

UNSW



Faculty of Engineering

***School of Photovoltaic and Renewable
Energy Engineering***

SOLA 4910 / SOLA4911 Thesis Part A&B

Session 1, 2017

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Course Description and Eligibility

The Thesis Project is carried out in the last two sessions of the BE program. The course comprises six units of credit in the first session and six units of credit in the second session. As a rough guide students are expected to work on their thesis for at least 6 hours per week in each session. During this time students are involved with directed laboratory and research work on an approved topic and under the guidance of members of the academic and research staff. Students may commence the thesis in either session 1 or 2 of an academic year.

The thesis is an opportunity for you to demonstrate what you have learned throughout your studies in PV and RE. It is expected that your research, analytical work, and writing will far exceed the level of work completed in your second year project. The thesis comprises a large portion of student's WAM calculations which is used to assign Honours levels and to assess APA applications. The School also awards a prize for the best thesis in photovoltaics every year. For details about this prize, please see the University Calendar. There is also another thesis prize awarded by ANZSES each year. Details of this prize are shown below.

Lectures and Information Seminar

There are no formal lectures for this course. Students should stay in contact with their nominated supervisor throughout the two sessions, perhaps at a pre-organised weekly meeting time. It is very important in the early stages of your project to be in contact with your supervisor to ensure that you have a clear understanding of the topic, what is required, and to check that what you are doing is addressing the aims of the project. If a student would like to contact their supervisor outside of a pre-organised weekly meeting, email is the preferred method of contact.

The School would also like to arrange a seminar during thesis B, provided that enough students are interested in attending. The seminar would provide students with information about writing a thesis. Students will be contacted about this in due course.

Thesis Course Administration

Dr Merlinde Kay is the Thesis Course Coordinator.

Technical issues should be resolved with the help of the nominated supervisor. However, if you experience any administrative issues, please see Dr Kay.

Dr Merlinde Kay
Room: 215, TETB
Ph: 9385 4031
Email: m.kay@unsw.edu.au

Please do not leave problems and questions unresolved, as this could affect the successful completion of your thesis. Talk to your supervisor about any concerns or issues you may be

experiencing, and if this becomes difficult, please see the Thesis Coordinator, the Undergraduate Coordinator, or even staff from the Counselling Service, www.counselling.unsw.edu.au, or the Learning Centre, www.lc.unsw.edu.au.

Website

The official subject site is Moodle and can be found by navigating to <https://moodle.telt.unsw.edu.au/login/index.php> . Here you will find information about the course, day-day announcements, and handouts, etc.

Thesis Topics and Thesis Nomination

A list of thesis topics will be posted on the Moodle site. Students should review the list and discuss the topics with the relevant supervisor to get an idea of what it entails. Once both the supervisor and student have agreed on the topic a Thesis Nomination Form should be completed and submitted to Merlinde Kay and uploaded to the SOLA 4910 Moodle site prior to a student commencing work on their topic.

Nomination forms are available on the Moodle website:

Students who wish to develop their own thesis topic are invited to do so, provided that they can find a supervisor from within the School. Students should discuss their potential topic with their proposed supervisor, and if the supervisor agrees, the student should attach a description of the thesis signed by the supervisor to the Thesis Nomination Form.

*** Nomination forms should be submitted via the Moodle website***

The School also encourages students who wish to do an industry-led thesis topic. In this case the mentor from industry would be the student's co-supervisor, however an academic staff member from the School must act as the supervisor of the thesis. Students wishing to do an industry-led thesis must obtain approval from an academic of the School to supervise the topic and should submit a signed letter from the industry representative and academic supervisor with a brief outline of the project with their Thesis Nomination Form.

Assessment †

Thesis Part A will be graded either satisfactory or unsatisfactory, and only students with a satisfactory grade will be permitted to proceed to Part B.

Part A Assessment (SOLA4910)

A literature review is the main assessment for thesis A, and your performance in thesis A to date. As part of SOLA4910, students are expected to present a seminar in week 11 of session. Technical skills are very important, but just as important is the ability to talk about your work in an informative and convincing way. The seminar provides the opportunity both to inform and demonstrate your communication skills. Your talk should be addressed both to your examiners who will need to know details about your progress with the topic, and to students and staff members having a more general interest in the project area. Students are assigned 20 minutes for their seminar presentation which includes approximately 5 minutes of question time.

