

DEPARTMENT OF CHEMICAL ENGINEERING

The University of Sydney

THESIS REQUIREMENTS

This document is intended to clarify both the requirements for this unit of study and the general support that we will provide. This document is organized into three sections :

- A) THESIS - GENERAL POINTS
- B) THE ALLOCATION OF THESIS TOPICS – COMMENTS AND ADVICE
- C) THESIS PRESENTATION AND ASSESSMENT

LIST OF THESIS TOPICS IS AVAILABLE IN A SEPARATE DOCUMENT
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A) THESIS – GENERAL POINTS

Preamble

In this Unit of Study, you are required to submit a typed and bound thesis in the form and by the date specified in the following pages. You are also required to present a poster explaining the aims and achievements of your thesis. All reports must be individual efforts, and the highest standards of academic honesty are expected. The academic honesty policy will be given to you explicitly in the compulsory induction briefing.

Some theses will be carried out in pairs, and these topics are identified in the topic descriptions. Each student will still be required to submit an individual report that clearly describes which parts of the overall work have been carried out by each student and where the individual contributions have been.

The following sections contain information about the compulsory induction briefing, important dates for thesis, project management, assessment procedures, penalties for late submissions (and the extension policy), and the formal requirements for the written thesis.

Thesis Management

Your first important job is to make contact with your prospective supervisors. The thesis topic listing has just a very short description of each project – BEFORE you submit your list of preferred topics, you should contact the supervisor/s to find out more. Contact details are provided in the thesis topics list document.

As a unit of study, thesis is quite different from all the other compulsory subjects within the degree program. To conduct, manage, and write up the thesis requires a different set of skills, and so we plan to provide a series of workshops to help you develop those skills. Dates of these workshops will be made available to you at the start of the semester. Thesis is scheduled on the timetable for Wednesday afternoons.

Submitting your preferred thesis topics

YOU MUST SUBMIT YOUR PREFERRED THESIS TOPICS to the Department of Chemical Engineering General Office by the announced deadline – be sure to check the noticeboard for the exact date/time (usually just after semester 1 commences)

Format: A4 sheet, with your name, SID and top 10 preferences in clear order. Be sure to write the topic number and the title.

In your list of 10 preferred topics, there can be no more than 4 topics from any one academic supervisor (please consider a range of possible supervisors).

Some important stages in the thesis process

- Student preferences due at Chem Engg General Office - *March (check noticeboard for exact dates/times; deadlines are strict !)*
- Compulsory induction briefing

- Workshops (see noticeboard announcements for details)

- Draft thesis given to supervisor (full manuscript) - *start of July*

- Completed thesis given to Dept (typed & bound) - *start of semester 2 (exact date & time will be announced on the noticeboard- be sure to check)*

- Poster display (including MIPPS students)
(No show, no mark) - *start of semester 2 (date/time/format details will be announced on noticeboard)*

(The thesis schedule for MIPPS students has been announced separately. Note that MIPPS students must participate in the Poster display)

Compulsory Induction Briefing

(at the start of Semester 1 : the exact date/starting time/location will be announced on 4th year noticeboard - be sure to check)

This briefing will include:

- A brief overview of the organisation for thesis.
- A discussion of examples of academic dishonesty in thesis and how to avoid them.
- A general safety briefing from the Departmental Safety Officer, including general procedures for after-hours working (computer, literature, and experimental work) and procedures to use in the event of emergencies, burning smells, unusual noises, etc. This will be followed by a more detailed safety briefing for those involved in laboratory work.

For those students involved in laboratory work, you will be required to develop a safety case and HAZOP (HAZard and OPerability) study in conjunction with your academic supervisor and the Departmental Safety Officer before starting any experimental work. You will need to procure a permit to work from the Departmental Safety Officer. These procedures will be discussed at the briefing.

You will be required to sign a statement that you have understood the information outlined in this briefing. This is part of the two-way learning contract that we have with you, in the sense that this document is part of our side of the contract (being explicit about procedures), and the statement

from you is part of your side (being explicit that you are aware of these procedures). These statements will be collected at the conclusion of the seminar.

Attendance at this session is COMPULSORY. Non-attendance (without satisfactory special consideration paperwork) means you forfeit 5% of your mark for CHNG4002 immediately.

(NOTE : MIPPS students would have received a similar safety briefing at their industrial sites, and so are not required to attend this Induction Briefing at the University)

Noticeboard

All announcements regarding running of thesis will be posted on the 4th year notice board. **IT IS YOUR RESPONSIBILITY TO CHECK THE NOTICEBOARD REGULARLY**

(MIPPS students will be advised by their supervisor and the MIPPS coordinator).

