1, it provides a bridging course to allow entry into PHYS114 and PHYS115 in Trimester 2.

STAT 131	Probability and Decision Modelling	15 POINTS	Tri 2
Coordinator:	Dr John Haywood		
Lecturer:	Dr Stefanka Chukova		
Restrictions:	may not enrol in or credit STAT 131 after passing STAT 231		
Lectures:	Tue 11-12 (COLT122) and Wed, Fri 11-12 (EALT006)		
Tutorials:	1 hour per week, to be arranged.		
Assignments:	Approximately weekly.		
Assessment:	10% assignments, 20% test plus 70% final exam		
Course Materials:	A suitable scientific calculator, cost approximately \$30. Course Notes, from Student Notes, cost approximately \$12.		
CRN:	1790		

An introduction to probability models in decision making, operations research and statistics including key concepts of probability, random variables and their distributions, decision theory and queueing systems. The critical assessment of the validity of fitted models is emphasized using goodness of fit tests.

You need 16 credits of NCEA level 3 mathematics, with plenty of calculus, to attempt this course. Otherwise you are advised to take STAT 193. You will benefit from taking MATH 142 (Calculus 1B) concurrently.

STAT 193	STATISTICS FOR NATURAL AND SOCIAL SCIENCES	15 POINTS	Tri 1 & Tri 2
----------	---	-----------	---------------

Coordinator:	Dr Richard Arnold
Restrictions:	QUAN 102, STAT 231
Lectures:	1/3: Stream A (CRN 1791): Mon, Tue, Fri 1-2 (MCLT103) Stream B (CRN 11333): Mon, Wed, Thu 3-4 (EALT006) 2/3: Stream A (CRN 4442): Mon, Wed, Fri 1-2 (KKLT303) Stream B (CRN 6164): Mon, Wed, Fri 4-5 (KKLT303)
Tutorials:	1 hour per week, to be arranged, including: <ul style="list-style-type: none"> • One Tagata Pasifika tutorial for Maori and Pacific Nations students. • <u>为中国学生我们特开中文辅导课。(One Mandarin tutorial)</u> Ten hours per week of help sessions (to be advised) will be available for individual assistance.

STAT 193 gives a first introduction to statistics aimed primarily for students intending to major in Applied Statistics, the biological or social sciences, especially Psychology or to work in social policy research or applied statistics. Topics covered include estimation and comparison of means and proportions, simple regression and correlation, and analysis of variance. The course includes a linked series of practical assignments, in which each student has their own data set and applies an increasing range of techniques to discover some of its principal features.

Note: The content and delivery are tailored for natural and social science majors but stream B in both trimesters will be made available to BCA and physical science majors. Students **must** enrol in the appropriate stream unless granted an exemption by the course coordinator.

SWEN 102	Introduction to Software Modelling	15 POINTS	Tri 2
----------	---	-----------	-------

Lectures:	Tue, Thur, Fri 10-11 (HMLT001)
Laboratories:	2 hours per week
Prerequisites:	COMP 102;
Corequisites:	MATH 161
CRN:	15244

A basic introduction to software modelling, that is, understanding software systems in terms of models other than their source code. The emphasis is on the relationships between models and systems of the real world; producing models from informal specifications; and analysing and verifying properties of these models. In laboratory exercises students will construct their own formal models and verify them using the Alloy checker.

200-Level Courses

Note: The 20 and 22 point courses will be restructured into 15 point courses in 2010.

COMP 202	Formal Methods of Computer Science	22 POINTS	Tri 2
Coordinator:	A/Prof Lindsay Groves		
Prerequisites:	COMP 103, MATH 114, (SWEN 102 is desirable)		
Restrictions:	SWEN 202		
Lectures:	Mon, Tue, Thur, Fri 3-4 (HMLT104)		
Tutorials:	To be arranged.		
Recommended:	Additional mathematics		
Textbook:	To be announced		
Co taught with:	SWEN 202		
CRN:	954		

This course addresses fundamental principles and ideas underlying Computer Science. Topics include finite automata and regular languages, push-down automata and context free languages, Turing Machines and computable and computably enumerable languages, and program specification and verification.

COMP 203	Computer Organisation	22 POINTS	Tri 1
Coordinator:	Dr Pavle Mogin		
Prerequisites:	COMP 103, MATH 114.		
Restrictions:	NWEN 201		
Lectures:	Mon, Tue, Wed, Thu 10-11 (HMLT206)		
Tutorials:	1 hour per week to be arranged		
Textbook:	Hennessy and Patterson, <i>Computer Organization and Design</i> , 3rd ed, Morgan Kaufman, 2005, cost \$125 approximately		
Co taught with:	NWEN 201		
CRN:	956		

This course builds an understanding of the structure of computers and how they are to execute programs. The course introduces the fundamentals of assembly language programming, data representation, computer arithmetic, and machine instruction set design. It then introduces the common physical components of a computer, their interconnection, and the processes underlying program execution.

COMP 205	Software Design and Engineering	22 POINTS	Tri 1
Coordinator:	Dr David Pearce		
Prerequisites:	COMP 103.		
Restrictions:	ENGR 202		
Lectures:	Mon Tue Thu 5-6 (HMLT105)		
Tutorials:	1 hour per week to be arranged		
Laboratories:	To be arranged		
Course Materials:	Cost \$15		
Textbook:	C. Horstmann, <i>Object-Oriented Design & Patterns</i> , Second Edition, Wiley.		
Co taught with:	ENGR 202		
CRN:	11268		

This course builds a deeper understanding of software design in an Object-Oriented Language (Java). Students learn the art of developing well-designed programs from scratch. Fundamental topics include the Unified Modelling Language (UML), Design Patterns, and the principles of good Object-Oriented design. Students further develop practical skills through a series of implementation projects that challenge their understanding of what it means to develop software.

COMP 206	Program and Data Structures	22 POINTS	Tri 2
Coordinator:	To be announced		
Prerequisites:	COMP 103		
Restrictions:	COMP 201, SWEN 201		
Lectures:	Mon, Tue, Thu, Fri 12-1 (MYLT220)		
Course Materials:	Cost \$10		
Textbook:	To be announced		
Co taught with:	SWEN 201		
CRN:	11269		

This course addresses the programming technology underlying current and future computing systems. The emphasis is on understanding the implementation of software systems, the techniques and languages necessary to implement fundamental systems, and the algorithms and data structures for memory and information management.

