COMP4920 Management and Ethics
SENG4920 Ethics and Management

Semester 2, 2017

Course Outline

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Course Staff

Contact Details

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Course Details

Units of Credit: 6

Web Site: http://www.cse.unsw.edu.au/~cs4920/

Timetable:

Lecture Time	Room	Lecturers
Wed 12.00-2.00	Law Th G04	Wayne Wobcke, Bruno Gaeta

Seminar Time(**)	Room	Facilitator	E-Mail
Mon 10.00-12.00	Law 111	Bruno Gaeta	bgaeta@unsw.edu.au
Mon 12.00-2.00	Law 111	Rob Everest	r.clifton-everest@unsw.edu.au
Tue 10.00-12.00	Webster 252	Christina Jeong	j.jeong@unsw.edu.au
Tue 12.00-2.00	Goldstein G01	Rob Everest	r.clifton-everest@unsw.edu.au
Tue 12.00-2.00(*)	Library 176B	John Calvo Martinez	j.calvomartinez@unsw.edu.au
Wed 10.00-12.00	Law 111	Christina Jeong	j.jeong@unsw.edu.au
Wed 2.00-4.00	Law 111	Rob Everest	r.clifton-everest@unsw.edu.au
Wed 4.00-6.00	Law 111	John Calvo Martinez	j.calvomartinez@unsw.edu.au
Thu 10.00-12.00	Goldstein G05	Sandeepa Kannangara	s.kannangara@unsw.edu.au
Thu 2.00-4.00(*)	Goldstein G05	Sandeepa Kannangara	s.kannangara@unsw.edu.au
Fri 2.00-4.00	Quad G054	Wayne Wobcke	w.wobcke@unsw.edu.au

Note: (*) Class for SENG4920 students only

Note: (**) Seminars may be cancelled depending on enrolments

Preamble

This course is taken by Computer Science, Computer Engineering and Bioinformatics students under the code COMP4920, and Software Engineering students under the code SENG4920. Lectures, seminars and assessments are common, but seminar groups are segregated according to the two course codes.

Course Aims

COMP4920/SENG4920 covers practical aspects of both *software project management* and *professional issues and ethics*, and as such is critical preparation for the workforce, in addition to being essential for accreditation of the Software Engineering, Computer Science, Computer Engineering and Bioinformatics degree programmes. **Students enrolling should be in the final year of study or nearing completion of their computing degree.**

There are two specific themes and objectives.

- *Software Project Management.* To gain practical experience in all phases of the planning and execution of a software project, including requirements scoping, software process methodology, project planning and scheduling, teamwork and communication, and risk and change management.
- *Professional Issues and Ethics.* To appreciate the responsibilities of a professional software engineer and understand the ethical dimensions of the IT industry as applied to specific issues such as software quality, privacy and security, intellectual property and legal obligations of IT practitioners.

Student Learning Outcomes

On successfully completing this course, students should be able to:

- *Software Project Management*
  - Understand the range of activities involved in a large software project
  - Be able to plan and successfully execute a team-based software project
  - Take on different roles in a team to contribute to team success
  - Understand and appropriately apply software engineering processes
  - Understand the importance of teamwork and communication in a software project
- *Professional Issues and Ethics*
  - Understand the responsibilities of a professional software engineer
  - Appreciate and apply ethical frameworks to make professional judgements
  - Develop critical thinking in relation to professional issues
  - Gain in-depth understanding of several topical professional issues
  - Appreciate different ways of managing intellectual property
  - Understand the societal context of technology developments
  - Improve communication skills needed to present reasoned arguments

This course contributes to the following UNSW graduate attributes.

