Course Outline

Course Code	SENG2011
Course Title	Software Engineering Workshop 2A
Units of Credit	6
Course Website	https://webcms3.cse.unsw.edu.au/SENG2011/20T3/ (https://webcms3.cse.unsw.edu.au/SENG2011/20T3/)
Current hand-book entry	http://www.handbook.unsw.edu.au/undergraduate/courses/current/SENG2011.html (http://www.handbook.unsw.edu.au/undergraduate/courses/current/SENG2011.html)

Course Summary

This course teaches practical techniques in reasoning about computer program development. 'Reasoning' involves determining what program code is expected to achieve, and what determines correct behaviour as specified in logic. In this approach, students will need to think about the behaviour of a algorithm separately from the code. Proving that an algorithm satisfies a behavioural description is referred to as verification and forms the backbone of the course.

Course Aims

Engineering: learn how to construct a behavioural specification of a software system, using a formal tool, and how to implement this specification in code.

Student Learning Outcomes

If you successfully complete this course, you should have acquired a bunch of new skills:

- be able to build a formal specification of the behaviour of a program
- be able to engineer code, not write it in an ad hoc fashion
- be able to reason abstractly about requirements and be able to model them using formal methods
- be aware that proving code is correct is crucial for system reliability

Assumed Knowledge

- discrete mathematics, particularly predicate calculus
- programming in a procedural language (e.g. C, Python or Java)
- competence with Unix (e.g. Linux) commands, and interacting with the operating system

Teaching Strategies

As SENG2011 is a workshop, it relies less on formal lectures and tutorials than a conventional lecture course, and more on individual effort. The lectures however are very important to understanding, particularly conceptual of issues in verification. There are no scheduled tutorials or lab sessions, but there is a very active forum. On a regular basis there will be exercises for students to practice their skills.

Assessment

The total course mark will be the sum of the marks for the following components:

- Assessment 1: Regular Quizzes (10 marks)
- Assessment 2: Assignment 1 (15 marks)
- Assessment 3: Assignment 2 (25 marks)
- Final Examination (50 marks)
    - If your final exam mark is below the pass mark, your mark for the exam will be set to 0. Your final course mark will be the total of your 3 assessments in that case.

ALL the assessments should be done on an individual basis. A schedule of when assessments are due can be found on the course website.

Late submission

Handing an assignment in late by:

- up to one day (i.e. 24 hours) will be scaled by 85%
- for two days it is 75% (that is total scaling, not in addition to the 85%)
- for three it is 50%
- after three days the submission will not be accepted at all (i.e. is scaled by 0%)

If you think you have sound reasons to request a waiver of these rules, e.g. illness or misadventure, you must submit an official request for special consideration (https://student.unsw.edu.au/special-consideration) , with supporting documentation (e.g. medical certificates) through the formal UNSW central channels (*not* by direct request to the convenor or system administrator.)

Supplementary Exam

The document **"Essential Advice for CSE Students" (https://www.engineering.unsw.edu.au/computer-science-engineering/about-us/organisational-structure/student-services/policies/essential-advice-for-cse-students)** states the supplementary assessment policy for the school of CSE.

I have no control over who is eligible to take a supplementary exam. This is handled by Student Administration and requires you to apply for Special Consideration.

If you are granted a Supplementary examination, then it will be held on a date specified by the university, or, if it is an on-line examination, specified by the school. It is your responsibility to check at the School Office for details of Supplementary examinations.

Student Conduct

The **Student Code of Conduct** (Information (https://student.unsw.edu.au/conduct) , Policy (https://www.gs.unsw.edu.au/policy/documents/studentcodepolicy.pdf)) sets out what the University expects from students as members of the UNSW community. As well as the learning, teaching and research environment, the University aims to provide an environment that enables students to achieve their full potential and to provide an experience consistent with the University's values and guiding principles. A condition of enrolment is that students *inform themselves* of the University's rules and policies affecting them, and conduct themselves accordingly.

In particular, students have the responsibility to observe standards of equity and respect in dealing with every member of the University community. This applies to all activities on UNSW premises and all external activities related to study and research. This includes behaviour in person as well as behaviour on social media, for example Facebook groups set up for the purpose of discussing UNSW courses or course work. Behaviour that is considered in breach of the Student Code Policy as discriminatory, sexually inappropriate, bullying, harassing, invading another's privacy or causing any person to fear for their personal safety is serious misconduct and can lead to severe penalties, including suspension or exclusion from UNSW.

There is a document explaining the procedure for student misconduct. (https://www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf)

If you have any concerns, you may raise them with your lecturer, or approach the School Ethics Officer (mailto:ethics-officer@cse.unsw.edu.au) , Grievance Officer (mailto:grievance-officer@cse.unsw.edu.au) , or one of the student representatives.

