



FACULTY OF ENGINEERING

Centre for Medical Radiation Physics

PREPARATION AND SUBMISSION

of

18 CP MASTERS THESIS

PHYS 951

General Guidelines

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1. DEADLINES (18cp Thesis)

In order to ensure completion of the thesis within the prescribed time, the following timetable is implemented. A number of benchmark submissions must be met. A detail of each submission is listed below.

Note - if you enter the subject at the start of the year session 1 is Autumn Session; if you enter the subject in mid-year then Session 1 refers to Spring session

Section/Item	Session	Student Deadlines		Supervisor Feedback		Guide for page numbers & time limit	% of Thesis mark
		Day	Wk	Day	Wk		
Proposal: Topic, problem definition, aims and objectives, methodology, resources, work plan and OHS issues	1	Mon	5	Fri	6	5 pages	5
Progress Report: Submission of introductory chapters – clear problem definition (preamble), refined aims, objectives and scope, preliminary chapters including literature review and results to date.	1	Mon	11	Fri	13	10 pages	None
Short Oral Presentation	1	Mon - Fri	13			5 Minute presentation	None
Draft thesis: Submission of one spiral bound draft copy for comments/corrections from the main supervisor	2	Fri	10	Mon	12	Approx. 50 pages	None
Final Thesis: Abstract, match objectives and conclusions, review and references, presentation and content. Submit two hardbound copies of the thesis and two CD's. When joint supervision is undertaken, an extra bound copy and CD is required. Individual supervisors can waive the requirement of CD submission.	2	Fri	12	-	-	Approx. 50 pages	85
Oral Presentation: Thesis seminar - Use of aids such as overheads, power point etc, technical and other content, delivery including eye contact and time management, answers to questions	2	Mon - Fri	13			15 minute Presentation Plus 5 – 10 minute questions	10
Total							100

Notes for students and academic advisors:

1. All submissions are to be made to the Engineering Enquiry Centre [EEC] by 4.30pm on the specified dates. They should be marked **Attention Alexey Pan**.
2. The supervisor and at least one other examiner chosen from the academic or honorary staff will mark the final thesis. Both markers will carry equal weight. If the marks differ by more than 10%, a third marker will be consulted. Outliers will be omitted and an average taken.
3. Student requests for extension should be through SOLS to the Subject Coordinator. Students should discuss with their academic supervisor and inform the respective Subject Coordinator. Decisions will be communicated to students through SOLS after consultation with the relevant thesis supervisors.
4. Late submissions (without written extensions) will incur a penalty of 3% of the relevant assessment per working day.
5. Final mark is to be entered in SMP by the respective Subject Coordinator who has the responsibility of running the thesis subject in each discipline.

Failure to meet these deadlines may result in a grade not being declared. This could lead to a student not being able to graduate at the end of session 2.

2. GENERAL

2.1. Objectives

On successful completion of the final year thesis a student should be able to:

- (i) Define clearly the aims and objectives of a given problem.
- (ii) Retrieve and analyse previous work on related problems (critical literature review).
- (iii) Formulate methods for problem solution.
- (iv) Plan, design and construct an experimental or theoretical procedure to solve the problem.
- (v) Collect data and evaluate findings.
- (vi) Communicate conclusions and solutions verbally and in writing.

2.2. Overview

Phys951 is an annual subject and therefore the thesis should be completed over two consecutive sessions. Normally the thesis is not offered during Summer Session, except with the approval of your supervisor/s and the subject co-ordinator for Phys951. The subject is normally commenced in autumn session.

It is the student's responsibility to arrange regular times for discussion with his/her Supervisor(s). If students have problems of a general nature they should firstly contact the Subject Coordinator. Contact details are found in appendix A.

Students are encouraged to develop good organisational practices from the outset and should produce a schedule of anticipated activities at the earliest opportunity. The responsibility for successful *Project Management* lies with each student and therefore a detailed project log should be maintained. A work program diagram (e.g. a Time/Task Chart initial and final) or other appropriate material (e.g. project log or laboratory book) should be maintained. This material must accompany any formal request for an extension of a deadline.

Your research may be carried out in Physics Research Laboratories on campus or off Campus at ANSTO or one of the Wollongong or Sydney hospitals. In the case of Off-Campus research you will be assigned a member of academic staff as your main supervisor and supervisor from the institute in which the research is undertaken. You will need to check with your **UNIVERSITY SUPERVISOR** and your **HOSPITAL SUPERVISOR** as to whether it is a requirement that you complete the following checks before beginning your research:

- 1) Prohibited Employment Declaration Form (Working with Children Check).
- 2) Application form for a Criminal Record Check (CRC)
- 3) Student Acknowledgement Form
- 4) Work Placement/Insurance form
- 5) In addition, you may need an Adult Vaccination Record Card concerning your Immunisation status as per NSW Health Department circular "Occupational Screening and Vaccination Against Infectious Diseases"

These forms may be obtained from our Administrative Officer, Mrs. Karen Ford (Room 4-G16)

All thesis costs incurred, associated with the submission of the stated minimal requirements, must be borne by the student. This includes the cost of thesis binding and producing the electronic copy.

2.3. Library Entitlements

Thesis students have Inter-Library Loan privileges in the Library and should make use of these privileges to gather information for their literature search (a maximum of five interlibrary loans may be requested). Masters students are allowed to borrow 20 items for 21 days. Thesis students are also permitted to use the Faculty Computer Laboratories for their research on the recommendation of their supervisor. Thesis students are welcome to borrow past theses from the EEC. Students may borrow one thesis for two weeks on presentation of their Student ID.