CSEN 201	Data Acquisition and Analysis	15 POINTS	Tri 1
Coordinator:	Dr Gideon Gouws, Dr Paul Teal		
Prerequisites:	ENGR 101 (or TECH 102 and ENGR 120), MATH 114		
Restriction:	TECH 201, 203, PHYS 216, 217		
Lectures & Tutorial:	Wed, Fri 11-12 (LBLT118)		
Laboratory:	One 3-hr lab/wk - to be arranged		
Assessment:	Two in-trimester tests 20%, final 2 hr exam 40%, two oral presentations 10%, laboratory work 30%		
Recommended Reading:	Silyn-Roberts, Writing for Science; Wheeler & Ganji, <i>Introduction to Engineering Experimentation</i>		
Costs:	\$35.75 (laboratory manual/notes etc) payable at enrolment		
Co taught with:	PHYS 217		
CRN:	15430		

An introduction to the acquisition and analysis of scientific and technical data and signals by means of computerised data acquisition systems. The statistical theory underlying data analysis methods is covered and relevant software packages in common use are utilised.

ELEN 201	Analogue Circuits and Systems	15 POINTS	Tri 1
Lecturer:	Dr Malcolm Ingham, Dr Andy Edgar		
Prerequisites:	ENGR 101 (or TECH 102 and ENGR 120), MATH 113, 114		
Restriction:	PHYS 235		
Lectures & Tutorial:	Wed 12-1, Fri 10-11 (LBLT118)		
Laboratory:	One 3-hr lab/wk - to be arranged		
Assessment:	Internally assessed, two in-trimester tests 25% each, assignments 5 %, laboratory (including design exercise) 45%		
Recommended Reading:	Sedra & Smith, <i>Microelectronics</i> (3rd ed); Horowitz & Hill, <i>The Art of Electronics</i>		
Costs:	\$23.80 (laboratory manual/notes etc) payable at enrolment		
Co taught with:	PHYS 235		
CRN:	15431		

This course is a practically oriented introduction to analogue electronics. Topics covered include circuit theorems, transducers, power supplies, transistor amplifiers, operational amplifiers and circuits.

ELEN 202	Digital Electronics	15 POINTS	Tri 2
Lecturer:	Dr Gideon Gouws		
Prerequisites:	ENGR 101 (or TECH 102 and ENGR 120), MATH 114		
Restriction:	PHYS 234		
Lectures & Tutorial:	Tues 9-10, Thu 10-11 (LBLT118)		
Laboratory:	One 3-hr lab/wk - to be arranged		
Assessment:	Internally assessed, two in-trimester tests 25% each, laboratory (including design exercise) 50%		
Text Book:	Tocci, Digital Systems-Principles & Applications		
Costs:	\$23.80 (laboratory manual/notes etc) payable at enrolment		
Co taught with:	PHYS 234		
CRN:	15432		

A practically oriented introduction to the design and construction of digital electronic instruments. The course provides a foundation in binary arithmetic and Boolean algebra, logic gates and families, combinational and sequential logic design, programmable logic and digital-to-analogue conversion.

ENGR 201	Electronic Design	15 POINTS	Tri 2
Lecturer:	To be advised		
Prerequisites:	ELEN201		
Corequisite:	ELEN202		
Lectures & Tutorial:	Mon, Wed 1-2 (CO118)		
Laboratory:	One 3-hr lab/wk - to be arranged		
Costs:	To be advised		
CRN:	15433		

An introduction to electronic design, simulation, construction and the testing process. Students will design an electronic circuit to meet a set of specifications, verify their design by means of simulations, convert this design to a printed circuit board layout by means of appropriate CAD techniques, and produce and test this circuit.

ENGR 202	Software Design	20 POINTS	Tri 1
Coordinator:	Dr David Pearce		
Prerequisites:	COMP 103, MATH 114, SWEN 102;		
Restrictions:	COMP 201, 205		
Lectures:	Mon, Tue, Thu 5-6 (HMLT105)		
Co taught with:	COMP 205		
CRN:	15434		

This course builds a deeper understanding of software design in an Object-Oriented Language (Java). Students learn the art of developing well-designed programs from scratch. Topics include the Unified Modelling Language (UML), Design Patterns, and the principles of good Object-Oriented design. Practical skills are further developed through a series of implementation projects that challenge students' understanding of what it means to develop software.

NWEN 201	Computer Architecture	20 POINTS	Tri 1
Coordinator:	To be announced		
Prerequisites:	COMP 103, MATH 114;		
Restrictions:	COMP 203		
Lectures:	Mon, Tue, Wed, Thu 10-11 (HMLT206)		
Laboratories:	To be arranged		
Textbook:	To be announced		
Co taught with:	COMP 203		
CRN:	15435		

This course builds an understanding of the structure of computers and how they execute programs. The course introduces the fundamentals of assembly language programming, data representation, computer arithmetic, and machine instruction set design. It then introduces the common physical components of a computer, their interconnections, and the processes underlying program execution.

SWEN 201	Program and Data Structures	20 POINTS	Tri 2
Coordinator:	To be announced		
Prerequisites:	COMP 103;		
Restrictions:	COMP 201, COMP 206		
Lectures:	Mon, Tue, Thu, Fri 12-1 (MYLT220)		
Co taught with:	COMP 206		
CRN:	15436		

This is a course on the programming technology underlying current and future computing systems. The emphasis is on understanding the implementation of software systems, the techniques and languages necessary to implement fundamental systems, and the algorithm and data structures for memory and information management.

SWEN 202	Formal Foundations of Software Engineering	20 POINTS	Tri 2
Coordinator:	To be announced		
Prerequisites:	COMP 103, MATH 114, SWEN 102;		
Restrictions:	COMP 202		
Lectures:	Mon, Tue, Thu, Fri 3-4 (HMLT104)		
Co taught with:	COMP 202		
CRN:	15437		

This course introduces a selection of topics, focusing on the use of formal notations and formal models in the specification, design and analysis and engineering of programs, languages, and machines. The main topics covered are the formal foundations of UML models, precise modelling with JML and Z, checking models with Alloy, and reasoning about the behaviour of programs with Hoare logics.