- *The skills involved in scholarly enquiry.* The course emphasizes professional codes of ethics and conduct that oblige engineers to keep up to date and rigorously apply the latest methods and technology.
- *The capacity for analytical and critical thinking and for creative problem solving.* Critical thinking is developed through analysis of professional issues and case studies in seminars and through writing a report involving in-depth ethical analysis.
- *Capacity for enterprise, initiative and creativity.* The course covers management of intellectual property and innovation including aspects specific to the software industry, such as software patents and open source software.
- *An appreciation and respect for diversity.* Societal benefits and drawbacks of the IT industry are discussed explicitly.
- *Skills required for collaborative and multidisciplinary work.* The software project requires the ability to work within technical teams in the development of a product that requires teamwork and management of a project.
- *Respect for ethical practice and social responsibility.* Explicit discussion of ethical theories and professional codes provides students with frameworks to make ethical judgements and knowledge of what society expects of professional engineers.
- *Skills of effective communication.* Effective communication skills are encouraged through preparation and delivery of a student-led seminar and through writing an analytical report.

Assumed Knowledge

Students are assumed to be in the final year of study (or nearing graduation) of a computing degree **and** completed around half of their Stage 3 or 4 courses, so are assumed to have reasonable knowledge and maturity in Software Engineering, Computer Science, Computer Engineering or Bioinformatics.

Students are assumed to be competent software developers with knowledge of agile software processes and experience of working in agile teams based on the Scrum methodology. The level of experience is assumed to be sufficient to undertake (from conception and planning to completion) a moderately large software development project. **Note that seminar facilitators play the role of clients, and cannot provide technical advice on programming languages or platforms.**

Teaching Rationale

COMP4920/SENG4920 is an important course to ensure students are "job ready". The course covers both software project management from a practical point of view, and professional issues and ethics as related to the IT industry.

Students benefit by having the opportunity to interact with industry experts, hence **attendance at lectures is very important**, especially as the course focuses on "soft skills".

For *software project management*, the teaching philosophy is that much of this knowledge cannot be "taught" but rather is gained through experience and reflection. Hence the approach taken in this course is that students learn about software project management through working in and managing a team-based software project, encompassing all phases of the project from requirements scoping, application of a software process methodology, project planning and scheduling, teamwork and communication, risk management and change management. Students develop a project plan in the first half of semester **and will be held to that plan for the second half of semester** (subject to any agreed modifications).

For *professional issues and ethics*, teaching is based on seminar-style discussion groups, encouraging students to express their ideas and form their own judgements on specific issues relating to the IT industry on the basis of rational arguments. Seminars also promote team organization and presentation skills through a team-based student-led seminar. Critical thinking is developed through researching and writing a case study in the form of an in-depth analytical report covering a range of professional and ethical issues of relevance to the industry.

Time management is an important aspect of this course. It is expected that each student attends **all** lectures and seminars, prepares for each seminar by reading the relevant material **in advance**, contributes actively to seminar discussion, and spends roughly 10-15 hours on the student-led seminar, 15-20 hours on the company case study, and 5-10 hours on the lecture summaries. The software project is a major component of the course and should take 40-50 hours **per person** for planning and execution.

Teaching Strategies

The course has a mixture of guest lectures on topics of interest and seminars focusing on particular professional issues, case studies and the software project.

Lectures provide an overview of one particular aspect of software project management or professional and ethical issues. Guest lecturers are able to provide expertise in a variety of areas and the lectures provide an essential foundation to apply in seminars and the company case study. **The permission of the guest lecturers will be sought to allow lectures to be recorded. However, due to the commercially sensitive nature of some of the material, this may not always be granted.**

Seminars provide students an opportunity for more in-depth discussion on particular topics and, in student-led seminars, enable students to develop skills in expression, critical analysis and presentation.

Reports enable students to study a range of professional issues in a specific context and promotes the development of critical thinking, analytical reasoning and written communication skills.

Software projects are the means through which students develop an understanding of software project management and the ability to apply software processes in all phases of planning and executing a software project.

Assessment

The assessment for this course consists of the following weighted components.

- Professional Issues and Ethics
  - Seminar participation (10%)
  - Lecture summaries (10%)
  - Student-led seminar (10%)
  - Company case study (20%)
- Software Project
  - Software project plan (20%)
  - Software product (30%)

The *seminar participation* mark is based on *active* and *relevant* contributions over all seminars (including student-led seminars), which requires attendance at all lectures and reading the seminar material **in advance**. It is not an attendance mark. See the UNSW Teaching website for more details on why and how seminar participation is assessed.