Students are also strongly advised to attend a Library Research Skills Seminar. These seminars are held in weeks 1 to 3 first session of enrolment. For further information refer to the Library home page; <http://www.library.uow.edu.au> and look under "Help". Note that ILIP 009 is compulsory for all new students, or those who have not completed ILIP 100 in the last five years. Students with English grammar and written communication skill problems should consult with the Learning Resource Centre (19G102) as soon as possible for assistance.

2.4. Basic Requirements

Every thesis student shall submit two bound copies and two CD copies of the thesis. The thesis supervisor will retain one copy of the thesis; the other will be kept in the EEC Thesis Library. If there is more than one supervisor, one bound copy and CD for each additional supervisor should be submitted.

3. ROLES AND RESPONSIBILITIES

Although these guidelines are set as Masters Guidelines *per se*, the fact that the thesis is a research project it is Faculty policy that appropriate sections included from the Code of Practice – Honours are followed. <http://www.uow.edu.au/about/policy/UOW058661.html>

3.1. Responsibilities of Supervisors

The overriding responsibility of supervisors is to provide continuing support to students in researching and producing a Masters thesis to the best of the student's ability.

They must be aware of the formal deadlines stated in this document on page 3 and ensure that each stage is completed on time.

Other specific responsibilities are:

In accordance with Section 4 of the Code of Practice – Honours, other specific responsibilities of the supervisor include:

- to advise the head of the academic unit of any situation which might lead to a conflict of interest which could unduly advantage or disadvantage a student, e.g. if there is or has been a close personal relationship between a supervisor and an actual or potential student;
- to advise students about their procedural and substantive rights and responsibilities contained in this Code;
- to advise and assist students to comply with occupational health and safety and ethics requirements where relevant;
- to support students in developing a proposal for their Honours project within a negotiated time frame;
- to assist students to develop a plan for completing the Honours project within an appropriate time frame;
- to maintain regular contact with students in order to monitor their progress;
- to inform students about any planned absences during the candidature and arrangements for supervision during those absences;
- to provide timely and helpful written feedback to students on any submissions and to assist them to develop solutions as problems are identified (please refer to 7.1 and 7.2 for supervisor feedback due dates);
- to advise students of inadequate progress or work below the standard generally required and to suggest appropriate action;
- to attend meetings of the academic unit assessment committee where students' grades are determined.

It is essential that the student's thesis is within the supervisor's field of expertise and that the subject pursued be of interest to the supervisor. Adequate resources for the satisfactory completion of both the research and the thesis must be available.

Supervisors should make themselves familiar with the general rules pertaining to the Masters of Medical Radiation Physics degree and the Code of Practice - Honours, and bring these to the attention of the student wherever necessary.

Code of Practice - Honours:

<http://www.uow.edu.au/about/policy/UOW058661.html>

Supervisors should meet with students on a regular basis - *preferably weekly, but not less than fortnightly* - to discuss work in progress and to advise on the direction of the work. They should

comment critically on any drafts of the thesis (including aspects of referencing, bibliographic work and proofreading). They should provide regular advice and timely feedback necessary to the production of a thesis of merit.

Supervisors must alert the student and the Masters Coordinator of any situation which indicates that the student might not meet the given deadlines for the thesis or any other assessment task, or appears incapable of attaining appropriate standards.

3.2. Responsibilities of students

Students have the primary responsibility for the timely completion of their thesis. They should be familiar with the information in this Guide.

In particular they must be aware of the formal deadlines stated in this document and ensure that each stage is completed on time.

In accordance with Section 4 of the Code of Practice – Honours, specific responsibilities include:

- to develop a thesis proposal and plan for completing the project within a timeframe agreed to by the supervisor(s);
- to maintain regular contact with the supervisor(s);
- to establish with the supervisor(s) the level of support required for successful completion of the degree;
- to present required written material to the supervisor(s) in sufficient time to allow for comments and discussions before scheduled meetings;
- to undertake additional work towards their project identified as necessary by the supervisor(s);
- to accept responsibility for the quality and originality of all submitted work.

3.3. Grievances concerning supervision

It is expected that students will maintain appropriate progress. Should any problems arise concerning supervision, students should follow the procedures below:

- Any unresolved problems or disagreements between a student and supervisor during the candidature may be referred in writing by the student to the Honours Coordinator. If the matter cannot be resolved at this level then students wishing to take further action must follow the procedure set out in the Faculty of Engineering Student Academic Grievance Procedure.

<http://www.uow.edu.au/eng/about/UOW004035.html>

- If the Thesis Coordinator or one of the people specified in Stage 1 is the supervisor, then there is a clear conflict of interest and the student may refer the matter directly to the next designated person in the Faculty.