SWEN 203	Software Engineering Analysis	20 POINTS	Tri 1
Coordinator:	A/Prof Thomas Kühne		
Prerequisites:	COMP 103, SWEN 102;		
Restrictions:	INFO 222		
Lectures:	Mon, Thu, Fri 12-1 (CO119)		
CRN:	15438		

This course provides a working knowledge of analysis and design methods found in modern software engineering systems. Topics include the analysis tools and techniques of the software engineer, the process of analysis, and object-oriented analysis and design. Students will complete project work using the UML and OCL, using modern Computer Aided Software Engineering (CASE) toolsets.

300-Level Courses

COMP 301	Software Engineering Principles	15 POINTS	Tri 1
Coordinator:	Dr Stuart Marshall		
Prerequisites:	COMP 205 (or 201)		
Restrictions:	SWEN 301		
Lectures:	Mon, Tue, Thur 4-5 (MYLT101)		
Textbook:	"Software Engineering: Theory and Practice, 3rd edition" by Pfleeger & Atlee		
Co taught with:	SWEN 301		
CRN:	960		

This course introduces the basic methods, tools and procedures for software development. These include the software life-cycle, common software engineering paradigms, and key elements of software engineering such as requirements analysis and specification, design, implementation, testing, maintenance, software quality assurance and software configuration management. Practical work includes the use of an integrated development environment and other development tools.

COMP 302	Database Systems	15 POINTS	Tri 2
Coordinator:	Dr Pavle Mogin		
Prerequisites:	COMP (205 and 206) or 201; MATH 114		
Restrictions:	SWEN 304		
Lectures:	Mon, Tue, Fri 10-11 (LBLT118)		
Textbook:	Elmasri and Navathe, <i>Fundamentals of Database Systems</i> , 5th edition, Benjamin Cummings Publishing Company, 2007, cost \$100 approximately.		
Co taught with:	SWEN 304		
CRN:	961		

This course addresses the fundamental principles underlying databases and database management systems. It covers the structure and principles of relational databases, including SQL, and the principled design of relational database schema. It also addresses issues in transaction processing, database concurrency control, database recovery and the complexity of query processing.

COMP 303	Design and Analysis of Algorithms	15 POINTS	Tri 2
Coordinator:	Dr Alex Potanin		
Prerequisites:	COMP 202 and one of 205, 206, 201; MATH 214.		
Lectures:	Mon, Thur, Fri 4-5 (CO118)		
Textbook:	To be announced		
CRN:	962		

This course examines techniques for developing correct and efficient algorithms to solve some important classes of problems in Computer Science. It explores various methods for designing algorithms, including greedy algorithms, divide and conquer, dynamic programming and graph algorithms. It covers techniques for demonstrating the correctness of algorithms and for analysing their efficiency.

COMP 304	CRN 964	Programming Languages	15 POINTS	Tri 1
-----------------	----------------	------------------------------	------------------	--------------

Coordinator:	Dr Neil Leslie			
Prerequisites:	COMP 202; COMP 205 or 206 (or 201); MATH 114			
Lectures:	Mon, Wed, Fri 1-2 (EALT206)			
Textbook:	<p>There are many textbooks on comparative programming languages, which all have a variety of strengths and weaknesses. They tend to cover more material than is needed for this course; and also to omit material that is needed. They are all also rather expensive. Past experience has shown that students have not found the purchase of a textbook to provide value for money. Therefore this year the following textbook is (weakly) recommended:</p> <p>Kenneth C Louden, <i>Programming Languages Principles and Practice</i>, PWS Publishers 1993. This book is on 3-day reserve in the Library.</p> <p>There are a number of other comparative programming language books on 3-day reserve which are roughly equivalent. You are recommended to look at all of these.</p>			
CRN:	964			

This course addresses the principles of programming language design and use. It introduces different models of computation and the programming languages based on them, particularly functional programming and logic programming. It then examines a range of underlying issues in programming languages, such as semantics of programming languages, type systems, and control in programming languages.

COMP 305	Operating Systems		15 POINTS	Tri 1
-----------------	--------------------------	--	------------------	--------------

Coordinator:	Dr Kris Bubendorfer			
Prerequisites:	COMP 203, 206, (or 201), MATH 114			
Restrictions:	NWEN 301			
Lectures:	Tue 2-3, Wed, Fri 4-5 (CO118)			
Textbook:	Probably: Abraham Silberschatz, Peter Baer Galvin and Greg Gagne, <i>Operating Systems Concepts</i> , 7th ed, John Wiley Sons, 2005, Approximate price \$120.			
Co taught with:	NWEN 302			
CRN:	965			

This course addresses the design and implementation of operating systems. It examines fundamental concepts such as resource management, concurrency, protection and security. Examples drawn from a range of modern operating systems illustrate these concepts, and coursework provides practical experience in the design and implementation of operating systems.

COMP 306	Computer Networks	15 POINTS	Tri 2
-----------------	--------------------------	------------------	--------------

Coordinator:	Dr Peter Komisarczuk
Prerequisites:	COMP 203 (or 204), 206 (or 201), MATH 114
Restrictions:	NWEN 302
Lectures:	Mon, Thur, Fri 9-10 (MYLT220)
Textbook:	To be announced. 2007 text: Kurose, James F. and Ross, Keith W., <i>Computer Networking: A Top-Down Approach Featuring the Internet</i> , 3rd ed, Addison-Wesley, 2005.
Co taught with:	NWEN 302
CRN:	966

This course addresses the principles, architectures and protocols that have gone into the development of the Internet and modern networked applications. The course examines network design principles, underlying protocols, technologies and architectures such as naming, data transport, routing, wireless communication and multimedia. The course introduces algorithms for networked applications including messaging, encryption and authentication.