Students are also required to issue a one-page summary to attendees **AND** upload a copy to moodle before the start of seminar week. The seminar contributes to a dissemination mark in Thesis B.

In addition to giving a seminar, you are required to attend seminars given by at least four other students. Seminar Attendance Sheets are to be signed by a member of academic staff who has attended that seminar.

The Part A assessment will take account of the following:

- Progress with the topic during Session
- Literature Review due Friday 5pm week 12 – given a satisfactory or unsatisfactory, broken down as:
 - The literature review should be between 10-15 pages and include a problem statement, hypothesis and aims, indicative length is 10-15 pages,
 - Project planning – to include proposed solutions, thesis outline, preliminary work done
 - Document presentation (breakdown of literature review given on moodle)
- If failed attendance for the seminars a loss of 1% from the seminar mark.

Seminar guidelines are appended below.

Task – S1	Due Date	Graded
Find Supervisor – SOLA 4910 have thesis nomination form signed by supervisor and register yourself on Moodle next to topic	9am, 27 th February Monday – if handed in late loss of 2% from supervisor participation mark	No marks lost if handed in on time
Seminar Presentations in TETB 15th May, 10am to 5pm: Room G22 16th May, 10am to 5pm: Room G22 17th May, 12.30pm to 5pm: Room G22 18th May, 9.30am to 1pm: Room G22 3.30 to 5pm: Room G22 19th May, 10am to 5pm: Room G22	15 th – 19 th May(week 11)	10%

NOTE: A fail in thesis A will require students to re-enrol in thesis A again.

Part B Assessment (SOLA4911)

Students must submit a soft copy **via turn-it-in on Moodle and in the thesis marking section by 12 noon Tuesday of week 13**. Even where a student has been affected by an illness or misadventure, **they must submit as much of their thesis as possible**, and then lodge a Request for Special Consideration through UNSW Student Central. **Students who do not submit by the deadline will be penalised. An extension of time may only be granted after receipt of a Request for Special Consideration, with consideration of the incomplete thesis and only under exceptional circumstances beyond the student's control.** For further details please see the section below titled 'Thesis Withdrawal, Suspension, and Time Extension'.

Guidance for writing the thesis, and the specifications for its presentation will be posted on Moodle. Each student is expected to submit their own individual thesis.

In addition to submitting a thesis, students are expected to attend Open Day, held on the Thursday or Friday of week 13. As part of Open Day students are required to demonstrate their topics and to answer questions from staff and students. Attendance is compulsory. Students are also required to display a poster which provides relevant information about their project. A prize will be awarded for the best poster presentation as voted by attendees at Open Day. Details for poster production will be posted on Moodle. Templates for the poster can be found on Moodle SOLA 4911 under Poster Templates, the size of the poster is A2. A soft copy of the poster is to be submitted in **PDF format** to the **Moodle site** by Wednesday of week 12 to allow enough time for printing. If any poster is not submitted by this day it will be the responsibility of the student to print the poster.

Thesis Part B has a total of 100 marks, broken down as 75% assessment mark, 10 % supervisor mark 5% poster mark and 10% dissemination mark. If there is a significant difference between the marks, the supervisor and assessor will be asked to discuss the marks and to come to an agreement. If this is not possible, a second assessor will be appointed. The Part B assessment will take account of the following:

- The Written Thesis
- Open Day Thesis Presentation
- Overall performance on the project
- Seminar mark

Task – S1 SOLA 4911 (for students who started SOLA4910 in S2 2015)	Due Date	Graded
Thesis Submission	Tuesday 30th May by midday 12 pm	/75% supervisor mark /10%
Poster for printing - If not submitted by this day student must organise their own printing	24th May by 5pm	
Poster Day	2nd June 2pm-4pm Location: TETB Foyer	Prize awarded for best poster /5

NOTE: Late written work will be penalized 5 marks per day (out of the 75 marks awarded for the thesis). Penalty applies until the marks for the course decrease to 50. Any thesis not turned in within 6 weeks after the deadline will be finalised at zero (0) marks

Plagiarism

What is Plagiarism?