The *lecture summaries* consist of summaries of four of the guest lectures relating to professional issues and ethics (i.e. not agile software processes). Each summary should accurately identify and clearly present 5 major points of the lecture. Assessment is in part by peer review.

The *student-led seminar* consists of a team-based presentation on a topical issue, and is assessed on coverage of the chosen topic, including identification and discussion of relevant professional and ethical issues, presentation style and engagement of the audience in discussion. Assessment is in part by peer review.

The *company case study* is an in-depth analytical report focusing on ethical issues surrounding an IT company, and is assessed on the originality and depth of analysis applied to the topic, drawing on the main ethical theories discussed in the course, and on the quality of the writing and appropriate use of evidence in developing reasoned arguments.

Assessment of the software project is based on the presentation and written submission of a *software project plan*, and a presentation/demonstration of the final *software product*. The software plan is assessed on completeness and feasibility of the plan, and appropriate use of project management tools in the planning stage. The software product is assessed on both the quality of the final product and each person's contribution to project management and teamwork, including the

appropriate use of project management tools for the execution of the project. Students are expected to keep an individual project diary.

The final mark for the course is determined by adding together these component marks according to the above weighting to give a result out of 100, which is subject to further scaling.

Late submission policy for assignments: There is no provision for a late penalty; assessment items submitted late receive a 0 mark.

Student Conduct

The **Student Code of Conduct** (Information, Policy) 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.

If you have any concerns, you may raise them with your lecturer, or approach the School Ethics Officer, Grievance Officer, or one of the student representatives.

Plagiarism

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW staff and students have a responsibility to adhere to this principle of academic integrity. Plagiarism undermines academic integrity and is not tolerated at UNSW. Plagiarism is defined as "using the words or ideas of others and presenting them as your own" but also covers "students providing their work to another student". 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 several online resources to help you understand what plagiarism is and how it is dealt with at UNSW:

> Plagiarism and Academic Integrity
> UNSW Plagiarism Procedure

Make sure that you read and understand these. Ignorance is not accepted as an excuse for plagiarism. In particular, you are also responsible for your assignment files being inaccessible by anyone but you by setting the correct permissions in your CSE directory and code repository. Note also that plagiarism includes paying or asking another person to do a piece of work for you and then submitting it as your own work. *Copying* (taking ideas and/or text from other students or the Internet and presenting them as your own) and *collusion* (working together on an assignment, or sharing parts of assignment solutions) are forms of plagiarism. In COMP4920/SENG4920, this applies particularly to the company case study, which must be written in your own words, and with properly cited sources.

Take the time to read the full UNSW policy on academic honesty and plagiarism. The pages below describe the policies and procedures in more detail:

> Student Code Policy
> Student Misconduct Procedure
> Plagiarism Policy Statement
> Plagiarism Procedure

You should also read the following page, which describes your rights and responsibilities in the CSE context:

> Essential Advice for CSE Students

As applied to COMP4920/SENG4920, copying or sharing material from the Internet such as slides, text or program code (that is, without proper citation) counts as plagiarism and is unacceptable. In the student-led seminar and company case study, all material must be in the student's own words (except quotations, which should be kept to a minimum and must be clearly identified as such). References must be from primary sources (i.e. do not cite *Wikipedia* articles or the like). Reports will be run through *turnitin* for plagiarism detection. In the software project, sharing code *amongst team members* is acceptable, but sharing code between (members of) different teams is unacceptable.

Course Schedule

The following is the rough sequence of lecture topics by week. Broadly speaking, there are lectures on (i) ethics, (ii) legal perspectives, (iii) agile methods, and (iv) business perspectives. However, as most lectures are given by guest lecturers, this schedule is subject to change. More details will be provided during the semester as the lectures are confirmed.