COMP 307	Introduction to Artificial Intelligence	15 POINTS	Tri 1
-----------------	--	------------------	--------------

Coordinator:	Dr Xiaoying (Sharon) Gao
Lecturer:	Dr Mengjie Zhang
Prerequisites:	COMP 205 or 206 (or 201), MATH 114.
Lectures:	Mon, Tue, Wed 3-4 (MYLT220)
Textbook:	To be advised
CRN:	968

This course considers ideas and techniques from Artificial Intelligence. It first introduces a range of search algorithms that are used throughout AI. It then examines applications and techniques of AI, including rule-based systems for embodying human expertise, algorithms for planning and problem solving, natural language processing, methods for machine learning, and neural nets and other computation intelligence techniques.

COMP 310	Concurrent Programming	15 POINTS	Tri 1
-----------------	-------------------------------	------------------	--------------

Coordinator:	Dr Ian Welch
Lecturer:	A/Prof Lindsay Groves
Prerequisites:	COMP 203, 206 (or 201), MATH 114
Restrictions:	NWEN 303
Lectures:	Mon, Wed, Thu 12-1 (MY632)
Textbook:	To be announced
Co taught with:	NWEN 303
CRN:	9407

This course examines a range of techniques for programming multi-threaded and distributed applications. Topics include synchronisation mechanisms used for programs that communicate via shared memory, and message passing techniques for programs that communicate across a network. Practical work involves implementing programs using these techniques in a modern concurrent language, such as Java.

COMP 311	User Interface Design	15 POINTS	Tri 2
Coordinator:	Stuart Marshall		
Prerequisites:	COMP 205 (or 201)		
Restrictions:	SWEN 303		
Lectures:	Mon, Tue, Thur 1-2 (MYLT102)		
Laboratories:	To be arranged		
Assessment:	Exam, and individual assessment based on group projects.		
Textbook:	"Software for Use" by Constantine and Lockwood		
Co taught with:	SWEN 303		
CRN:	9408		

This course addresses the design and implementation of user interfaces. It presents principles and guidelines for design, and covers a range of design processes. It presents techniques for testing user interfaces, and considers a variety of user interface styles and interface devices.

COMP 312	Simulation and Stochastic Models	15 POINTS	Tri 2
Coordinator:	A/Prof Stefanka Chukova		
Prerequisites:	COMP 205 or 206 (or 201), STAT 131, MATH 161		
Restrictions:	OPRE 352		
Lectures:	Mon, Tue, Thu, 11-12 (MY107)		
Tutorials:	1 hour per week, to be arranged.		
Laboratories:	Computer lab, times to be arranged.		
Assignments:	A major simulation assignment and a number of shorter assignments		
Assessment:	Either 40% coursework, 60% final exam or 100% final exam, whichever is greater		
Course Materials:	A suitable scientific calculator will be needed, cost approx. \$25		
Textbook:	Hillier, F.S. and Lieberman, G.J., Introduction to Operations Research (8th ed.), McGraw-Hill, 2005.		
CRN:	10444		

An introduction to computer simulation and queues using stochastic models.

CSEN301	Embedded Systems	15 POINTS	Tri 1
Coordinator:	To be announced		
Prerequisites:	CSEN 201, ELEN 201, 202		
Restrictions:	PHYS 340		
Lectures:	Wed 10-12, Fri 11-12 (CO431)		
Co taught with:	PHYS 340		

This course details how embedded controllers can be used to solve a number of real-world engineering problems. The main emphasis is on 8-bit microprocessors, logic systems to support them, and techniques to interface them with the physical world. Specific topics include microcontrollers, sensors, actuators, signal conditioning, filters, analogue to digital conversion, systems analysis and introductory control. Practical experience is gained through the use of programming a microcontroller in a high level language and interfacing it to real-world systems.

CSEN302	Advanced Digital Electronics	15 POINTS	Tri 2
Coordinator:	To be announced		
Prerequisites:	ELEN 202 or PHYS 234		
Lectures:	Mon 11-12, Wed 10-12 (CO216)		
Co taught with:	PHYS 342		

Fundamentals of IC processing. Transistor based logic design using gates and switches. nMOS, CMOS, GaAs MESFET, BiCMOS logic design. Combinatoric arrays, sequential design, memory architectures, design for testability and observability. VLSI design using FPGAs.

CSEN 303	Communication Engineering	15 POINTS	Tri 2
Coordinator:	To be announced		
Prerequisites:	ELEN 201 or PHYS 235; ELEN 202 or PHYS 234 or NWEN 201		
Lectures:	Tue 3-4pm, Thu 2-3pm, CO431		

Communication Engineering provides the student with an introduction to communication systems at the physical layer, covering modulation techniques, line coding, medium access control techniques and the basis of packet oriented communication protocols. Key areas covered include: a review of terminology and fundamental concepts, analogue communication systems and modulation, digital communication systems, wireless and wired systems.

ELEN301	Analogue Electronics	15 POINTS	Tri 2
Coordinator:	To be announced		
Prerequisites:	ELEN 201, ENGR 201		
Restrictions:	PHYS 341		
Lectures:	Tue 2-3, Wed, Thur 3-4 (CO228)		
Co taught with:	PHYS 341		

This course expands on ELEN 201, with an emphasis on developing analogue circuit design skills and applying them to the design of electronic instrumentation. The course begins with a survey of practical power supply designs, followed by an introduction to multi-transistor circuits. The differential amplifier is discussed as the basis of the operational amplifier. Laplace transform techniques are covered to provide a strong grounding in the understanding of frequency response and to assist in the analysis of transistor and operational amplifier circuits.

ELEN302	Control System Engineering	15 POINTS	Tri 1
Coordinator:	To be announced		
Prerequisites:	ELEN 201, ENGR 201		
Restrictions:	ECSE 422, PHYS 422, TECH 422		
Lectures:	Tue, Fri 12-1 (CO431)		

The course presents the analysis and modelling of linear dynamic systems and the design of linear feedback controllers for such systems. There is a focus on electrical, mechanical and electromechanical systems and the dynamic response of these systems. Properties and advantages of feedback control systems and the design of such systems using various design techniques are covered, as well as the implementation of PID controllers.