Plagiarism is the presentation of the thoughts or work of another as one's own.*

Examples include:

- direct duplication of the thoughts or work of another, including by copying work, or knowingly permitting it to be copied. This includes copying material, ideas or concepts from a book, article, report or other written document (whether published or unpublished), composition, artwork, design, drawing, circuitry, computer program or software, web site, Internet, other electronic resource, or another person's assignment without appropriate acknowledgement
- paraphrasing another person's work with very minor changes keeping the meaning, form and/or progression of ideas of the original;
- piecing together sections of the work of others into a new whole;
- presenting an assessment item as independent work when it has been produced in whole or part in collusion with other people, for example, another student or a tutor; and,
- claiming credit for a proportion a work contributed to a group assessment item that is greater than that actually contributed.†

Submitting an assessment item that has already been submitted for academic credit elsewhere may also be considered plagiarism.

The inclusion of the thoughts or work of another with attribution appropriate to the academic discipline does *not* amount to plagiarism.

Students are reminded of their Rights and Responsibilities in respect of plagiarism, as set out in the University Undergraduate and Postgraduate Handbooks, and are encouraged to seek advice from academic staff whenever necessary to ensure they avoid plagiarism in all its forms.

The Learning Centre website is the central University online resource for staff and student information on plagiarism and academic honesty. It can be located at:

www.lc.unsw.edu.au/plagiarism

The Learning Centre also provides substantial educational written materials, workshops, and tutorials to aid students, for example, in:

- correct referencing practices;
- paraphrasing, summarising, essay writing, and time management;
- appropriate use of, and attribution for, a range of materials including text, images, formulae and concepts.

Individual assistance is available on request from The Learning Centre.

Students are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting, and the proper referencing of sources in preparing all assessment items.

* Based on that proposed to the University of Newcastle by the St James Ethics Centre. Used with kind permission from the University of Newcastle.

† Adapted with kind permission from the University of Melbourne.

To ensure that you are not penalised for plagiarism, ***please check that all material used in your report is referenced and attributed properly and that unreferenced text and figures are your own.***

Thesis Withdrawal, Suspension, and Time Extension †

Requests for thesis withdrawal, suspension or extension should be made in writing to the Thesis Coordinator. The following procedures and rules will be applied when a student wishes to withdraw from, or suspend either SOLA4910 or SOLA4911. These rules supplement the UNSW deadlines, conditions, and procedures for withdrawing from a course.

PLEASE NOTE: Thesis B must be completed in the semester following thesis A

1. In every case where a student wishes to postpone completion of the thesis, i.e. to suspend work and complete the thesis in a later session, written approval of the supervisor must first be obtained before submitting a written request to the Thesis Coordinator.

The supervisor may refuse approval for a variety of reasons, e.g. that the necessary facilities will no longer be available at the later date, that the supervisor will be absent, or that the student has already had overlong time on the particular thesis topic, etc.

When a supervisor feels that a student is incapable of successfully completing the selected thesis topic, the supervisor should strongly advise the student to withdraw from that particular topic and seek a new one, possibly with a different supervisor.

2. A student who is permitted to suspend from SOLA4911 for a Session will lose their eligibility for a graded pass (i.e. CR, DN, or HD) unless it is confirmed by the supervisor that the student did not work on the thesis project during that session and received no supervision. A student who withdraws from SOLA4911 is to receive no further supervision during that session, or have access to the facilities related to the thesis. (The purpose of this rule is to prevent such students gaining unfair advantage over students who complete their thesis in two sessions of work.)
3. A student who is permitted to withdraw without failure from subject SOLA4910 should re-enrol in the following session with a Thesis Nomination Form. Note that under normal circumstances discontinuation without failure or financial penalty is possible only up to the Census Date.
4. Extension of time beyond two sessions work will not cause forfeiture of eligibility for a graded pass if the reason is outside the student's control. Late arrival of components due to a student's badly-planned late ordering, for example, is not a valid reason for no-penalty extension of time. The thesis must be submitted to Moodle not later than the deadline specified. Where a student submits a piece of assessment late, and a request for special consideration has not been approved, the student will be penalized by a deduction of marks. Late written work will be penalized 5 marks per day up to a maximum of 50% of the total value of the assessment task. Requests for special consideration should be submitted, as for all other subjects, through the Registrar. An extension of time may be granted after consideration of the thesis report and only under exceptional circumstances beyond the student's control.

