



ENGINEERING

**DEPARTMENT OF ELECTRICAL,
COMPUTER, AND SOFTWARE ENGINEERING**

**Department of Electrical, Computer, and Software
Engineering**

ELECTENG/COMPSYS/SOFTENG700A/B Research Project

Handbook

Purpose

The Part IV Research Project is a major undertaking for both students and staff. This handbook describes in detail the regulations you must follow, and the guidelines you should follow, in order to comply with the requirements of this paper.

Staff will assume that you are completely familiar with the contents of this document, together with the companion document Project Planner. Please read both documents before starting work on your project activity. If you have any questions relating to this document, please contact your supervisor.

Table of Contents

1. Nature and Scope of Research Projects	4
2. Formal Requirements of courses ELECTENG/COMPSYS/SOFTENG 700A/B	5
2.1 Literature Review and Statement of Research Intent (Interim)	5
2.2 Seminar on Literature Review and Statement of Research Intent	5
2.3 Project Report.....	5
2.4 Presentation - Seminar.....	5
2.5 Presentation - Poster	6
2.6 Project Compendium	6
3. Overall Project Assessment	6
4. Project Supervision	7
5. Penalties for late Submissions	7
6. Project Prizes	7
7. Project Administration.....	8
7.1 Laboratory Access	8
7.2 Project Resourcing	8
7.3 Purchasing	8

1. Nature and Scope of Research Projects

The Part IV Research Project is a learning exercise in which the student tackles a significant problem requiring independent thought and action in a situation not too different from many that might be encountered in subsequent professional life. In most cases students will work in teams of two under the direction and continuing guidance of a project supervisor. A second supervisor will be assigned in some cases, as well to each team to monitor progress. Assessment will be on an individual basis throughout the project. Usually areas of individual responsibility will need to be identified.

Typically, projects are proposed by academic staffs and students bid for their preferences. Students can also propose their own projects through an online system which is usually done prior to the normal bidding process. Projects can also be industry-sponsored, where the students work on a research and design project specified by industry partners. Industry projects can be suggested by student (e.g. those working/interning at a company), staff, or directly by industry partners. Details on proposing and bidding on projects can be found on the Part IV Research Project website.

Work on the project commences in March and continues to October, with the expectation that students will spend on average about 10 hours per week on their project throughout. In contrast to other courses in the degree, the Part IV Research Project carries a weight of thirty points.

The student will need to draw upon a good level of theoretical knowledge and skills acquired so far in the degree and extend these in many respects. A survey of the field in which the problem lies and of alternative approaches to the problem will precede detailed work on a solution. The problem may require the design of equipment to carry out some specific task; it may be experimental in the sense of investigating phenomena or the behaviour of complex equipment; it may require the computer analysis and simulation of an engineering system; it may require a software solution; or it may involve elements of all four of the preceding activities. In each case the proposed solution should be thoroughly tested and evaluated to determine its adequacy.

Students are required to submit their Research Portfolio and deliver two presentations. The components of the Research Portfolio are shown in Table 1.1.

Table 1.1: Research Portfolio components

Literature Review and Statement of Research Intent (Interim)
Seminar on Literature Review and Statement of Research
Project Report
Presentation - Seminar
Presentation - Poster
Project Compendium

The Research Portfolio is holistically assessed at the end of the project. Students will be assessed individually.

2. Formal Requirements of courses ELECTENG/COMPSYS/SOFTENG 700A/B

Students are expected to work consistently on their project throughout the year. They are required to submit all components of the Research Portfolio.

Students who do not fulfill this requirement will not pass. With the strict timetable constraints, no extensions will be possible, apart from extensions according to the standard University Aegrotat/Compassionate Pass Regulations.

Each project member must undertake a peer assessment of the other member. The peer assessment marks submitted by individuals will remain strictly confidential.

The various components of the Research Portfolio are explained in detail below.

2.1 Literature Review and Statement of Research Intent (Interim)

Students must submit a Literature Review and Statement of Research Intent (Interim) as a report of **up to 8 pages** (single column, double-line spacing, excludes the front page). No appendices permitted. The Examiner is required to provide feedback on this with the aim of helping students to improve their writing. The Literature Review and Statement of Research Intent (Interim) must be submitted via Canvas.

2.2 Seminar on Literature Review and Statement of Research Intent

The following week, there will be a whole day seminar, where students will present their LiteratureRev and Project plan in front of supervisor, and audience. Each group should make 15 min presentation (each student ca. 7 min), followed by questions for 5 min. They will receive feedback on their presentation. This will be done before title change, so that any topics related issues can be identified early.

2.3 Project Report

Students must submit a report of **up to 20 pages** (single column, double-line spacing, excludes the front page, but includes final literature review (5 pages), appendices). The submission must be done via Canvas.

2.4 Presentation - Seminar

The seminar is an oral presentation of the project, the audience typically being members of staff and fellow students. Each team will be allocated a period of maximum ten minutes per student. The seminar must be organised with students speaking only once, in turn.

The first speaker should make it a priority to establish clearly, for what effectively will be a lay audience, the nature of the problem tackled. The overall nature of the solution, (or the reasons why no solution was possible), should then be presented, with more detailed discussion of the work being left to the next speaker.

The allocation of areas for discussion needs to be fully agreed beforehand and the team is strongly advised to rehearse their presentation. They should avoid reading from a prepared text, or writing on the board during their presentation, except perhaps to answer questions from the audience. Instead, prepared diagrams and other visual aids are recommended.

