

DEPARTMENT OF ENGINEERING SCIENCE
FOURTH YEAR PROJECTS 2013
(ENGSCI700A/B)

INSTRUCTIONS AND GUIDELINES

Course Coordinators: Dr. Richard Clarke (x82472)

Administration: Engineering Science Departmental Manager

Contents

1. Overview
2. Important Dates
3. Written Report
4. Poster
5. Oral Presentation
6. Assessment
7. Penalties for Late Submission
8. Information for Supervisors

1. Overview

This document contains information on report submission, oral presentations and assessment procedures for the ENGSCI700 course (known more commonly as the Part IV Project), as well as (what is hoped are) some useful hints and helpful advice for you.

Formally, the course requires that you submit a report on project work carried out under the supervision of a staff member. It is a 30 point course with the final completion date set somewhat earlier than the end of the second semester so that preparation and presentation of the project report does not interfere too much with your preparation for the final examinations.

The project gives you the opportunity to do a piece of independent work, using the skills and knowledge acquired in your course so far, and allows you to experience the mathematical modelling process for a reasonable sized problem, as opposed to the smaller scale problems considered in lectures and assignments. That process includes the gathering of data and information, the development or application of techniques for problem solution, and the interpretation of the outcomes. Projects will differ according to topic; some will be strongly analytical, others will be more computational or involve computer modelling. A project may include experimental and/or field work, but lengthy data collection or extensive outside involvement is not encouraged.

a) Workload

As a guide in terms of hours, we expect that each student will spend a total of approximately 200 hours working on the project, which equates to approximately 8 hours per week. The size of the project must be kept in perspective. Although most students find the work to be exciting and stimulating, and sometimes prefer to work on it at every spare moment, remember that this subject is worth only about one-fourth of the whole final-year load.

b) Project Allocation

A list of project abstracts will be published just before semester 1. A meeting will also be held at:

1-2pm, Tuesday 5th March 2013, Level 2 Tea Room

in the Level 2 Tea Room so that you can meet the supervisors and discuss the projects. You are recommended to discuss your project topic with your prospective supervisor. If you cannot make this session, you are advised to contact potential supervisors to discuss the project on a one-to-one basis.

After reading the project descriptions and speaking with prospective supervisors, students should submit their top five choices online

<http://www2.esc.auckland.ac.nz/courses/engsci-400a-research-project/project-selections>

by

12noon, Friday 8th March 2013

From this information an allocation of topic will be made by the department. Based on student preferences for subject areas, students are allocated to a project supervisor during Week 2 of Semester 1 and these allocations are posted on:

<http://www2.esc.auckland.ac.nz/courses/engsci-400a-research-project/project-selections>

Once you have an allocated project, it is a good idea to see your supervisor immediately to discuss the project in detail and agree on a project plan of work.

c) **Progress**

You should work steadily on the project, throughout the year, assigning it a due proportion of your time. You must keep in close contact with your supervisor. It is your responsibility to keep your supervisor informed of your progress and you can expect your supervisor to keep you going with ideas and advice. Your supervisor will expect to meet with you every week. It is intended and hoped that your topic will be reasonably clear from the beginning. However, sometimes the emphasis or direction will change slightly as the investigation proceeds. Such changes should, nevertheless, be minor.

A diary recording your work chronologically should be kept for your project. It is not necessary to submit this but it may be requested if any contention arises about the work. You will also find a well kept diary a useful tool when you're writing your report.

d) **Poster, Oral Presentation and Report**

An integral part of the process is the communication of the process in both written, poster and oral presentations.

At the beginning of Semester 2, you will be required to give a short 5-minute presentation that summarises your progress to date in the project. **This presentation will not be taken into account in the final assessment**, but is designed to keep you on task.

Soon after the second mid-semester break you must submit a full draft of your final report onto Cecil. It is important that you do this and allow sufficient time for your supervisor to comment on it and make any suggestions for improvement. After making changes, improvements etc., you will prepare the final version and the electronic version of this is to be uploaded onto Cecil (about two weeks after the full draft is due).

Additionally, each student must also prepare a poster that is to be submitted soon after the project report. Besides identifying the student and the supervisor the poster should:

- Outline the problem or application
- Layout the approach taken to produce solutions
- Summarise key results

Posters will be displayed in the Engineering Atrium during the two days of the project presentations and will be marked as part of the project assessment.