5. When a student is granted an extension there may be a penalty resulting in a reduction of the thesis mark. This will be imposed according to rules approved by the Thesis Coordinator and will be done after consultation with the thesis supervisor. Supervisors and assessors marking the thesis should however award a mark entirely on the merits of the thesis, the reduction then being made subsequently by the Thesis Co-ordinator.

Prizes

School Prizes

Two School prizes are associated with this course:

1. The Photovoltaics Thesis Prize for the best performance in an undergraduate thesis in the area of photovoltaics in the Bachelor of Engineering program. This prize is a cheque for \$500.
2. Renewable Energy Thesis Prize For the best performance by an Undergraduate student in a Renewable Energy Thesis. This prize is a cheque for \$500.

<https://my.unsw.edu.au/student/prizes/PrizesEngineering.html#SchoolofPhotovoltaicandRenewableEnergyEngineering>

Wal Read Memorial Prize

The Australian and New Zealand Solar Energy Society awards annual prizes for final for reports on “final year project covering some aspect of solar energy”.

According to the guidelines:

“Nominations must be received by 20th February each year accompanied by an official nomination form signed and dated by the Head of Department. Valid entries will be those projects completed in the previous year. Only two entries may be nominated from any one Department.”

Further information is available at: <http://www.anzses.org/index.php?q=node/25>

Health and Safety

The University has a legal obligation to provide a healthy and safe workplace for employees and students. Students must follow reasonable directions of their supervisors and the Course Coordinator.

One way in which our safety is protected is through the preparation, review and approval of Risk Assessments. Students intending to carry out practical work are required to prepare or otherwise obtain a Risk Assessment for approval by their supervisor and by the Space Manager in whose space the work is to be done.

Risk Assessment templates for SPACES, EQUIPMENT and PROCEDURES are available on the Blackboard site . Risk Assessments and examples are already available, through your supervisor for many activities. Completed or modified versions should be submitted as signed hard copies and MS Word electronic versions to Kian Fong Chin (kf.chin@unsw.edu.au).

Hints and Tips for the Thesis Course

- Start work on your topic as soon as you can. This will give you plenty of time to address problems that you may encounter on the way.
- Plan the progress of your thesis using, for example, a GANNT chart, and revise the plan as it proceeds.
- Start by performing a review of the available literature on research completed in the same area as your project. This will help you further define your topic and the direction your thesis will take.
- Order materials as soon as you are sure what you need.
- *EndNote* is bibliographic software that allows you to manage your references in a database. References can be inserted from inside MS Word documents to create in-text citations and bibliographies in various referencing styles. The program is available free to UNSW staff and students. Information and links are available through the UNSW Library: <http://info.library.unsw.edu.au/skills/endnote.html>.
- The Learning Centre has an “Honours thesis writing for engineering and science students” guide at: <http://www.lc.unsw.edu.au/thesis/index.html>

Does your thesis involve other people doing something for you? If so, it may require ethics approval.

The basic principle is that if you want people to provide you with something, even if just 5 min of their time to answer questions, then you should (i) treat them with suitable dignity and (ii) ensure any possibility that they may be badly affected is absolutely minimised.

When research at UNSW involves people, then it come under the oversight of the UNSW Ethics Committee which must give approval before it proceeds.

You will need to get approval, if your project involves any of the following (more than one may apply):

- a survey, even if done on-line
- an interview, focus group, or other such “qualitative” method
- data-mining, when individual identities might be revealed
- behavioural observation, e.g. people using something, choices people make, on-line activities
- recording or photography of people, even if in public spaces
- experiments on human reactions (or other abilities)
- human performance, e.g. running, falling, playing music
- testing a device
- tasting or smelling, e.g. foods

- and, of course, drug trials, body tissues and other medical activities.

