Prescription

This course addresses the concepts, techniques and tools required for developing computer systems that are applicable where safety and reliability is paramount. Topics include the concepts and principles underlying safety critical systems, design and implementation techniques for ensuring correctness, reliability, privacy, security, dependability, survivability, and safe failure. Practical work will involve the design, implementation, and analysis of simple safety critical applications, with examples taken from mobile, web, and embedded systems deployed in healthcare, robotics, and autonomous vehicles.

Course learning objectives

Students who pass this course should be able to:

1. Describe the key principles of safety critical systems and the implications of these for software design and implementation.
2. Select and apply appropriate standards and processes to develop safety critical systems, for example IEC 61508 and MOD 00-55 / 56.
3. Analyse potential risks, hazards, threats, and failure modes in the designs of safety critical systems.
4. Design and construct software following safety critical standards, processes, and design techniques.
5. Evaluate system designs and software against safety critical standards.

Withdrawal from Course

Withdrawal dates and process:
https://www.victoria.ac.nz/students/study/course-additions-withdrawals

Lecturers

David Pearce (Coordinator)

david.pearce@vuw.ac.nz   04 4635833

231 Cotton, Kelburn

Teaching Format

Weekly lectures and individual assignments during whole course. The assignments will build on the material presented in lectures.

Student feedback

Student feedback on University courses may be found at:
www.cad.vuw.ac.nz/feedback/feedback_display.php

Dates (trimester, teaching & break dates)

- Teaching: 04 March 2019 - 09 June 2019
- Break: 15 April 2019 - 28 April 2019
- Study period: 10 June 2019 - 13 June 2019
- Exam period: 14 June 2019 - 29 June 2019

Class Times and Room Numbers

04 March 2019 - 14 April 2019
- **Tuesday** 10:00 - 10:50 – 306, 77 Fairlie Tce, Kelburn
- **Thursday** 10:00 - 10:50 – 306, 77 Fairlie Tce, Kelburn
- **Friday** 10:00 - 10:50 – 306, 77 Fairlie Tce, Kelburn

29 April 2019 - 09 June 2019
- **Tuesday** 10:00 - 10:50 – 306, 77 Fairlie Tce, Kelburn
- **Thursday** 10:00 - 10:50 – 306, 77 Fairlie Tce, Kelburn
- **Friday** 10:00 - 10:50 – 306, 77 Fairlie Tce, Kelburn

Set Texts and Recommended Readings

Required

There are no required texts for this offering.

Mandatory Course Requirements

There are no mandatory course requirements for this course.

If you believe that exceptional circumstances may prevent you from meeting the mandatory course requirements, contact the Course Coordinator for advice as soon as possible.

Assessment

Assessment Item	Due Date or Test Date	CLO(s)	Percentage
Assignment 1		CLO: 3	15%
Assignment 2		CLO: 4,5	15%
Assignment 3		CLO: 4,5	15%
Assignment 4		CLO: 4,5	15%
Exam (2 hrs)		CLO: 1,2,3,4,5	40%

Penalties

Late submissions will incur an automatic penalty of 10% of the final mark per day. Submission between 0 and 24 hours late will be counted as one day late; those betwee 24 and 48 hours late will be counted as two dates late, etc. Any request for an extension must be made to the lecturer in charge *prior* to the due date. Any extensions requested on the basis of medical grounds must be supported by a doctor's certificate.

Extensions

Individual extensions will only be granted in exceptional personal circumstances, and should be negotiated with the course coordinator before the deadline whenever possible. Documentation (eg, medical certificate) may be required.

Submission & Return

All work is submitted through the ECS submission system, accessible through the course web pages. Marks and comments will be returned through the ECS marking system, also available through the course web pages.

Workload

Although the workload will vary from week to week, you should expect to spend approximately 10 hours per week on the course to give a total of 150 hours study time for the course.

Teaching Plan

See https://ecs.victoria.ac.nz/Courses/SWEN326_2019T1/LectureSchedule

Communication of Additional Information

All online material for this course can be accessed at https://ecs.victoria.ac.nz/Courses/SWEN326_2019T1/

Links to General Course Information

- Academic Integrity and Plagiarism: https://www.victoria.ac.nz/students/study/exams/integrity-plagiarism
- Academic Progress: https://www.victoria.ac.nz/students/study/progress/academic-progess (including restrictions and non-engagement)
- Dates and deadlines: https://www.victoria.ac.nz/students/study/dates
- Grades: https://www.victoria.ac.nz/students/study/progress/grades
- Special passes: Refer to the Assessment Handbook, at https://www.victoria.ac.nz/documents/policy/staff-policy/assessment-handbook.pdf
- Statutes and policies, e.g. Student Conduct Statute: https://www.victoria.ac.nz/about/governance/strategy
- Student support: https://www.victoria.ac.nz/students/support
- Students with disabilities: https://www.victoria.ac.nz/st_services/disability/
- Student Charter: https://www.victoria.ac.nz/learning-teaching/learning-partnerships/student-charter
- Terms and Conditions: https://www.victoria.ac.nz/study/apply-enrol/terms-conditions/student-contract

- Turnitin: http://www.cad.vuw.ac.nz/wiki/index.php/Turnitin
- University structure: https://www.victoria.ac.nz/about/governance/structure
- VUWSA: http://www.vuwsa.org.nz

Offering CRN: 30042

Points: 15
Prerequisites: NWEN 241, SWEN 225 (or 222)
Duration: 04 March 2019 - 30 June 2019
Starts: Trimester 1
Campus: Kelburn