About a week after the final report upload you will give a final oral presentation of your work. This will be a talk of not more than 12 minutes, followed by 3 minutes for questions and discussion.

e) **Project Dinner and Prize-Giving**

The project dinner will take place on the Friday evening after the last day of final oral presentations, and will include project prize-giving. The Department pays for the food and there will be a cash bar for you to buy any drinks.

2. Important Dates

The provisional dates for project milestones are given below:

Description	Time	Date	Venue
Semester 1			
Project choices available		Mon 4 th March	
Project Intro Meeting	1pm	Tues 5 th Feb	Level 2 Tea Rm
Deadline: Student select choices online	12noon	Fri 8 th March	
Project allocations released		Week 2, Sem 1	
Library Workshop	2-3pm 11-12noon 1-2pm	19 th March 2013 22 nd March 2013 26 th March 2013	
Deadline: Upload preliminary talk onto Cecil	12noon	Tues 23 rd July	
Preliminary oral presentations		Weds 24 th July	Conference Centre Lecture Theatre (423- 342)
Semester 2			
Deadline: Upload draft report onto Cecil		Mon 16 th September	
Poster Workshop		TBC	
Deadline: Upload final report onto Cecil	12noon	Mon 23 rd September	
Deadline: Upload final version of poster onto Cecil	12noon	Weds 25 th September	
Deadline: Upload final version of talk onto Cecil	12noon	Tues 1 st October	
Project Presentations		Weds 2 nd - Thu 3 rd October	Conference Centre Lecture Theatre (423- 342)
Project Dinner and Prize-Giving		Friday 4 th October	Fale Pasifika

3. Written Report (60% of total mark):

The report (excluding appendices) should **NOT EXCEED 50 PAGES** in length and should ideally be between **25** and **45** pages.

a) Scope

The report should be intelligible to readers who are not experts in the field. It should clearly present a statement of, and background to, the problem (including a brief summary of any work done previously by other authors - a detailed presentation is not usually required), an explanation of the methods used and the results and conclusions together with a critical assessment of their significance. It should contain all appropriate supporting material or references and a list of symbols used. Secondary information, e.g. details of calculations, computer programs, etc. should be given in appendices. Long verbose sentences with many qualifying phrases and additional clauses added in explanation do not aid understanding by the reader of complex material.

Simply, be short and concise throughout. Remember to define important terms when they are introduced.

b) Content

The report should contain, in the following order (with each beginning on a new page):

Title page

Abstract

Acknowledgements (if any)

Table of contents

Notation list (list of symbols used with brief definitions)

Chapter 1: Introduction

Chapter 2

etc.

Final Chapter: Summary and Conclusions

Appendices

References

Leave a margin of **30mm** on the binding edge and **20mm** on the other edges for later binding by the secretaries. Reports will be stapled into labelled departmental folders.

Some general points:

- i) **Introduction:** At an appropriate point in the introduction a clear statement should be made of what is background theory and what is original work. All material which is not original must be referenced.
- ii) **References:** References to previous works should be made in a consistent way. Specific references should be itemised in the Reference list, with any other more general material listed in a Bibliography. Only those books and papers actually consulted should be included. There are several variations on layout of reference lists; obtain advice from your supervisor and the library staff.

- iii) **Numbering:** Numbering of sections, equations, figures and tables should be clear and consistent throughout the report. If you are using an automatic referencing facility in MS Word, be on the lookout for any broken links during the final proof reading of your report.
- iv) **Writing Style:** Layout, English style, grammar and spelling have considerable effect on those assessing the reports - pay attention to these, for instance, use a dictionary where necessary. Your use of English, the organisation of your material, and the clarity of the explanations are important for the understanding of your project report.
- v) **Figures:** Graphs, photographs, diagrams and tables should be placed as close as possible to their references in the text. Also, each figure and table should have a caption giving a brief description. All parameters (and units) should be clearly shown in line drawings. Make good use of legends for diagrams where more than two or three parameters are used.