Students and staff are advised to refer to the following University of Wollongong web sites for access to relevant codes, policies and information:

Web Page References to Relevant University Policies

Code of Practice - Honours:

<http://www.uow.edu.au/about/policy/UOW058661.html>

Code of Practice - Teaching and Assessment:

<http://www.uow.edu.au/about/policy/UOW058666.html>

Code of Practice - Students:

<http://www.uow.edu.au/about/policy/UOW058664.html>

Authorship Policy:

<http://www.uow.edu.au/about/policy/UOW058654.html>

Code of Practice - Research:

<http://www.uow.edu.au/about/policy/UOW058663.html>

Acknowledgment Practice/ Plagiarism:

<http://www.uow.edu.au/about/policy/UOW058648.html>

Special Consideration Policy:

<http://www.uow.edu.au/about/policy/UOW058721.html>

Health and Safety:

<http://staff.uow.edu.au/ohs/commitment/ohspolicy/index.html>

Non-Discriminatory Language Practice and Presentation:

<http://www.uow.edu.au/about/policy/UOW058706.html>

Intellectual Property Policy:

<http://www.uow.edu.au/about/policy/UOW058689.html>

Research Ethics Committees and Guidelines:

<http://www.uow.edu.au/research/rso/ethics/index.html>

4. INTERMEDIATE DEADLINES AND THESIS SUBMISSION

4.1. Thesis Project Proposal Package

(Due: S1, Monday Week 5)

(Feedback: S1, Friday Week 6)

Every student, together with their supervisors, must complete a Thesis Project Proposal Report by week 5 of Session 1. One copy is to be handed in to the Engineering Enquiry Centre [EEC] marked **Attention Alexey Pan**, the others are to be retained by your supervisors. This package should include the majority of the following items. Your supervisor(s) will specify the actual items required. The necessary forms are found in Appendix B.

- Proposed Title
 - Aims and objectives
 - Proposed work plan and methodology
 - Project log and laboratory book preparation (if required by the thesis supervisor)
 - Risk Assessment sheet (OH&S form)
-

4.2. Progress Report

(Due: S1, Monday Week 11)

(Feedback: S1, Friday Week 13)

Each student and supervisor must complete a progress report. One copy is to be handed in to the Engineering Enquiry Centre [EEC] marked **Attention Alexey Pan**, the others are to be retained by your supervisors. This report should include the following items.

- Title page
 - Abstract
 - Refined aims, objectives and scope
 - Preliminary chapters including literature review
 - Results obtained to date
-

4.3. Progress Presentation & Oral Thesis Presentation

Progress Presentation: Monday-Friday Week 10

Oral Thesis Presentation: Monday-Friday Week 13

Every Thesis candidate shall give a short progress presentation of their Thesis topic in Week 10 and a full Thesis Presentation in Week 13. The presentations should give precise and concise details of work conducted to date including the aims and achievements of the student.

The Thesis Presentation represents ten percent of the total thesis mark. The break up of this assessment component is as shown in Appendix C1. The Thesis Presentation will be conducted during Week 13 of the Second Session of the Thesis enrolment. Students will be advised, by Week 11, of the venue and time for their presentation by the Subject Coordinator. Presentations will be arranged in seminar-style, i.e. the candidate will outline the details of his/her work in a 15 minute talk, which will be followed by question time of 5 to 10 minutes. Students will be allotted a total of about 20 to 25 minutes for their presentation.

Visual aids such as PC PowerPoint and PC projector and overhead projectors, and a video player will be available in the allocated presentation room. However, it is the responsibility of students to ensure that PC/audio/visual equipment they require is available and functioning satisfactorily. If problems are encountered please discuss this with the Subject Coordinator. Two or more academic staff and visiting hospital personnel will assess your seminar. Thesis candidates are expected to attend all presentation sessions (without interference with their normal lecture/tutorial attendance in other classes).

4.4. Draft Thesis

(Due: S2, Friday Week 10)
(Feedback: S2, Monday Week 12)

Students must present a draft completed thesis to their supervisors by week 10 and meet with their supervisors to discuss the thesis in the following week. Students should ask their supervisors for access to previous theses to gain familiarity with the expected format and standard of presentation.

- **Layout**

A recommended layout of the thesis is as follows:

- Title page
- Acknowledgements
- Abstract (not more than 250 words)
- Table of contents
- List of Figures/Plates
- List of Tables
- Notation (and units)
- Main body of thesis
- References
- Appendices

For further details on the title page, acknowledgements, abstract, table of contents and notations, refer to Appendix F. Students are also advised to refer to and inspect past theses particularly those that have been awarded higher grades. However, the specific details should be checked with the requirement specified in these guidelines prior to adoption.

4.5. Final Thesis Submission

(Due: S2, Friday Week 12)

Students should undertake all corrections specified by the supervisor in the draft thesis and print a good quality copy for final submission.

Two hard bound copies of the final thesis, and two CD copies should be submitted for examination by week 12 of session 2. After examination the thesis supervisor will retain one copy of the thesis; the other will be kept in the School of Engineering Physics Thesis Library. If there is more than one supervisor, one bound copy and CD for each additional supervisor should be submitted.

All thesis costs incurred, associated with the submission of the stated minimal requirements, must be borne by the student. This includes the cost of thesis binding and producing the electronic copy.

Two (or more) copies of the thesis to be submitted shall be bound in boards with the spine lettered as follows:

- (a) at the bottom and across - UW
- (b) 70mm from the bottom and across, with degree and year of submission, eg
BSc Honours
2008
- (c) evenly spaced between the statement of the degree and year, and the top of the spine, the name of the author, initials first and then surname, reading either across or upwards in one line.

Students should allow one week for the binding to be effected and the bound copies collected. Names, contact and address details of suitable thesis binders may be obtained from the EEC.