Plagiarism

Plagiarism is defined as (https://student.unsw.edu.au/what-plagiarism) *using the words or ideas of others and presenting them as your own* . UNSW and CSE treat plagiarism as *academic misconduct* , which means that it carries penalties as severe as being excluded from further study at UNSW. There are on-line sources to help you understand what plagiarism is and how it is dealt with at UNSW: Academic Integrity and Plagiarism (https://student.unsw.edu.au/plagiarism) , and the very recent (effective 1st June 2020) Plagiarism Management Procedure (https://www.gs.unsw.edu.au/policy/documents/plagiarismprocedure.pdf) .

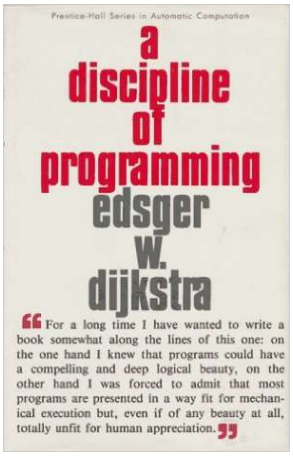
- Make sure that you read and understand these documents.
- You are also responsible that your course assessment solutions are not accessible by anyone.
- Plagiarism includes paying or asking another person to do a piece of work for you and then submitting it as your own work.
- Posting exercises from the course assessments on the internet is considered an attempt to plagiarise, and accordingly such an action will result in penalties.

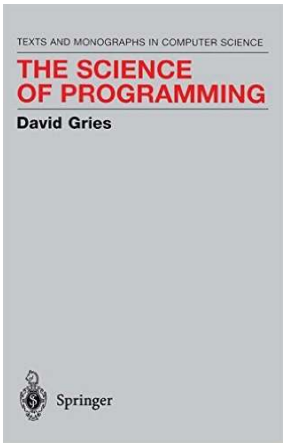
Resources for Students

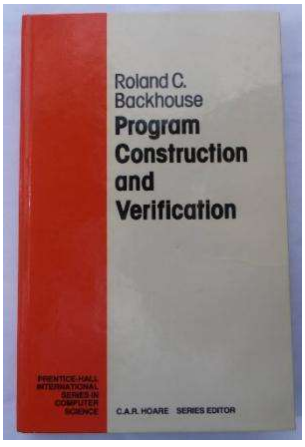
The lecture notes are comprehensive and should be closely studied. Links to supporting documents and articles will also be provided on the website.

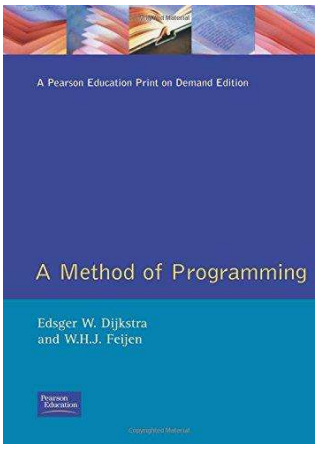
In-depth references that form the backdrop of the course are the following:

- Edsger W. Dijkstra : **A discipline of programming**
- David Gries : **The science of programming**
- Roland Backhouse: **Program construction and verification**
- Edsger Dijkstra and Wim Feijen : **A method of programming**









These texts provide the theory of verification.

Unfortunately there are no undergraduate level textbooks available yet on the practice of verification (using the language Dafny). (There is a book in development.) For this reason, the lecture notes are extensive and detailed. Links to what information there is on the web can be found on the course website.

Course Evaluation and Development

In the previous course (in 2019) there was a group project. This has been removed in 2020, and replaced by new material. The reasons for this change are:

- the high workload: the project, and assignments, and final examination was too much for 10 weeks
- remote delivery: the course is now mainly remote, and has removed group-work.
- the change in pre-requisites: students no longer need to have completed COMP2111 before doing this course so extra material has been added to the course to better transition students from MATH1081, which is still a pre-requisite.

Some comments and criticisms from 2019 are still relevant:

1. There should probably be some smaller units of assessment

Convenor: It is planned to include regular practice exercises, which shall be assessable.

2. Too much work to do.

Convenor: That aspect has certainly been addressed with the removal of the project.

3. Have a more up to date version of Dafny.

Convenor: A new Dafny compiler v2.3.0 has been installed.

4. There are not enough resources to learn.

Convenor: The lecture notes have been extended (more than 30%) with new material and better explanations. The lecture narrations this year are far better when compared to the lecture recordings from previous years. There are few resources on the internet though, and this remains a concern.

5. The whole marking process seemed really delayed.

Convenor: Faster turn-around in marking will be a focus this year.

Resource created about a year ago (Thursday 21 May 2020, 02:36:57 PM), last modified 9 months ago (Friday 02 October 2020, 09:52:25 AM).

Comments

(/SENG2011/20T3/forums/search?forum_choice=resource/46970) (/SENG2011/20T3/forums/resource/46970)

There are no comments yet.