Do not include an abundance of computer drawn figures if they do not add to the argument. Figures or tables which are "side-on" must be placed with their bottom edge to the right-hand (outside) edge of the page. Any photographs used should be prints, not photocopies and remember to obtain a print for each of the copies of the paper.

Hand-drawn graphs, diagrams and tables should be drafted in black ink in order that reproduction is satisfactory.

- vi) **Computer Output:** This should be kept to a minimum. Small source programmes, typical output and perhaps computer-plotted results are useful, but large masses of output should be summarized. Listings of large programmes should not be included. Ensure that any computer-produced output can be photocopied satisfactorily. Output should be cut and collated to read as normal pages, or mounted onto A4 sheets.

c) **Submission**

You must upload one electronic copy of your interim and final reports in either MS Word or PDF format onto Cecil by 12noon on the deadline dates, in the Dropboxes located in the respective folders:

ENGSCI.700BCity 2012\Activities and Marks\Assessment\Interim Report

ENGSCI.700BCity 2012\Activities and Marks\Assessment\Final Report

Notes:

- Cecil has an upload limit of 51Mb – please inform the course coordinator if your files are larger than this **before** the upload deadline. It is recommended that you upload files from on-campus, to avoid any network timeout problems.
- The time of the most recent upload will be taken when deciding any lateness penalties

d) **Plagiarism**

Failing to reference material that is not your own work (including figures and images, formula, passages of text etc.) is considered a serious matter. The library workshop at the start of the projects will provide information on the proper procedure, and the convener of these workshops will be able to offer advice throughout the duration of the project. You may also wish to submit your report to online tools such as turnitin.com, to be sure you have not copied someone else's work and forgotten to acknowledge it.

e) **Time Management**

Time spent in achieving a perfectly word-processed report is unlikely to be rewarded with an increase in marks. Time spent on writing an excellent, clear, concise, logical, well-argued report with correct grammar and spelling, however, is likely to be rewarded by better marks. You need to remember that the project counts for only one fourth of the year's work, so you must ensure that your time input to the report preparation does not jeopardise your performance in other papers.

4. Oral Presentations (30% of total mark)

Talks can be in either Powerpoint or PDF formats.

It is an expectation of the Department that, when not attending lectures, all fourth year project students will attend the oral presentations. Bad attendance may render a student ineligible for a project prize.

NB: Cecil an upload limit of 51Mb – please inform the course coordinator if your files are larger than this **before** the upload deadline.

IMPORTANT: you will not be able to upload talks once the deadline has passed.

(a) Preliminary - 7 minutes

This is intended to show progress in the project during Semester 1. In particular, you should outline the problem or application and the solution approach you are using. The talk should be approximately **5 minutes** with **2 minutes** for questions.

By **12noon** on the day before the preliminary oral presentations your slides should be uploaded onto Cecil, into the Dropbox located in the folder:

ENGSCI.700ACity 2012\Activities and Marks\Assessment\Preliminary Oral Presentation

This presentation will not be taken into account for the final assessment, however, it does give you an important opportunity to practice making one.

(b) Final - 15 minutes

This is a formal presentation, including summaries of the background of the problem studied, main work and results.

By **12noon** on the day before the final oral presentations, the slides for your final oral presentations should be uploaded onto Cecil, into the Dropbox located in the folder:

ENGSCI.700BCity 2012\Activities and Marks\Assessment\Final Oral Presentations

It is recommended that you uploaded files from on-campus, to avoid any network timeout problems.

The presentation should be about **12 minutes** with **3 minutes** for discussion. Both the presentation and ensuing discussion count towards the final assessment.

5. Poster (10% of total mark)

In addition to the project report, each student must prepare and submit a poster. The poster must be sized to **A1 format (594mm by 841mm or vice versa)** and can be in Powerpoint or PDF format.

The department will organise and pay for printing of each poster. The main purpose of the poster is to **OUTLINE** the problem or application, the modelling and computational approach taken to produce solutions and **SUMMARISE** the results. It is **NOT** as in depth as your report is. It should be aimed at a non-technical or lay audience. Therefore, what you decide to leave out of your poster is as important as what you include.

The poster should have a bold heading and should be designed to catch and hold the attention of a non-technical or lay audience. There should be a logical flow across the poster, so that the audience can see clearly whether the poster should be read left to right, or top to bottom in columns. The poster should identify both student and supervisor. The department will award prizes for the best Biomedical Engineering and Engineering Science posters.