ELEN303	Introductory Signal Processing	15 POINTS	Tri 1
Coordinator:	To be announced		
Prerequisites:	MATH 206		
Restrictions:	PHYS 420, TECH 420, ECSE 420		
Lectures:	Tue 10-11, Wed 9-10 (CO431)		

The course studies continuous-time signal processing and applications to geophysics, electronics and communications. Continuous domain transform theory and spectral analysis, random variables, noise.

ELEN310	Engineering Physics	15 POINTS	Tri 2
Coordinator:	Not offered in 2009		
Prerequisites:	PHYS 215		
Restrictions:	PHYS 309, 339		
Lectures:			

Topics to be covered will include the electronic properties of solid materials, the physics of electronic devices (diodes, transistors, field effect transistors). Also covered are vacuum, optical, cryogenic, electrical and data analysis techniques for experimental physics, and their theoretical background.

ENGR301	Project Management	15 POINTS	Tri 1
Coordinator:	To be announced		
Prerequisites:	ENGR 201 or 202		
Restrictions:	BITT 301		
Lectures:	Mon, Fri 2-3 (EALT206)		

Project management including aspects of life cycle, requirements analysis, principles of design, project tasks and deliverables, contracts, feasibility analysis, cost estimation and cost/benefit analysis, project scheduling, critical path analysis, risk management, quality assurance, managing project resources, testing and delivery, maintenance, interpersonal communication, teamwork and project leadership.

ENGR302	Group Project	15 POINTS	Tri 2
Coordinator:	To be announced		
Prerequisites:	Admission to Part 2 of the BE; ENGR 301		
Lectures:	Mon, Fri 3-4 (CO118)		

Students will work in teams on a project of modest complexity, practicing teamwork, project planning, the development of interface specifications and testing.

NWEN301	Operating Systems Design	15 POINTS	Tri 1
Coordinator:	To be announced		
Prerequisites:	NWEN 201, SWEN 201		
Restrictions:	COMP 305		
Lectures:	Tue 2-3, Wed, Fri 4-5 (CO118)		
Co taught with:	COMP 305		

This course addresses the design and implementation of operating systems, and examines fundamental concepts such as resource management, concurrency, protection and security. Examples drawn from a range of modern operating systems illustrate these concepts and project work provides practical experience in the design and implementation of operating systems.

NWEN302	Computer Network Design	15 POINTS	Tri 2
Coordinator:	To be announced		
Prerequisites:	NWEN 201, SWEN 201		
Restrictions:	COMP 306		
Lectures:	Mon, Thur, Fri 9-10 (MYLT220)		
Co taught with:	COMP 306		

This course addresses the principles, architectures and protocols that have shaped the development of the Internet and modern networked applications. It examines network design principles, underlying protocols, technologies and architectures such as naming, data transport, routing, wireless communication and multimedia. The course introduces algorithms for networked applications including messaging, encryption and authentication.

NWEN303	Concurrent Programming	15 POINTS	Tri 1
Coordinator:	To be announced		
Prerequisites:	NWEN 201, SWEN 201		
Restrictions:	COMP 310		
Lectures:	Mon, Thur 12-1 (MY632)		
Co taught with:	COMP 310		
CRN:			

This course examines a range of techniques for programming multi-threaded and distributed applications. Topics include synchronisation mechanisms used for programs that communicate via shared memory, and message passing techniques for programs that communicate across a network. Practical work involves implementing programs using these techniques in a modern concurrent language, such as Java.

SWEN301	Structured Methods	15 POINTS	Tri 1
Coordinator:	Stuart Marshall		
Prerequisites:	ENGR 202, SWEN 201, 203		
Restrictions:	COMP 301		
Lectures:	Mon, Tue, Thur 4-5 (MYLT101)		
Co taught with:	COMP 301		

This course introduces structured methods, tools and procedures for software engineering. These include the software life-cycle, common software engineering paradigms, and key elements of software engineering such as requirements analysis and specification, design, implementation, testing, maintenance, software quality assurance and software configuration management. Practical work includes the use of an integrated computer aided software engineering (CASE) environment and other development tools

SWEN302 Agile Methods	15 POINTS	Tri 2
Coordinator:	To be announced	
Prerequisites:	ENGR 202	
Lectures:	Wed 10-12 (CO431)	

This course introduces agile methods for software engineering, including continuous deployment, in-use acceptance testing, refactoring, unit testing, hacking, incremental design, retrospective analysis, iterative planning and lean engineering management.

SWEN303 User Interface Design	15 POINTS	Tri 2
Coordinator:	Stuart Marshall	
Prerequisites:	ENGR 202 (this may be waived for students with a good grade in SWEN 201)	
Restrictions:	COMP 311	
Lectures:	Mon, Tue, Thur 1-2 (MYLT102)	
Co taught with:	COMP 311	

This course addresses the design and engineering of user interfaces. It presents principles and guidelines for design, and covers a range of design processes. It presents techniques for testing user interfaces, and considers a variety of user interface styles and interface devices.

SWEN304 Database System Engineering	15 POINTS	Tri 2
Coordinator:	To be announced	
Prerequisites:	NWEN 201, SWEN 201, MATH 114	
Restrictions:	COMP 302	
Lectures:	Mon, Tue, Fri 10-11 (LBLT118)	
Co taught with:	COMP 302	

The course presents an introduction to database system engineering and management. Topics include the design and optimisation of database engines, database design, database modelling, query languages, data warehousing, Internet and XML databases, object - relational databases, deductive databases, and distributed databases.

400-level

The following Engineering courses will not be offered before 2010. Some of the topics will be offered as 400-level courses for the BSc (Hons). See the graduate prospectus for details.

CSEN 401 - Advanced Mechatronic Engineering 1: Hardware and Control

Advanced microcontroller design and interfacing. Advanced sensing systems and actuator circuits. Mechanics, motors and motor driver circuits, systems analysis and digital control theory including PID, state-space, dynamic response, root locus, stability.

15 pts • Tri 1 • P CSEN 301; X ECSE 425

CSEN 402 - Advanced Mechatronic Engineering 2: Intelligence and Design

Advanced mechatronic design methodology, control software, robotic modelling, materials, multivariable and optimal control. Sensor fusion, artificial intelligence, neural networks, genetic algorithms, ergonomics and industrial design methodology.