5. ADMINISTRATIVE PROCEDURES AND APPEALS

5.1. Procedures Undertaken in the Event of Student Failing to Pass

In the event of a fail (this failure will be recorded) and following agreement between the Supervisor, Subject Coordinator, and Centre for Medical Radiation Physics Director the student may be advised to either:

- (a) Enrol in PHYS951 (annual or spring) and undertake a further semester of study on the original project. Submission of a satisfactory thesis manuscript will then result in a pass in the thesis subject.

OR

- (b) Start a completely new thesis project (all assessment requirements to be fulfilled (i.e. progress report, oral presentation, poster).

5.2. Appeals

Students who consider they have received adverse assessment may initiate an appeal. At the initial level this should be discussed with your supervisor(s). Subsequent action, supported by written documentation, may be taken up with the Subject Coordinator and Director of Studies. Any appeal initiated after marks have been declared must be formal and lodged in accord with the University Rules and Regulations.

5.3. Penalties

● Assessment Penalties for Overdue Submissions

The penalty for overdue submissions is as follows: - 3% per working day or 15% per week of the overdue assessment component.

● Submission Deadline Extensions

Any request for a thesis assessment component extension must be presented formally through SOLS with appropriate supporting documentation. The student should first discuss with their supervisor and inform the Subject Coordinator that an application has been lodged. This must be submitted at least one week prior to the deadline. This request must clearly indicate that regular contact has been maintained with your thesis supervisor, include any supporting information.

Generally, deadline extensions will only be granted at the discretion of the Subject Coordinator (based on recommendations from the supervisor) and on the basis of serious medical or

compassionate grounds. Students who cannot demonstrate that they have applied the best project management and planning strategies will not be granted extensions to deadlines.

Students not completing the thesis requirements or who do not submit a further formal letter requesting an extension by week 14 of the second session of enrolment will receive a fail grade at the time of the University subject result release.

- **Forfeit of Early Graduation**

Students failing to submit their bound copies by Week 14 will automatically forfeit the opportunity of early graduation.

- **Damaged, Overdue or Lost Borrowed Thesis from the EEC**

Students are not allowed to borrow additional thesis until outstanding loans have been returned. All borrowed thesis must be returned by Week 12 and be returned in good state of repair. The cost of repair or replacement of lost or misplaced thesis must be paid to the EEC prior to submitting your bound thesis. Failure to settle outstanding payment, by the due date for the bound thesis (Week 14), will attract a University fine. This fine must be settled before graduation.

- **Rate Of Progress**

If for some reason a student makes insufficient progress in the course of the thesis it is important for him or her to be aware of the effect on their overall degree. A failure in your thesis can have a very significant impact on your final WAM. Since the thesis subject is an annual subject it is possible for a student to withdraw up until the date set in second session for withdrawal without penalty (currently Week 8). In such an event the student concerned must start a completely new thesis topic the following year.

The vast majority of students complete their thesis without major difficulty. However, if you are having difficulties at any point in your thesis for whatever reason, do not hesitate to contact the Thesis Coordinator. If you need to know how to manage work related stress, see Appendix G.

- **Plagiarism**

Plagiarism is the use of another person's work, or idea, as if it is your own. The other person may be an author, critic, lecturer or another student. When it is desirable, or necessary, to use other peoples' material, take care to include appropriate references and attribution - do not pretend the ideas are your own. Be sure not to plagiarise unintentionally. Plagiarism has led to expulsion from the University.

Refer to the following University website for further detail on **plagiarism** and acknowledgement practice:

<http://www.uow.edu.au/handbook/courserules/plagiarism.html>

6. SAFETY IN LABORATORIES AND FIELD WORK

A "Risk Assessment Form" relating to your thesis project is to be completed and submitted in week 5 as part of the thesis proposal package. This is to identify safety issues relating to your proposed work programme and come to an agreed means of addressing these issues (in discussion with the technical staff responsible for the relevant laboratory area and your supervisor). Your supervisor is to initial this sheet to ensure that he/she is aware of the major safety considerations and the agreed actions to be taken. If there are significant departures from the original programme of work this sheet may need to be updated and a new form submitted.

It is imperative that students' work safely in the laboratories/field at all times. In particular, substantial footwear must be worn. Thongs and sandals are not acceptable.

At the commencement of their thesis, students should introduce themselves to the technical or professional officer responsible for any laboratory in which they will be working (refer Appendix F).

If students wish to work in the laboratories outside the hours when technical staff are available, then the following Faculty WORKPLACE SAFETY REGULATIONS must be followed at all times.

- (a) Staff and students must not work alone in:
 - (i) Laboratories where chemical substances are handled or housed or where there is a risk of injury from the work being carried out.
 - (ii) In areas where power tools or hand tools that could cause injury are used.
 - (iii) Areas where moving machinery are used.
- (b) In all areas other than those detailed above where staff or students work alone, arrangements should be made for other staff to regularly check the welfare of persons working alone. Alternatively, a means of communication to gain assistance must be available.

The above regulations were resolved by the University of Wollongong Occupational Health and Safety Committee.

Letters giving permission to work in laboratories after hours or at weekends may be arranged through your Supervisor (you must be accompanied by another adult at all times). Keys are not issued and students must arrange with the EEC and with Patrols and Security Section for access to rooms out of normal working hours (**Note:** give Security notice of at least one day of your requirements).