As with the report, layout, English style, grammar and spelling have considerable effect on those reading and assessing your poster.

It is **STRONGLY** recommended that you print off a scale version of your poster for proofreading prior to uploading the final file to Cecil. A black and white print will still show up errors such as spelling mistakes (more common than you might think), wording errors, and problems with images and graphs. Get someone else to proofread it for you, they may well pick up on things you miss. Once any errors have been corrected, your supervisor will be able to print a colour version so that colour schemes can be checked.

By **12noon** on the deadline date the poster should be uploaded onto Cecil, into the Dropbox located in the folder:

ENGSCI.700BCity 2012\Activities and Marks\Assessment\Poster Presentation

NB: Cecil an upload limit of 51Mb – please inform the course coordinator if your files are larger than this **before** the upload deadline. It is recommended that you uploaded files from on-campus, to avoid any network timeout problems.

After the poster has been uploaded, a colour proof will be generated by the printing company. Note that you will be allowed to view the proof for your own poster only. The purpose of this exercise is to pick up any major problems with colour; stylistic or content changes will not be permitted. Once you have signed off on the proof, your file will be submitted for printing at full A1 size.

Posters will be displayed during the two days of the project presentations and will be marked as part of the project assessment. The department will print each poster and retain copies for display and use within the department, for outreach events such as Courses and Careers days, and other promotional events.

The material covered in ENGGEN204 Technical Communication for Engineers should prove useful in guiding the design and preparation of your posters.

6. Assessment

a) Report (60%)

(i) Supervisor's assessment: (30%)

The principal project supervisor assesses the report, taking into account the overall input of the student to the project. This includes attitude, attack, effort (as reflected by progress reported at each weekly meeting), literature search, initiative, originality and quality of the written report.

(ii) Two Expert Assessors: (15% each)

Two staff members who have an interest in the project content will read the project report closely. The assessment will cover all aspects of the report including its clarity and understanding, but will especially concentrate on the technical content, including background and statement of the problem, formulation, mathematical model, analysis, results (presentation and validity), conclusions, application to the original physical situation, comparison with related problems and other solutions, difficulty of the problem and how well it has been tackled.

b) Poster (10%)

The mark will be the average of marks contributed by a marking panel made up of departmental staff . Assessment will take into account the style, layout and impact of the information supplied on the poster. The poster prizes will be decided by a panel of external examiners.

c) Final Oral Presentation (30%)

This is averaged over all staff members present who award marks based on:

- Style of presentation (fluency, clarity, use of aids)
- Interest (both displayed by the speaker and generated in listeners)
- Organisation of material to fit into restricted time (description of problem, solution, results)
- The ability to field questions and discuss the material

An oral presentation differs markedly from a written presentation. Do not simply read the written project but concentrate on communicating the main ideas. You should have a run-through before the actual presentation days, perhaps with a sympathetic but critical friend as audience.

7. Penalties for Late Submission

a) Report

Any written report not handed in by the date and time specified will be recorded as late. **TWO PERCENTAGE POINTS** will be deducted from the total project grade for **EVERY HOUR (or part therefore)** of lateness. The time at which the files are uploaded will be recorded and used to identify any late submissions.

As an example, this means that any project that *would* have been given a 75 *if* handed in on time (12noon) will be given a 73 if it is handed in after 12noon but before 1pm, or 71 if handed in after 1pm but before 2pm.

If a project has not been handed in by **9am** the following morning then the supervisor is required to seek out the student immediately and obtain the a copy of what is available. If the student cannot be found or will not deliver a report immediately then the draft report will be marked.

IMPORTANT: In the past, even moderately late submissions have caused reports to drop one or more grades. Remember, any extra marks stemming from improvements to the report made after the deadline are unlikely to cancel out the loss of two percentage points per hour.

b) Posters and Oral Presentations

Once the deadline for the upload of posters and talks onto Cecil has passed, **NO FURTHER FILES WILL BE ACCEPTED.**

In the case of the poster this means that a mark of zero will be awarded, whereas for the oral presentation you will not have access to slides, resulting in an almost certain low mark.