Imp Note

In 2019, the seminar will be held on the same day of exhibition. The seminar, in terms of powerpoint presentation will be done at the lab (not at seminar rooms), next to the students' project demo and poster, using their own laptop/lab's computer. Each group should make 15 min presentation (each student ca. 8 min), followed by questions for 5 min. The examiner and co-supervisors will attend the presentation. Failure to comply with this regulation will result in penalties (see Section 5.2).

2.5 Presentation - Poster

In addition to the seminar (powerpoint presentation), each project team will be required to give an exhibition of their project, the format of which should be similar to that given at a trade show. As such, the exhibition is intended to be somewhat less formal than the seminar, and on an interactive basis. Both members of the project team must participate. The time allowed per team will be 10 minutes to demonstrate their project alongwith the poster. This will immediately follow the powerpoint presentation at the same location (lab). It is recommended that each student speak for a total of 5 minutes.

2.6 Project Compendium

The Project Compendium must be submitted via Canvas. PowerPoint Presentations used in the Seminar and Posters used in the Exhibition must be included. Any hardware, software, etc., developed, as part of the project will also be regarded as part of the Project Compendium. Submission of this material must be arranged directly with the Supervisor.

3. Overall Project Assessment

The entire Project Portfolio will be assessed holistically. Indicative weighting is shown in Table 3.1.

Table 3.1: Indicative weightings (only for guide)

Component	Indicative Weighting	Deadline
Literature Review and Statement of Research Intent (Interim)	10%	Sem1: Friday 3rd May 2019, 23:59 hr
Seminar of LitRev and Statement of Research	Inclusive in above	Sem1: Saturday 11th May 2019,
Project Report	55%	Sem2: Friday 27th September 2019, 23:59 hr
Presentations (Seminar Powerpoint & Exhibition Demo & Poster)	15%	Sem2: Friday 11th October 2019
Research Compendium	20%	Sem2: Friday 25th October 2019, 23:59 hr

4. Project Supervision

Each team will be allocated a supervisor and in some cases a co-supervisor from the academic staff. Students are strongly advised to develop a close working relationship with their supervisor and to discuss their progress with him or her on a regular basis. Usually this will be done at weekly meetings organised by the supervisor and to which both students in the team are expected to attend. (The meetings will initially be organised by the supervisor, but the project students are strongly encouraged to take an active role in organising meetings and keeping the supervisor informed of progress and problems).

Students may be required to report on their progress at joint meetings with their supervisor and second supervisor. Such meetings could take the form of an informal presentation given by the students.

Students should appreciate that in professional life they will be expected to report regularly to their clients or project leaders. Thus, the presentations and weekly meetings described above should be seen as valuable preparation for this. In addition, it is often only by way of these meetings that supervisors and second supervisors can assess how well students are applying themselves to their projects, and thus decide upon a grade for implementation. Students will be assessed on an individual basis.

An Examiner and Assessor will be appointed for each project. The Examiner can be the project supervisor, but the Assessor must be independent (i.e., not associated with any aspect of the project supervision).

5. Penalties for late Submissions

Documents , reports and other components submitted late will be accepted, however penalties will be applied. The Examiners are advised to apply penalties as shown in Table 5.1 below.

Table 5.1: Penalties - assuming a submission deadline of 11:59 p.m. Friday

Late Submission	Penalty	Example Before
11:59 p.m. Monday (nxt Wk)	1 grade point	B+ becomes B
Before 11:59 p.m. Tuesday	2 grade points	B+ becomes B-
Before 11:59 p.m. Wednesday	3 grade points	B+ becomes C+
After 11:59 p.m. Wednesday		Failure

6. Project Prizes

During the social function at the conclusion of the Research Projects a prize is awarded to the best project in each of several categories. The prize in each category is judged and awarded by an industrial sponsor. Representatives from each of the sponsoring organisations will inspect projects during Exhibition Day and then choose the winning team in each area. If there is no project worthy of a prize in a specific area, then that prize will not be awarded.

All project teams automatically qualify to compete for Best Poster Prize, and all project teams can compete for the Best Video Prize (one for each specialisation).

7. Project Administration

Matters relating to the overall organisation and administration of projects are the responsibility of the Project Coordinators and any questions regarding such matters should be referred to them. In respect of matters relating to specific projects, students should deal directly with their supervisor.

7.1 Laboratory Access

All EEE, CSE, and SE project teams will be given swipe-card access to the laboratories. In addition, if requested by the supervisor, some project teams will be allocated a workspace in special laboratories to make use of specialist equipment. *All students must realise that this access is a privilege, and that access will be revoked if standard laboratory rules are not followed.*

7.2 Project Resourcing

It is expected that all teams will exercise a degree of professionalism with regard to their conduct as they undertake project. Many projects will require access to physical resources which are limited, e.g. test equipment and all teams are expected to share these resources – not only between themselves but also with postgraduate students and staff who may require access. Planning is the key for effective utilisation of these resources.

It is also important that **NO** items of equipment be moved from one laboratory to another, or outside the Department, without the authorisation. The Department has a considerable investment in equipment which it uses to underpin its various teaching and research programmes, and the unapproved movement of equipment can have serious implications for both scheduling and insurance. For this reason, **ANY** unauthorised movement of equipment will be viewed as a disciplinary matter.

Every EEE and CSE project team will be allocated a technician. It must also be recognised that the Department only has a limited number of technical staff to support the project activity, and for this reason an "open-door" access policy will not be possible. I.e.

It is expected that all project teams will exercise a degree of self-reliance during the project activity, and excessive reliance on technical support may detrimentally affect implementation grade(s). All teams will be advised soon after the project allocation phase of the technical support arrangements that can be expected for their project.

7.3 Purchasing

Many projects will require the purchase of components from external companies, and it is important that the correct steps are followed to ensure that orders are placed correctly. Details of how to go about placing orders - can be found on the ECSE website.