Engineering Project - Course Outline
ENGR 489: 2013 (Full year)

This document sets out the workload and assessment requirements for ENGR 489. It also provides contact information for staff involved in the course. If the contents of this document are altered during the course, you will be advised of the change by an announcement in lectures and/or on the course web site. A printed copy of this document is held in the School Office.

Aim

ENGR 489 consists of an individual project which is done under the supervision of one (or more) of our academic staff. The aim is to let you show-case all of the skills you have learnt during your BE degree. In particular, you will design, implement and evaluate a solution to a complex engineering problem. You will also present your solution through a final report, an oral presentation and where appropriate, a practical demonstration.

Objectives

On completing this course, you should be able to:

1. **Design, implement and evaluate a solution to an appropriate engineering problem**. This should demonstrate an understanding of the various trade-offs involved, provide documented evidence justifying those design decisions made and demonstrate technical leadership through innovation. (3(a), 3(b), 3(c), 3(f))
2. **Justify the quality of your solution through effective written and oral communication, and through practical demonstration**. Quality issues include, but are not limited to: the selection of appropriate technology; application of appropriate engineering and professional practices; consideration of real-world issues, such as scalability, reliability, safety and sustainability (where appropriate). (1(a), 1(b), 2(b), 3(b), 3(e))
3. **Assemble evidence from a range of sources to compare and analyse the relationship between your solution to the engineering problem and that of similar systems and/or approaches**. Sources include, but are not limited to, books and academic papers, (2(b), 3(d))

Note: ENGR 489 is part of the Engineering program at Victoria University of Wellington. BE graduates are expected to exhibit a number of graduate attributes upon graduation. These course objectives contribute to the graduate attributes as indicated above. A full table of these attributes is available at Graduate Attributes.

Project Selection

During the first week of trimester one, you need to choose at least three projects that interest you most. You can see the available projects and make your selection by visiting the project allocation system. Before making a selection, we highly recommend that you talk with the project supervisor(s) to get a proper understanding of what is involved. Please feel free to email them to set up a meeting time, or simply to drop by their office if you prefer. Finally, you should expect to know what project you have been allocated some time during week two.

Proposal

The proposal is a short, two page document which: outlines the engineering problem you aim to solve; briefly discusses the approach you will take, including how you will evaluate your solution; and, finally, identifies any budget requirements or safety issues. A template for the proposal document will be provided.

Progress Report

The progress report is required at (roughly speaking) the mid-way point in the project. The report should: clearly identify the engineering problem being solved; discuss previous work on related problems; detail the proposed solution; discuss any progress made so far; and, finally, highlight what remains to be done. The report should be written in such a way that a non-specialist could easily follow and understand the main ideas and concepts. The progress report is normally expected to contain six to eight pages of content.

Final Report

The final report is the critical piece of assessment for ENGR 489. The purpose of the report is to provide a detailed discussion of: the engineering problem; the design and implementation of your solution; the method adopted for evaluating the solution (including any experimental results); and, finally, to highlight and discuss similar problems and their solutions. The final report is expected to contain no more than 40 pages of content (approximately 12,000 words).

Conference and Demonstration Day

A conference day will be held at the end of the examination period in the week 12th Nov --- 16th Nov. All students are expected to attend, and to give a short presentation of their work. The audience will consist of other students, as well as academic staff members. The presentation should be given in such a way that a non-specialist could easily follow and understand what is said. In particular, the presentation should clearly identify the engineering problem, the solution developed and the method used to evaluate the solution. As part of the presentation, students may wish to demonstrate their working product. An examining committee will preside over the presentation, and will be invited to ask questions at the end.

Assessment

Your grade for ENGR 489 will be determined through a holistic assessment of the various reporting items that are submitted. The indicative weightings for the four reporting items are given in the following table:

Item	Date	Indicative Weighting
Proposal (last day before Easter break)	27th March	-5% if not submitted
Progress report (end of trimester one)	7th June	20%
Final report (end of trimester two)	18th Oct	70%
Oral presentation (end of exam period)	15th Nov	10%

Note: You should expect to receive <u>formative feedback</u> on your progress report. The purpose of this is to help improve your understanding of the problem and associated issues, and to given some indication of how well you are progressing. The feedback will consist of a letter grade, and may also include written comments from your supervisor(s) and/or other staff members.