APPENDIX A Subject Coordinator Contact Details

PHYS951 Subject coordinator contact details

Associate Professor Alexey V Pan
Office: Building 4 Room 112
Phone: (02) 4221 4729
Email: pan@uow.edu.au

APPENDIX B Thesis Project Proposal Package

The following presents examples and necessary pro forma sheets for completion and submission for Monday Week 5. For completeness the Week 5 submission should contain the following completed material. Additional pages describing the methodology may be attached.

Aims and objectives

This section is one of the most important. A statement can be provided on the aim of the research. Subsequently the student is expected to identify clearly in itemised format the clear objectives of the research. A guide is to come out with 4 to 6 clear objectives. Each objective should be a single sentence. This section can be completed in about half a page.

Proposed Work Plan & Methodology

This section should provide details of your proposed work plan by identifying the major sections of the thesis, the time duration allocated from the start of work in week 1, Session 1 to submission of bound copy in week 14 in Session 2. A work plan chart may be appropriate. The student should describe the proposed methodology that will enable the project aims and objectives to be achieved.

Project Log or Laboratory Book Preparation

If required, details for a Project Log or Laboratory Book will be advised by your supervisor/s.

Risk Assessment Form (OH&S Form)

<http://staff.uow.edu.au/ohs/managingrisk/index.html#3>

Without this form students will not be allowed to begin the experimental component of their research. Students undertaking the practical component of their thesis off Campus should still submit the Risk Assessment Form and must complete any additional OHS training required by the institution in which they are working.

APPENDIX C. Commencement of Candidature Form

CODE OF PRACTICE – SUPERVISION

Commencement of Candidature Form*

**Academic Units may adapt this form to meet the needs of their individual discipline*

This form, together with Appendix A of the Code of Practice - Supervision, is intended to assist both supervisors and HDR candidates negotiate the expectations of the candidacy, particularly for the first year. For HDR candidates requiring coursework this also puts in place guidance through their coursework so that it best leads into the research/thesis component of their degree. In all cases supervision arrangements as formalised on the 'Commencement of Candidature Form' may be revisited as part of the 12 month review process for all HDR students.

The completed form must be returned to the Research Student Centre to be kept as part of the student's official record.

1. Candidate Details			
Surname:		First Name:	
Faculty:		Candidature Commencement date:/...../.....
Degree:		Full-time: <input type="checkbox"/>	Part-time: <input type="checkbox"/>
Title of Thesis/Topic:			
Will the student be accessing intellectual property or confidential information owned by an industry partner? Yes <input type="checkbox"/> No <input type="checkbox"/>			
Details:			
<p><i>As per section 10 of the IP Policy, UoW supervisors electing to supervise a student on a project that is likely to have commercialisation expectations or is subject to a contract with an external organisation, must ensure that their Manager of Innovation and Commercial Development (MICD) has negotiated a Student Deed of Assignment and/or Confidentiality Agreement with the student before the student commences work on the project. If the student chooses not to sign a Student Deed of Assignment and/or Confidentiality Agreement for that project, the project will not be available to that student and the student will then be free to choose another project without prejudice. Student assignment of IP is dealt with in the Student Assignment of Intellectual Property Policy.</i></p> <p><i>Relevant Faculty MICDs should be contacted for further advice regarding this question in the Commencement of Candidature Form. Basically, Supervisors should select "yes" if:</i></p> <ul style="list-style-type: none"> • <i>there is a contract with a third-party that relates to this project;</i> • <i>the project involves use of IP owned or licensed by UoW;</i> • <i>there is likely to be IP developed with commercial value and it is not likely to be developed solely by the student; and</i> • <i>if there is some other reason why UoW would want to protect or own the project outcomes.</i> 			
Should UoW ask the student to assign IP, developed by the student's project, to UoW?			
Yes <input type="checkbox"/> No <input type="checkbox"/>			
2. Supervisor Details*			
Principal Supervisor:		Co-Supervisor:	
Associate Supervisor(s):			
Role(s) of Supervisor(s):			

2. Meeting Schedule			
Meeting Day:		Location:	
Time:	am/pm	Frequency:	Duration:

3. Student Needs (please provide details)	
Study Space	
Equipment	
Lab access	
Computer/ Software	
Additional support/funds	
Diversity Needs (including reasonable accommodation for a disa	
Other	

4. Goals / Achievements for 1st year of candidature:

1. _____

 Date Completed: _____

2. _____

 Date Completed: _____

3. _____

 Date Completed: _____

First Year Research Proposal Review to be completed by Date: _____

5. Action Required:

6. Comments arising from discussion/s:



We have discussed the responsibilities and policies addressed under the Code of Practice – Supervision, Code of Practice -Research and other relevant HDR Course Rules and policies.

Principal Supervisor's signature: _____ **Date:** _____

Co-Supervisor's Signature: _____ **Date:** _____
and/or

Assoc. Supervisor's Signature: _____ **Date:** _____

HDR Candidates' Signature: _____ **Date:** _____

APPENDIX D. Marking of Oral Presentation and Thesis

(Due: S2, Monday-Friday Week 10)

D1

Physics and Medical Physics thesis oral presentation.