Week	Topic

1	Introduction to Project Management and Ethics
2	Theoretical Underpinnings of Ethics
3	Moral Reasoning and Professional Ethics
4	Legal Perspectives on the Software Industry
5	Employment Conditions and Contracts
6	Intellectual Property and Software Patents
7	Agile Management and Software Architectures
8	Agile Software Processes in Practice
9	Entrepreneurship

Resources for Students

References

Reference material for lectures and seminars will be provided on the course web pages throughout the semester. There is no set textbook for the course, however some of the introductory lecture on software project management uses material from the following book, which is an excellent reference for software engineering generally (though not specifically for agile methods).

Sommerville, I. *Software Engineering.* Tenth Edition. Pearson Education, Upper Saddle River, NJ, 2015.

Lecture Recordings

Recordings of lectures (with the permission of the lecturer) will be distributed, however there is no guarantee that the recording system will always work satisfactorily. Note that, due to the general deficiencies of lecture recordings outlined below, recordings can **not** be recommended as an adequate substitute for attendance, so students are encouraged to attend lectures in person.

There are several deficiencies with lecture recordings that mean recordings cannot capture the full "experience" of lecture attendance, even if the system is working correctly.

- The output of only one projector (the primary projector) is recorded
- Audio and video quality may not be satisfactory at all times
- Use of the whiteboard/blackboard is not recorded
- Copyright protected material is not always able to be recorded (see below)
- Questions from students and class discussions are not able to be recorded (see below)

The following elaborates on the issues concerning copyright and privacy. First, the copyright exceptions for educational institutions explain what is permissible during a course of research or study for lecturers and students. Note that images are covered by the Statutory Text and Artistic Licence defined in Part VB of the Copyright Act, which allows them to be recorded when presented in a lecture, but web pages, computer software and videos are not, so cannot be recorded if this is not permitted by the copyright holder. **Note that students do not have permission to make a copy of a lecture recording, or to redistribute (send to anyone or post on the Internet) lecture recordings. In addition, students are not permitted to make their own copies (photographs or recordings) of any part of a lecture or seminar.**

Second, the UNSW privacy policy prohibits disclosure, without consent, of personal information that may be used to identify an individual. This includes voice recordings of students that are captured by the lecture recording system. A notice warning that lectures could be recorded is displayed at the door to any lecture theatre where the recording system is enabled, but the issue of student consent is not mentioned. In the absence of student consent, lecture recordings will be stopped during class discussions, however, this may not be possible if a student asks a question during the normal course of a lecture. **If any student has any reservation about being recorded, they should notify the lecturer whenever this concern arises. Lecture recordings will be stopped while the student is speaking.**

Course Evaluation and Development

Computer Science and Engineering courses are evaluated by student survey each time they are taught. The survey includes standard questions asked of all comparable courses so that it is possible to compare a course with other relevant UNSW courses, and also includes space for free-form comments. Survey responses are anonymous. The completed survey forms are analysed statistically by someone independent of the course staff, and the results, including free-form comments, are made available to the lecturer in charge *after* grades have been reported and released.

For Computer Science, Computer Engineering and Bioinformatics students, COMP4920 was offered for the first time in 2012 as a replacement for COMP3711 Software Project Management (taught by the School of Information Systems, Technology and Management) and a previous 3 unit course COMP2920 Professional Issues and Ethics. Feedback from these previous courses was primarily that the offering of COMP3711 treats project management at too abstract a level for Computer Science and Engineering students, which is the reason for the more practical approach to software project management taken in COMP4920. For Software Engineering students, SENG4920 replaces and builds on the previous course SENG4921 Professional Issues and Ethics, but also includes software project management.

The main negative comments on previous student surveys relate to the availability of lecture recordings and the assessment of lecture summaries. The availability of lecture recordings is being addressed through seeking permission from guest lecturers to distribute recordings. Assessment of lecture summaries has been changed to a more "lightweight" and timely interactive style of submission and peer review, which has proven successful in other faculties to be more effective for student learning. In addition, the course has been revised in two other ways to improve student engagement: (i) the in-depth essay on a single topic has been reoriented to become a more interesting company case study focusing on a range of professional and ethical issues in a more realistic context, and (ii) the lecture schedule has been streamlined to focus on the most essential and relevant topics.

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