Each reporting item will test all three of the course objectives. Each report, and the project as a whole, will be assessed according to the following criteria:

1. **Product**: the design and implementation of the artifact demonstrates a clear understanding of the complex engineering issues involved, whilst the evaluation demonstrates its quality through analysis, experimentation or other appropriate means.
2. **Presentation**: the problem and solution are presented in a clear and understandable fashion. For reports, this includes issues ranging from spelling and grammar, through to clarity of discussion and overall structure. For oral presentations, this includes clarity of delivery, use of appropriate slides or other presentation aids, and overall structure.
3. **Process**: the development of the artifact demonstrates a clear understanding of appropriate engineering and professional practices.
4. **Professionalism**: the development of the artifact takes into consideration real-world issues, including scalability, reliability, safety, sustainability, cost, culture, etc.

Team work

Where appropriate, team projects are permitted. In such case, all reporting items must still be individually prepared and, ideally, each student will do a distinct part of the project (distinct being judged by the project supervisor and ENGR 489 coordinator).

Staff

The course organiser for ENGR 489 is <u>Christopher Hollitt</u>. There will be a variety of lecturers throughout the year.

- *Dr Christopher Hollitt*
- <u>AM 223</u>
- +64 4 463 6965
- <u>christopher.hollitt@vuw.ac.nz</u>

Student Representation: As the projects undertaken in ENGR489 are very diverse we will not have a specified ENGR489 class representative. Instead ENGR489 related matters can be raised at student meetings and elsewhere by any of the student representatives for other 400 level ECS courses.

Lectures, Tutorials and Laboratories

A <u>schedule</u> of lecture topics, readings, and due dates is available online

Lectures will be held on Tuesdays at 2pm in CO350. We will not meet every week, so watch your email and the web site for announcements on upcoming lectures.

Mandatory Requirements

All students must give an oral presentation and submit a final report.

Tests and Exams

There is no terms test and no examination.

Textbook

There is no textbook.

Workload

In order to maintain satisfactory progress in ENGR 489, you should plan to spend an average of at least 10 hours per week on this paper, spread over the 30 weeks that the course runs (i.e. including mid-trimester breaks, and the mid-year break). During term time, a plausible and approximate breakdown for these hours would be:

- Lectures/tutorials 1 hour per week.
- Project work 9 hours per week,

Announcements and Communication

The main means of communication outside of lecture will be the ENGR 489 web area at http://ecs.victoria.ac.nz/Courses/ENGR489_2013FY/. There you will find, among other things, this document, the lecture schedule and the ENGR 489 Forum. The forum is a web-based bulletin board system. Questions and comments can be posted to the forum, and staff will read these posts and frequently respond to them.

Intellectual Property

Students are required to sign the intellectual property agreement.

Plagiarism

We encourage you to discuss the your project with other to help and seek help with programming details and other problems. However, any work you hand in must be your own work.

The School policy on Plagiarism (claiming other people's work as your own) is available from the course home page. Please read it. We will penalise anyone we find plagiarising, whether from students currently doing the course, or from other sources. Students who knowingly allow other students to copy their work may also be penalised. If you have had help from someone else (other than a tutor), it is always safe to state the help that you got. For example, if you had help from someone else in writing a component of your code, it is not plagiarism as long as you state (eg, as a comment in the code) who helped you in writing the method.

Withdrawal

The last date for withdrawal from ENGR 489 with entitlement to a refund of tuition fees is Friday 15 March 2013. The last date for withdrawal without being regarded as having failed the course is Friday 23 August 2013 -- though later withdrawals may be approved by the Dean in special circumstances.

Rules & Policies

Find key dates, explanations of grades and other useful information at http://www.victoria.ac.nz/home/study.

Find out about academic progress and restricted enrolment at http://www.victoria.ac.nz/home/study/academic-progress.

The University's statutes and policies are available at http://www.victoria.ac.nz/home/about/policy, except qualification statutes, which are available via the Calendar webpage at http://www.victoria.ac.nz/home/study/calendar (See Section C).

Further information about the University's academic processes can be found on the website of the Assistant Vice-Chancellor (Academic) at http://www.victoria.ac.nz/home/about/avcacademic

All students are expected to be familiar with the following regulations and policies, which are available from the school web site:

Grievances
Student and Staff Conduct
Meeting the Needs of Students with Disabilities
Student Support
Academic Integrity and Plagiarism

The School of Engineering and Computer Science strives to anticipate all problems associated with its courses, laboratories and equipment. We hope you will find that your courses meet your expectations of a quality learning experience.

If you think we have overlooked something or would like to make a suggestion feel free to talk to your course organiser or lecturer.