Also, projects involving animals will need ethics approval.

If your project does require approval, in the first instance, discuss this with your Supervisor.

- If you have a question – ask!

Appendix: Guidelines for Undergraduate Thesis Seminars SOLA4910

1. OVERVIEW

Technical skills are very important, but just as important is the ability to talk about your work in an informative and convincing way. The seminar provides the opportunity both to inform and to demonstrate your communication skills. Your talk should be addressed both to your examiners who will need to know details about your progress with the topic, and to students and staff members having a more general interest in the project.

The duration of each seminar will be thirty minutes including time for questions. The student giving the seminar must provide a one-page, typed Summary sheet that introduces the topic area to those present. You are also required to be the chairperson for the seminar that follows yours even if it takes place on the following day. This is an important function and students must ensure that they perform this task. The chairperson must introduce the speaker after them, warn the speaker when 15 minutes is up, and also address the audience at the end to ask for questions for the speaker. The chairperson must also make sure that each seminar does not go over the allocated 20 minute timeframe.

In addition to giving a seminar, **you are required to attend and assess seminars given by at least four other students**. Seminar Assessment sheets will be available at the seminar location. Students must complete one form for each of the (at least) four presentations that they attend. They must be signed by the academic in charge of the seminar session. Leave your forms in the box provided – someone from the school will collect the forms. These sheets will be used as part of the assessment for Thesis Part A. You are also required to keep a record of the seminars attended on a Seminar Attendance form that will be available at the seminar location, and you must hand it in once you have attended at least 4 seminars. **If you do not attend 4 seminars there will a loss of 1% from your seminar mark**. All forms will be available on Moodle for you to bring to the seminars.

The Seminar Assessment sheet (on the Moodle site) shows the areas of the presentation considered important.

2. GUIDANCE

Plan your presentation to last about 15 minutes plus five minutes for questions and introducing the next speaker. By this stage you will be knowledgeable in your topic, but you should present the material so that it can be understood by the fourth year students attending your seminar. Go at a steady pace and practice the right emphasis and timing by speaking into a tape recorder or even at the bedroom wall. Practice will give you confidence, remove some of the nervousness and help you solidify your delivery.

The seminar might have the following outline:

- Thesis statement, objectives/aims, scope, expected outcomes

- Literature review – very brief as you will be submitting a literature review document.
- Methodology for work
- Description of preliminary work
- Outline and timetable schedule for work in Thesis Part B.

The material that you present for the seminar should provide the basis for the first few chapters of your thesis, so that writing this down in draft form will serve you in the end. When you complete your seminar presentation you will be required to act as the chairperson for the next presentation. This task is part of the overall thesis/project work and should not be taken lightly. Some helpful guidelines on preparing a seminar can be found on the Learning Centre's website: <http://www.lc.unsw.edu.au/onlib/ppoint.html>

3. LOCATION

Seminar locations will be posted on Moodle

4. SIGN-UP FOR A TIMESLOT

Timeslots have been allocated, throughout the week, in twenty minute blocks. The open schedule will be available for review on the Moodle site. The slots will fill up, so see Merlinde Kay for an up-to-the-minute list of free slots, then organise a time with your supervisor and assessor. (They must also attend your seminar!) Do it quickly, then get back to Merlinde Kay to finalise your timeslot. Don't delay until the last minute, because the slots will fill up quickly, and your supervisor's schedule will fill up, as well. **DO NOT BOOK A TIME WITHOUT CONSULTING WITH YOUR SUPERVISOR FIRST.**

5. ASSESSMENT

Part A will be graded with a mark out of 10. Only students who have passed thesis A will be permitted to proceed to Part B. The Part A assessment will take account of the following:

- Submission of nomination form on time
- Progress with the topic during Session 2
- Seminar presentation
- Seminar participation – **you must attend four seminars and complete four Seminar Assessment Sheets and sign the Attendance Sheet four times and act as Chairperson for the next presenter (unless you are last). Failure to do so will result in a loss of 1% from seminar mark**
- Literature review

A sample seminar assessment form is included on the Moodle site.

† This policy is adapted from the School of Electrical and Telecommunications Engineering.