For example there will be a series of workshops (on library usage, thesis writing, etc) which will be announced this way. Also, brief seminar presentations or progress reports by thesis students may be requested – details of these will also be announced on the noticeboard well in advance (your academic supervisor will be advised well beforehand).

B) THE ALLOCATION OF THESIS TOPICS – COMMENTS AND ADVICE

The allocation of thesis topics will be carried out soon after the class submits their top 10 preferences as discussed above. Allocation is carried out in this way to be fair to all participating students. Please note :

- (a) We will do our best to give you one of your higher preferences. However, **please do not assume you will automatically get your no.1 or no.2 choice** (this applies even if you have made contact with the supervising academic, or have 'read up' on the topic, etc, etc).
Be sure to give serious thought to ALL of your top 10 preferences.
- (b) The Department requires that the supervisory load be distributed evenly among the academics; that is, **each academic should supervise the same number of students** (the actual number per academic is determined by the total number enrolled, which is not known until Semester starts). This means that there may be a topic on an academic's list of proposed projects, which may end up not being allocated at all (even if some students have indicated an interest in it).
- (c) The Head of Department (HoD) reserves the right to allocate a thesis topic to a particular student, if required (at HoD's discretion).

C) THESIS PRESENTATION AND ASSESSMENT

Assessment

There will be two distinct components to the assessment of this unit of study written thesis (80%) and presentation(s) (worth 20% - main component is the Poster Display; details announced later).

(Note that this assessment scheme is for regular, non-MIPPS thesis students in the course CHNG4002. For MIPPS students, the distribution of marks for thesis, case studies, presentations, etc will be announced separately by the MIPPS coordinator).

Written Thesis (80%)

The thesis report is the culmination of the series of reports on experimental, modelling, and library research that runs through the Chemical Engineering curriculum. This is much more than technical report writing that you have learned as you have gone through the course, although the same principles apply to get you started. We will be running workshops on how to write various sections of the thesis over the semester.

Your thesis will be read by at least three examiners, one of whom will be your supervisor. A meeting of all the examiners is held to discuss and grade all the theses, with marks being awarded on the basis of:

the depth and quality of the technical work, analysis, and interpretation demonstrated by the student

the quality of the thesis as a report of your work and conclusions

your application to the project from its inception: independence in planning and self motivation; innovation; teamwork (where appropriate); and analytical approach

Please note that you are NOT marked on the mass of the thesis (see Appendix for details on page limits). The best thesis is easy to read, clear, correct, concise, well argued, and has distilled the work into the most important findings, then analysed and interpreted these with insight.

It is most important at every stage that you identify *your* original contributions to the work, as distinct from those provided by your supervisor, post-graduate students in the same research group, your co-worker (if you have one), previous workers on the subject either in the Department or elsewhere, etc. Not to acknowledge others' contributions in your work is a major ethical failing which is unprofessional and may also raise the spectre of plagiarism.

In fact, you benefit from extensive referencing. A lack of references indicates either a lack of awareness of current literature or potential plagiarism. Both of these implications are negative and unprofessional. Extensive referencing is your opportunity to demonstrate that you know how your work relates to others in the field.

You MUST provide a detailed and explicit statement describing what part of your work is original and identifying and acknowledging inputs from co-students, PhD students, supervisors etc. This "Statement of student contribution" should be included as a separate page immediately after the executive summary. The statement should also describe your achievement relative to your opportunity eg this project was an extension of a summer vacation position, a MIPPS project etc. It should include breakdowns, where appropriate, regarding what components of experiments, model construction and validation were performed by you as distinct from others. It should be shown to your supervisor before finally submitting the thesis.

You may also choose to include a separate page with general acknowledgments to Mum & Dad, the workshop, etc.

Poster

You will present your work and its outcomes in a poster display consisting of no more than nine landscape A4 pages and a banner heading. All the Posters will be displayed on the same afternoon. During that time, you will have to be at your poster to describe your work and answer questions from the academic and research staff. They will assess you for the clarity and impact of your poster and your ability to describe and defend your work. Representatives from industry will be invited to the Poster Day too. Note that MIPPS students also present a poster on this day.

The poster is a form of technical presentation which most students will not have met before, although it is one which is being used increasingly as an interactive means of getting a story across in technical meetings, trade shows, and presentations to management. The focus here is not on intricate technical detail but rather on creating an impact which will attract interest from a circulating group of attendees. Having attracted interest, you then need to have enough substance in your poster to allow viewers to understand what your project was about and what conclusions were reached. You must also be available to discuss and defend the work. We will also supply refreshments throughout the poster session.