Name of Student _____

Name of Examiner _____

(circle one rating in each box)

ITEM	Rating (1 = poor, 5 = excellent)	Comments
Structure Intro - who, what? - purpose - outline of talk - review of background Body - logical - evidence? Conclusion - Summary - Good closing	1 2 3 4 5	
Content - relevant - enough?	1 2 3 4 5	
Presentation Skills - voice - position - hands - movement - eye contact - timing - calm/confident	1 2 3 4 5	
Overheads etc - readable? - design - relevant	1 2 3 4 5	
Questions - question understood - well answered	1 2 3 4 5	
TOTAL MARK		

D2. Marking of Thesis

School of Engineering Physics
Centre for Medical Radiation Physics
MASTER OF MEDICAL RADIATION PHYSICS THESIS
Thesis examination

This form is intended to assist the examiner in arriving at your assessment of the student's performance in the Final Bound Thesis. You may add extra pages detailing your assessment of the thesis if you wish.

Assessment Criteria for Final Bound Thesis

Name of student:	Marker Name:	Thesis title:	
A) Problem Definition Justification of research Clear statement of objectives Definition of research scope Literature review: relevance, diversity, depth Project plan (eg. experimental design)	Comments		Mark Out of 20
B) Technical Content <ul style="list-style-type: none">• Quantity and quality of data collected• Sophistication of data analysis• Interpretation of results• Logical argument• Achievement of aims• Conclusions supported by data and analysis	Comments		Mark Out of 60
C) Presentation <ul style="list-style-type: none">• Title page, abstract, contents page, grammar, syntax and "visual appeal"• Compliance with thesis guidelines (eg. word limit)• Proper referencing• Adequate use of appendices	Comments Fine		Mark Out of 20
Comments:			
Recommended Mark			

APPENDIX E Draft Thesis

(Due: S2, Friday Week 10)
(Feedback: S2, Monday Week 12)

Layout

A recommended layout of the thesis is as follows:

- Title page
- Acknowledgements
- Abstract (not more than 250 words)
- Table of contents
- List of Figures/Plates
- List of Tables
- Notation (and units)
- Main body of thesis
- References
- Appendices

For further details on the title page, acknowledgements, abstract, table of contents and notations, **refer Appendix F**. Students are also advised to refer to and inspect past theses particularly those that have been awarded higher grades. However, the specific details should be checked with the requirement specified in these guidelines prior to adoption.

Presentation

Main Body of Thesis

The main body of the thesis shall be divided into a number of chapters. Each chapter should contain a number of sections and each section may contain a number of sub-sections. The use of sub-sub-sections should be avoided. The numbering system used herein may be adopted for ease of cross-references.

The following is a common sequence of thesis presentation:

- (a) The first chapter is an "Introduction". It should include a preamble or introduction to the topic including justification of work and clearly identifiable and itemised objectives, scope of research, and outline the thesis chapter organization.
- (b) If the thesis contains significant literature review it can be inserted in a separate chapter.
- (c) The next chapter is devoted to the theoretical aspects of the work. This will normally include equations derived, methods of analysis developed, etc.
- (d) Verifications of theoretical work should be given in the next chapter or two. For experimental type of work, details should be given of the test programme, instrumentation, method and procedure of data collection etc. This should then be followed by the presentation and discussion of results, which normally warrant a separate chapter.
- (e) The final chapter should be reserved for conclusions and recommendations for future work. The conclusions should clearly match the objectives.
- (f) The first and final chapters need to be cohesive and the abstract should complement these two chapters.

Drawings, tables, photographs etc. shall be inserted wherever necessary to enhance the readability of the thesis and should be included in the text as close to possible to the first citation. Each drawing, table and photograph must be provided with a caption or title. Should a table or figure be arranged in landscape mode the page should read away from the thesis spine.

References

One of two methods of referring to other people's work should be used. The two acceptable methods are:

- (a) by naming the author followed by year of publication;
- (b) by giving the author's name and the corresponding number in the reference list.

For theses that use many references, method (a) is usually most convenient. Otherwise, method (b) is quite acceptable. For method (a), the listing of references should be in alphabetical order of the names of the authors; for each author the listing should be in order of publication dates. For method (b), the references should be numbered in the order in which they are first referred to in the text.

Examples of the methods of referencing and the corresponding styles of listing may be seen in Appendix G.

Appendices

Material, which, if included in the main text, would disrupt the flow of presentation, should be included in the appendices. These include mathematical and numerical details, maps, charts, computer programme listings, work plan and risk assessment. However, significant numerical material (e.g. data files, computer output, etc.) should only be presented on the CDs.

Grammar and English Usage

Particular attention should be paid to spelling, usage of English, and proof reading of the typed manuscript. The body of the manuscript must be written in third person past tense and formal style. Test procedure description/s may be written in alternate person and tense. Students experiencing difficulty should consult with the Learning Development Centre for assistance.

Should extensive spelling and English corrections be necessary by the supervisor/s students will be required to add the Disclaimer Statement.

"The majority of work in this thesis is original. However, some assistance with spelling and English has been provided by my supervisor/s."

If deemed necessary, by the thesis supervisor and Discipline Thesis Coordinator this Disclaimer must appear towards the bottom on the thesis Abstract page.

Word Processing

The draft thesis shall be presented in a permanent and legible form. Accordingly, only the original or good quality photocopy is acceptable. Only bond paper shall be used in all copies.