15 pts • Tri 2 • P CSEN 301; X ECSE 430

CSEN 403 – Advanced Communication Engineering

This course introduces aspects of the analysis, design and development of modern communication equipment, such as the use of communication chipsets, modules, microcontrollers, network processors (NPs), Digital Signal Processors (DSPs) and general purpose microprocessors. The course covers digital communication systems with both a wired and wireless focus. Example systems studied may include some of (but not limited to): IP routers, ATM switches and Digital Subscriber Line (DSL) systems, Ethernet switches or Passive Optical Networks, wireless LAN, modern cellular systems and media gateway (MG) technologies.

15 pts • Tri 2 • P CSEN 301, 303

CSEN 410 – Directed Study

A supervised programme of study approved by the appropriate Head of School.

15 pts • Tri 1 or Tri 2 • P Permission of the Head of School

ELEN 401 - Advanced Electronics

Advanced analogue and digital electronics, design principles, transform methods of analysis, active and passive filters, oscillators, phase-locked loops, digital signal processors, digital synthesis, communications principles, RF design.

15 pts • Tri 1 • P ELEN 301; X PHYS 423, TECH 423, ECSE 423

ELEN 402 - Power Electronics

The course covers the theory, design and application of power electronic circuits and the transformation and control of electrical energy.

15 pts • Tri 1 • P ELEN 301

ELEN 403 – Applications of Signal Processing

Discrete and continuous-time signal processing with applications to electronics and communications. Discrete Fourier, fast Fourier, Z, and other discrete transforms, filter design.

15 pts • Tri 2 • P ELEN 303, 30 pts of approved 300-level CSEN or ELEN courses; X PHYS 421, TECH 421, ECSE 421

ELEN 410 – Directed Study

A supervised programme of study approved by the appropriate Head of School.

15 pts • Tri 1 or Tri 2 • P Permission of the Head of School

ENGR 401 - Professional Practice

Professional Practice considers the social and organisational impact of engineering and develops a wider appreciation of the implications of participation in the engineering process. Topics include protection and exploitation of intellectual property, ethics, legal constraints, professional development and professional responsibility. The course presents a range of skills and tools needed by the successful engineering manager, including financial management, an introduction to health and safety, organisational dynamics, communication and management fundamentals.

15 pts • Tri 1 • P 75 300-level pts from the BE schedule including ENGR 301 and 302

ENGR 489 - Engineering Project

Students will address a complex project requiring an analysis of customer requirements; the application of first principles to derive a design; life-cycle economic analysis; consideration of legal and ethical issues; teamwork, testing and product delivery.

30 pts • 1-Tri 2 • P Enrolment in the BE; 75 300-level pts from the BE schedule including ENGR 301 and 302

NWEN 401 - Distributed Systems Design

Distributed system concepts and techniques underlie much of modern computer technology; client-server systems based on high-bandwidth networks support applications ranging from business data processing to multimedia information systems. This course teaches the concepts and principles employed in the design and implementation of distributed systems, with practical examples, providing a suitable knowledge base for those aiming for careers in advanced system and application development, or in research.

15 pts • Tri 1 • P two of NWEN 301, 302, 303; X COMP 413, ECSE 431

NWEN 402 - Internet Engineering

This course addresses the use of important technologies in the design and engineering of modern high performance Internet applications and infrastructure. Course coverage includes views on the impact of economic, political and technical issues on Internet engineering which are explored through case studies and recent professional and research literature. These aspects are explored through practical group work in distributed systems/Internet technology plus lectures and seminars.

15 pts • Tri 2 • P NWEN 401; X COMP 417

NWEN 403 - Advanced Network Engineering

This course extends the data communications and telecommunication taught in Computer Network Design, concentrating on new developments and network case studies. The course is designed for those aiming for careers that involve networking or network research, and enhances the understanding of distributed systems through the applications of distributed systems in network management and Internet infrastructure.

15 pts • Tri 1 • P NWEN 302, one of NWEN 301, 303; X COMP 414, ECSE 432

NWEN 404 – Design of Mobile Systems

This course will look at the state-of-the-art in mobile computing, from the emerging Internet wireless protocols to mobile software agents and the distributed systems infrastructure that is needed to support them, with an emphasis on the mobile software agent (or object). Both the paradigms of user and device mobility are explored.

15 pts • Tri 2 • P NWEN 302 or 303; X COMP 415, ECSE 433

NWEN 405 – Internet Security

The Internet's role as a large, public, distributed system has raised security to an issue of critical importance. This course examines security mechanisms, security policies, security evaluation and risk management, security issues in networks and operating systems, and case studies that show how these security techniques can be used to solve real-world problems such as conducting trustworthy auctions and secret ballots.

15 pts • Tri 2 • P NWEN 301, 302; X COMP 418

NWEN 410 – Directed Study

A supervised programme of study approved by the appropriate Head of School.

15 pts • Tri 1 or Tri 2 • P Permission of the Head of School

SWEN 401 - Software Engineering Case Study Practice

This course provides a case study of software engineering practice. Students will follow a project from inception to delivery, working with novel platforms and technologies.

15 pts • Tri 1 • P three of SWEN 301, 302, 303, 304

SWEN 402 - Formal Software Engineering

This course is concerned with the application of mathematical logic to the specification, development and verification of computer software. A variety of approaches are investigated, ranging from fully formal techniques through to rigorous methods that are mathematically based without being completely formal. The course emphasises case studies and examples, and tool support for formal methods.

15 pts • Tri 1 • P SWEN 202 and two of SWEN 301, 302, 303, 304; X COMP 426

SWEN 403 - Human Computer Interaction

This course has an emphasis on user experience engineering. It begins by reviewing models for understanding relevant aspects of human behaviour, and then relating the implications to issues in program design. It then examines various user interface design techniques and general strategies, including both textual and graphical approaches. Several modern user interface engineering environments are discussed. Finally, some advanced research is discussed, showing possible directions for future development.