There are some examples of poster presentations made by postgraduate research students in the Department on various boards around the Chemical Engineering Building. Note that you need to use large type fonts (legible from a distance of at least 1 m), sparing text, clear graphs and drawings, and colour to achieve the best results. A package such as Powerpoint is very good for preparation of effective posters - it is available on the computers in the PC Labs.

Your thesis supervisor will provide guidance in the preparation of your poster.

The Research Event

The 10 (or so) posters judged to be the most interesting and informative will be shown as key pieces in the Department's Research Event, to which the chosen presenters will be invited. This event, organised by the Chemical Engineering Foundation, is an occasion for the whole Department to present its research to industry, so there will be posters from the academic staff and postgraduate groups also.

The Research Event will begin with a formal lunch followed by a poster session. There are several industry awards for student posters: after lunch, industry representatives choose the best **undergraduate** poster presentations and present these cash awards.

Penalties for Late Submissions

The written thesis will be marked out of a total of 100. If the final report is late without satisfactory explanation (see Policy on Extensions), the following penalties will apply:

- 5 marks for first day
- 1 additional mark for each day following, up to five days (effectively one grade)
- not accepted, after one week

Policy on Extensions

The only allowable extensions will be those that are given **in writing** and **in advance** from the Head of Department. If the extension is not given **in writing**, then it will not be accepted by the

examination meeting at the end of the year. Extensions will be of explicitly quantified times, after which the late penalties will apply. You should not ask your supervisor for extensions, because it is not his/her responsibility to obtain them. In addition, your supervisor does not have the authority to grant such extensions. If necessary, the Head of Department will consult the supervisor regarding any requests for extensions. The phrase "**in advance**" means that any problems should be discussed with the Head of Department as soon as they are apparent. For example, long-term problems, such as chronic illness and long-term family matters, should be discussed during the first semester, not the Friday before the final report is due.

Additional Briefings / Workshops

Some other general resources will be made available during the semester to assist you in putting together your thesis. Potential topics include

- Research Methods
- Information Retrieval
- Preparing an argument and writing a thesis

Details will be provided as appropriate. These will usually run on Wednesday afternoons between 2 and 5 pm. Note that you are strongly advised to attend these workshops - they are designed for your benefit (your attendance will be noted).

Appendix: Written Thesis Requirements

Covers: The thesis is to be bound in Departmental covers, which are supplied by the General Office. If using staples, there should be 3 staples on the left hand margin. Stapling/binding of the thesis is your responsibility and will not be done by the Department, however stapling facilities will be available.

Presentation: The thesis is to be typed on A4 paper, single sided, reasonable spacing, minimum 12 point font, minimum 3 cm LH margin, and 2 cm margin elsewhere.

In general, the body of the thesis (introduction, literature review, methods, results, discussion, conclusions, recommendations, and references) should not exceed 70 pages. If absolutely necessary, this can be extended by negotiation with the supervisor, up to approx. 90 pages. In addition to this thesis body, you should include an executive summary (about 1-2 pages), statement of student contribution, table of contents, and appendices for raw data, detailed calculations, models, etc. Your supervisor will be able to guide you on setting out the thesis.

Students on MIPPS projects should consult with their academic supervisor regarding thesis presentation.

No. of copies: Three (3) copies are to be submitted; one copy will be available for collection by you after examination results are published. **Please number the copies.**

On the spine of each thesis, please make sure that the following is clearly written (handwritten is OK) : your name, abbreviated title, and copy number.

This information on the thesis spine must be permanently written – for example, please do not write on a white sticker which will easily peel off the spine (in this case it would be acceptable if the 'sticker' was permanently glued on). If the spine happens to be a black surface, it is perfectly acceptable, for example, to neatly hand-write using permanent white ink eg liquid paper (or if the spine presents a white surface, use permanent black ink). If you are using ring-binding which does not produce a spinal surface you can write on, please come up with a way to permanently show the

required information on the thesis spine. The main point of this requirement is that the theses can be easily identified when they are shelved, even after many years have passed.

Units: Normally use S.I. Units. Non S.I. Units may be included in brackets if desired.

References: An often used approach is to have “author (year)” in text, with an alphabetical order listing in the reference list. For example,

TEXT

Hanson (1971) compiled the principles, Mecklenburgh and Hartland (1975) developed simplified procedures for column design and Dunn and Ingham (1972) introduced digital simulation....

REFERENCES

Dunn, I.J. and Ingham, J., (1972) *Verfahrenstechnik*, 6(2);399-406.

Hanson, C., (1971) *Recent Advances in Liquid-Liquid Extraction*. Pergamon Press, Oxford.

Mecklenburgh, J.D., and Hartland, S., (1975) *The Theory of Back-mixing*, Wiley, London.

Your thesis supervisor can give you more advice, or suggest alternative citation methods.