The specifications given below shall be followed:

- (a) The text of the thesis shall be in Times Roman 12 font 1.5-line spacing.
- (b) The size of the paper shall approximate ISO paper size A4 (297mm x 210mm), except for illustrative materials such as drawings, maps and printouts, on which no restriction is placed. This material must be securely affixed and be arranged to fold outwards and upwards (as need be).
- (c) The margins on each sheet shall be not less than 25mm on the bound side and 20mm on the opposite side, 20mm at the top and 20mm at the bottom.
- (d) There shall be a title page showing thesis title, author's name, degree and date of submission (see Appendix C). No other decoration should be included on this page.

- (e) All pages (including diagrams, tables and appendices etc.) shall be numbered consecutively.
- (f) Header and Footers should contain the page number only and be void of borders. References should not be placed as footnotes.
- (g) Diagrams, tables etc. with proper captions, shall appear on pages close to where reference is first made to them. Photographs should be included as 'jpg' or 'gif' objects in the word document. Figure and photograph titles should be placed following the Figure whereas Table titles should be placed at the top of the table.
- (h) The draft thesis may be printed double sided.

APPENDIX F Final Thesis

(Due: S2, Friday Week 12)

Students should undertake all corrections specified by the supervisor in the draft thesis and print a good quality copy for final submission. Two (or more) of the thesis to be submitted shall be bound in boards with the spine lettered as follows:

- (a) at the bottom and across - UW
- (b) 70mm from the bottom and across, with degree and year of submission, for example
BSc or Bachelor of Medical Radiation Physics
200X
- (c) evenly spaced between the statement of the degree and year, and the top of the spine, the name of the author, initials first and then surname, reading either across or upwards in one line.

The colour of the covers shall be black.

Students should allow one week for the binding to be effected and the bound copies collected.

Names, contact and address details of suitable thesis binders may be obtained from the EEC.

Notes for students and academic advisors:

1. All submissions and collections are to be done at the EEC by 4.30 pm on the specified dates.
2. Two examiners chosen from the academic or honorary staff will mark the final thesis. In the case of the Bachelor for Medical Radiation Physics PHYS457 a supervisor cannot be an examiner of the thesis but will be asked to provide comments on the student's performance. In the BSc (Honours) a supervisor can be an examiner of their students thesis. Both markers will carry equal weight. If the marks differ by more than 10%, a third marker will be consulted. Outliers will be omitted and an average taken.
3. Both markers will carry equal weight. If the marks differ by more than 10%, a third marker will be consulted. Outliers will be omitted and an average taken.
4. Thesis examiners should use their academic judgement in deciding on the actual mark for each of the assessment components. A marking is given in Appendix C2.
5. Student requests for extension should be through SOLS to the Discipline Thesis Coordinator. Students should discuss with their academic supervisor and inform the Discipline Thesis Coordinator. Decisions will be communicated to students through SOLS after consultation with the relevant thesis supervisors.
6. Failure to meet these deadlines may result in a grade not being declared. This could lead to a student not being able to graduate at the end of session 2.

Appendix F1 Typical Title Page, Table of Contents, Notation and Chapter Presentation

F.1 Title Page

<p>Dose profiles of radiation treatment beams in the presence of a magnetic field</p> <p>By</p> <p>Nicholas Hardcastle</p> <p>A thesis submitted in partial fulfilment of the requirements for the award of the degree of</p> <p>B.Med.Rad.Phys</p> <p>from</p> <p>University of Wollongong Faculty of Engineering</p>

Taken from Nick Hardcastle, Honours Thesis “Dose Profiles of Radiation Treatment Beams In The Presence of a Magnetic Field”, University of Wollongong 2005

F.2 Abstract Page

ABSTRACT

(250 words maximum)

(One page only)

Abstract

In 2002 when this research started the brief of the project was to produce streamlined checks of planar dose maps delivered by IMRT fields to film.

At this time no other centre in Australia had a protocol for checking accuracy of RTP planned RT dose distributions. While many US centers have been checking IMRT distributions, there is still no standard protocol for these checks.

By the end of this project in 2005, 13 IMRT patient treatments had been successfully checked and this centre remains the only centre to have treated IMRT patients in Australia using the pinnacle RTP planning computer platform.

Early film dose maps revealed dose spikes due to MLC matchline effects. These matchlines were due to Varian MLC leaf ends sometimes matching other segment neighbors and were not predicted using pinnacle RTP until version 7.4 available about 2 months prior to the end of this project cycle.

Verifying a radiation treatment planning (RTP) computer's IMRT calculation was the first task for this thesis. Planar dose maps (dose in water perpendicular to the beam [cGy/MU]) were compared with beam dose distributions measured using films (XV and EDR) at various depths. The RTP computer and film measurements agreed within $\pm 3\%$ within the inside field region. In addition, the XV film had a lower linear dose response range than the EDR film, the efficacy of each film type depends on dose

Taken from Puangpen Tangboonduangjit, PhD Thesis "Intensity Modulated Radiation Therapy Dose Maps: The Matchline Effect", University of Wollongong 2006

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Taken from Andrew Walker, PhD Thesis “Filamentary H α Structure in The Southern Milky Way”, University of Wollongong 2006

F.4 Notation

All notation should use SI units. Sometimes it is permissible to use ‘cgs’ or other archaic units if they are appropriate.

F.5 Chapter Presentation

Chapter 3 Experimental

This chapter will describe the experimental methods used and the apparatus constructed to carry out the investigations.