15 pts • Tri 2 • P SWEN 303; X COMP 453, ECSE 434

SWEN 404 - Advanced Software Engineering: Program Analysis

A course about the techniques and algorithms used to automatically check for programming errors. The core concept is software engineering static program analysis. Other topics covered include model checking, program slicing, intermediate representation, abstract interpretation and dynamic program analysis. As part of the course students develop programs that analyse Java code (without executing it) to track the flow of information and uncover hidden mistakes.

15 pts • Tri 2 • P two of SWEN 301, 302, 303, 304

SWEN 405 - Object Oriented Paradigms

The phrase "object-oriented" has become something of a catch-phrase for all that is good in software engineering. This course examines various object-oriented phenomena to determine what is really going on, consisting of readings from the literature that describe different incarnations of the object-oriented paradigm. It will also look at discussions of, and techniques for, object-oriented analysis and design, and recent developments in the object-oriented world, such as frameworks and design patterns.

15 pts • Tri 1 • P two of SWEN 301, 302, 303, 304; X COMP 462

SWEN 406 - Advanced Software Engineering: Implementation and Development

This course covers advanced topics in software implementation and deployment engineering, its tools and techniques, including a survey of advanced design and engineering techniques such as model-driven architecture, generative software, reflexive virtual machines, meta- and mega-programming, design patterns, and autocoding.

15 pts • Tri 1 • P SWEN 301, one of SWEN 302, 303, 304; X COMP 466

SWEN 407 - Advanced Software Engineering: Requirements and Design

The course covers advanced concepts and principles of software requirements engineering, its tools and techniques, including a survey of methods for modelling software requirements. It also covers advanced methods and techniques used in the engineering design of software systems, including both architectural and detailed design. In the requirements and design areas issues such as documentation, reviews and inspections are covered.

15 pts • Tri 2 • P SWEN 301, one of SWEN 302, 303, 304; X COMP 467

SWEN 410 – Directed Study

A supervised programme of study approved by the appropriate Head of School.

15 pts • Tri 1 or Tri 2 • P Permission of the Head of School

GENERAL INFORMATION

Course Materials

Course Costs

All costs of course materials are approximate and are based on 2008 costs. The price of books from overseas is subject to variations in the exchange rate. A second-hand book sale is held by VUWSA in the first week of March: you can sell your old books through them, and you may be able to buy some of the books you require for 2009 at reduced prices. Second-hand books may under certain conditions be bought and sold through VicBooks.

Course Readings

Textbooks may either be bought from VicBooks (Student Union Building) or from other bookshops. Course materials are also available from the Student Notes Distribution Centre in the Student Union Building. Course Coordinators will tell you which outlet has the reading material for their course.

Course Outlines

At the beginning of each course students receive a Course Outline. This contains all necessary information about the course including the number of class meetings, their types and times, booklists, assignments, tests and examinations and mandatory course requirements (minimum class work in order to complete the course).

Examinations

Please note that students enrolled in courses that have a final examination are expected to be available in the relevant examination period. In 2009 these are: **12 June – 1 July and 23 October – 14 November**. Exam timetables are normally published after the mid-term break.

Official School Communications

Official notices of the School are posted on noticeboards in the level 2 and 3 corridors of the Cotton building. Each course will have a specific web presence which may be used for advising of announcements: check <http://ecs.victoria.ac.nz/Year2009/CourseList> for a list of all the courses offered by the School. You may also be communicated with via your ECS email account, or via a course-specific forum.

Social and Cultural Activities

VEC – the VUW Engineering club for engineering students (<http://vec.org.nz>).

Interface – the Victoria University of Wellington Student Association club for computing and IT related areas of interest (<http://www.interface.org.nz>).

Prizes and scholarships

Students should check out the University's Prizes and Scholarships database, accessible via: <http://www.victoria.ac.nz/home/admisenrol/payments/scholarships>

The Faculties of Science and Architecture & Design offer scholarships to Māori and Pacific Nation students respectively. See the Faculty of Science website for more information: www.victoria.ac.nz/science/awhina

Student Services Group

Student Services provides a range of services to ALL students, to help you make the most of your time at University. Contact the following services for assistance directly or visit the website www.victoria.ac.nz/st_services to find out more. Many of these services are available at all campuses—the addresses and main phone numbers of the services on the Kelburn campus are listed here – just ring them to make an appointment at whichever campus is best for you.

Accommodation Service

Level 1, The Atrium, Student Union Building

Phone: 04-463 5896

Email: accommodation@vuw.ac.nz

Website: www.victoria.ac.nz/st_services/accommodation

If you need a flat, flatmates or halls of residence information, the Accommodation Service is a great place to start. The website has an online letting service with a range of vacancy listings to suit all budgets and tastes. Staff are happy to advise you on tenancy issues.

Career Development and Employment (Vic Careers)

14 Kelburn Parade

Phone: 04-463 5393

Email: careers-service@vuw.ac.nz

Website: www.victoria.ac.nz/st_services/careers

Vic Careers offers students independent career advice. They can help you find the right career, suggest which careers your degree could lead to and assist with writing your CV. If you are looking for a job, watch out for Graduate Recruitment programmes and check out the Victoria CareerHub (www.victoria.ac.nz/careerhub), your 24/7 jobs online service—login using your ITS account.

Counselling Service

2 Wai-te-ata Road

Phone: 04-463 5310

Email: counselling-service@vuw.ac.nz

Website: www.victoria.ac.nz/st_services/counselling

Counsellors are available to discuss personal and academic issues that affect your general sense of wellbeing, your relationships or your learning. Ring to make an appointment for this free, confidential service.

Crèches

Phone: 04-463 5151

Email: childcare@vuw.ac.nz

Website: www.victoria.ac.nz/st_services/creches

The University crèches can provide your child(ren) with the best possible education and care while you study. The Student Crèche has three centres on Kelburn Campus and one at the Law School, Pipitea Campus.

Disability Support Services (DSS)

Level 1, Robert Stout Building

Phone: 04-463 6070

Email: disability@vuw.ac.nz

Website: www.victoria.ac.nz/st_services/disability

At Victoria, disability is self-defined and includes people with permanent, temporary or recurring impairments, injuries or chronic medical conditions. Contact DSS's Student Advisers to confidentially discuss your individual needs.

Financial Support and Advice

14 Kelburn Parade

Phone: 04-463 6644 for information, 04-463 7474 for an appointment

Email: student-hardship@vuw.ac.nz

Website: www.victoria.ac.nz/st_services/finadvice

Finance Advisers can provide you with practical advice on budgeting and coping financially, help you with Student Loan and Allowance applications and the preparation of financial statements for Scholarship applications. Through the Hardship Fund they are also able to provide emergency financial assistance.

Health Service

4 Wai-te-ata Road

Phone: 04-463 5308 or 04-463 7474

Email: student-health@vuw.ac.nz

Website: www.victoria.ac.nz/st_services/health

The Health Service offers you a general practice medical service on campus which is free or very low cost for most students. It deals with illnesses, accidents and prescriptions, and offers specialist services such as psychiatry, nutrition, dermatology and physiotherapy.

Kaiwawao Māori / Māori Student Services Adviser

Level 0, Kirk Wing, Hunter Courtyard

Phone: 04-463 6001

Email: kaiwawao-maori@vuw.ac.nz

Website: www.victoria.ac.nz/st_services/kaiwawao

The Kaiwawao Māori's main objective is to encourage and assist students to participate and succeed by providing support to all students of Māori descent. If you have questions, concerns or are unsure of whom to talk with or where to go, the Kaiwawao Māori can help.

Pacific Support Coordinator

Kasi Muaiava

Room 109b, 14 Kelburn Parade

Phone: 04-463 5842 or 027-563 5842

Email: afakasi.muaiava@vuw.ac.nz

The Pacific Support Coordinator assists with the transition of Pacific students into University life as well as helping them cope with academic studies—by making appointments with services on a student's behalf, taking students to services that will help and by providing information on scholarships.

Student Learning Support Service (SLSS)

Level 0, Kirk Wing, Hunter Courtyard

Phone: 04-463 5999

Email: student-learning@vuw.ac.nz

Website: www.victoria.ac.nz/st_services/slss

Build confidence and maximise your academic success with support from SLSS. They offer workshops and one-to-one tuition in such areas as essay writing, mathematics and statistics, learning strategies, study skills and language skills. SLSS offers regular seminars on topics of interest to postgraduate students, which include Writing a Research Proposal, Writing a Literature Review, Managing the Research Process, What Makes a Good Argument and Editing your Thesis. They also facilitate postgraduate writing workshops, help set up and maintain peer study/support groups and organise other workshops on request. Some individual assistance is also available.

Vic OE (Victoria Overseas Exchange)

As a Victoria student you have the chance to complete part of your degree at a world-class institution overseas and studying towards your Victoria degree while paying normal Victoria tuition fees.

Vic OE students are eligible for StudyLink loans and allowances. Victoria International will provide up to \$1,000 grant funding to all successful applicants.

Eligibility

If you are interested in applying for Vic OE you must:

- have completed a year of full-time study by the date of your intended departure
- have achieved a "B" average overall in your studies at Victoria
- be able to demonstrate that you would be a good ambassador for Victoria.

Application Deadlines

- 16 January 2009 (for study in Trimester 2, 2009)
- 16 July 2009 (for study in Trimester 1, 2010)

For more information contact the Student Exchange Office: exchangestudents@vuw.ac.nz or visit our website www.victoria.ac.nz/exchange to find out where in the world you could be studying.

Exchange Destinations

Exchange agreements are in place between Victoria University and universities throughout the UK and Europe (eg. University of Leeds, Royal Holloway and Université de Lyon III), Asia (eg. Korea University, National University of Singapore), North America (eg. UC Berkeley, Penn State, Dalhousie and UVic), South America (eg. Universidad de Chile, la Católica de Argentina and Universidad de Valparaíso) and Oceania (eg. University of the South Pacific, Australian National University, and University of French Polynesia).

Funding

Not only are students eligible for Loans and Allowances as normal and given a \$1,000 travel grant, there are other scholarship opportunities available for high achieving students, such as Education NZ's NZUSAA scholarship which ranges from \$3,000 to \$5,000. There are also accommodation subsidies and travel grants offered at specific locations.

For more information, contact the Student Exchange Office: exchangestudents@vuw.ac.nz to arrange an appointment at Victoria International Level 2, Rutherford House, 23 Lambton Quay. Why wait to travel until after you have finished your degree?

FACULTIES OF SCIENCE AND ENGINEERING
Te Wāhanga Putaiao, Te Wāhanga Ahunui Pūkaha

Faculty of Science Student Administration Office

Location: Level 1, Cotton Building
 Email: science-faculty@vuw.ac.nz
 Web: <http://www.victoria.ac.nz/science>
 Office hours: 8.30 am – 5.00 pm (Tuesday from 9.30 am)

Student Advisers can help with admission requirements, degree planning, changing courses, transfer of credit from other tertiary institutions, and anything else that may crop up during your time at Vic. They also deal with other aspects of student administration such as enrolment, exams organisation and the maintenance of student records.

The advisers support students throughout their study. To ensure you get good continuity of personal service, advisers manage a particular group of students, identified by the first letter of your surname:

A-H	Belinda Tuari	belinda.tuari@vuw.ac.nz	463 5982
I-Q	Rachel Zhang	rachel.zhang@vuw.ac.nz	463 5983
R-Z	Celia Simpson	celia.simpson@vuw.ac.nz	463 5981

Johan Barnard Manager, Student and Academic Services tel 04-463 5980
Shona de Sain Associate Dean (Students) tel 04-463 5092

Te Rōpu Āwhina Pūtaiao

Liz Richardson heads the Faculty's Equity Team which provides a range of additional academic and personal support initiatives. These include Equity-Help sessions for 100-level science courses, Te Rōpu Āwhina Pūtaiao (mentoring for Māori and Pacific students), support for students with English as a second language, a Science and Technology Transition Course that bridges mature and second chance learners into science and technology degrees at Vic, the Beacon Project and the Vic Science Experience.

To find out more, contact

Liz Richardson (tel 04-463 5748, email: liz.richardson@vuw.ac.nz).

Liz is the Deputy Dean (Equity) for the Faculties of Science and Architecture & Design.