3.1 Measurement Modalities

The main measurement modality used in the experiments was radiochromic film. This was used for all of the electron beam measurements and the photon beam measurements. Radiochromic film was used as it provides an accurate 2D representation of the dose delivered, and does not require chemical processing. MOSFET measurements were also performed on one electron beam energy. The following section describes each of the two modalities used.

3.1.1 Radiochromic Film

Radiochromic films are radiosensitive films that require no chemical development to acquire an image. When exposed to ionizing radiation they will change colour and darken according to the absorbed dose (Butson et al, 2003). The particular radiochromic film used was Gafchromic EBT, manufactured by International Specialty Products. The configuration of the film is given in Figure 3-1.

Taken from Nick Hardcastle, Honours Thesis “Dose Profiles of Radiation Treatment Beams In The Presence of a Magnetic Field”, University of Wollongong 2005

Appendix G Method of Referencing and Reference Listing

G.1 Reference by Naming Authors

The following is an extract from a published work, which may serve as an example when the author's name is placed in the sentence:

"The flexibility approach adopted by Mortarjemi and Van Horn (1969) is useful only in determining the load-distribution characteristics for some specific form of box-bridge construction. Other methods of analysis due to Wright et al. (1968, 1968a), Richmond (1969, 1969a, 1971) and Kristek (1970) are approximate in assumptions and in applications and are generally suitable for single-cell boxes only.

If the sentence does not use the author's name but the content requires referencing the following method should be used:

At Idaho Falls, a 1.6m thick soil layer was capable of storing and removing 370 mm of precipitation which corresponds to the maximum annual precipitation over a 40 yr. period (Anderson et al. 1993).

The corresponding reference listing should follow the styles below:

(a) Articles

Author's name (surname first followed by initials (title case)); year of publication; full stop; title of article; full stop; title of journal (abbreviated in conventional manner as desired); comma; volume; comma; part of number; comma; month of publication (if applicable); comma; numbers of first and last pages; full stop.

(b) Books and Reports

Authors' names in title case (surname first followed by initials); year of publication; full stop; title of book; full stop; series number (if applicable); comma; publisher/s; comma; place of publication (if necessary); full stop.

G.2 Portion of Typical Reference List

Jeraj R., and Keall P., 1999 Monte Carlo-based inverse treatment planning, *Phys.*

Med. Biol., **44**: 1885-1896.

Johns H.E., And Cunningham J.R., "*The physics of radiology*", Charles C Thomas

Publisher, Springfield Illinois U.S.A. 4th edition, p371,1983.

Jones L.C., and Hoban P.,W., 2000 Treatment plan comparison using equivalent uniform biologically effective dose (EUBED), *Phys. Med. Biol.*, **45**: 159-170.

Jordan T.F., and Williams P.C., 1994 The design and performance characteristics of a multileaf collimator, *Phys. Med. Biol.*, **39**: 231-251.

Taken from Puangpen Tangboonduangjit, PhD Thesis "Intensity Modulated Radiation Therapy Dose Maps: The Matchline Effect", University of Wollongong 2006

G.3 Reference by Numbers

This method of referencing is widely used in writing journal articles. The following is an example:

"Cable structures are becoming increasingly popular because of their economical constructional advantage and high strength capacity. However, the cable material typically used in modern construction exhibits linear stress-strain characteristics over only a portion of its useable strength. For ultimate load analysis, the resulting formulations should consider material nonlinearity. Some attention has been given to nonlinear material effects in static cases (1-3, 5-7, 13), but little attention has been devoted to dynamic cases (8, 9, 11, 12)."

It should be noted that the authors may also be names in this system as can be seen in the following paragraph.

"With the advances being made in digital computer capabilities, simulations of discrete digital time sequences have become an important engineering tool for both design and analysis. Digital time sequence simulations of random waves for ocean engineering applications have been developed by Smith (1) and applied by the Jones (5) for random wave force predictions. Alternative techniques for simulating a discrete random time sequence have been developed by Shvetsov and Shorin (10) and by Shinozuka (8) with an application to coastal sediment transport problems under random waves by Wang and Liang (13). In addition, dynamic testing systems, which are utilized to compute complex-valued transfer functions by the Frequency-sweep method, may be driven by a digital simulation of a discrete random time sequence that has been synthesized from a Fast Fourier transform (FFT) algorithm and is capable of providing excitations of the more desirable periodic random type (see for comparison, Ref. 6)."

For this method the styles of listing are very similar to those given in D.1 except that:

- (i) the authors' names only need to be in upper and lower case;
- (ii) for articles, year of publication should be inserted just after the month of publication;
- (iii) for books and reports, the year of publication should appear last;
- (iv) title of article (in upper and lower case) should be in double quotations and starts and ends with a comma;
- (v) title of journal or book should be underlined.

The following are two examples:

1. Wehausen, J.V. and Laitone, E.V., "Surface Waves," Encyclopedia of Physics, Vol. 9, 1960, pp. 475-479.
2. Gere, J.M. and Waver, W.J.R., Analysis of Framed Structures, Van Nostrand, New York, 1965.

G.4 Electronic Material

Students are advised to refer to the requirements of referencing electronic sourced material. Useful information on **Citing Electronic Resources** is available at the University of Wollongong Library Web Site. <http://www.library.uow.edu.au/helptraining/guides/citing.html>. Additional material is available from the Learning Development Centre (19:G102).

Appendix I Stress

As you no doubt realise, the final year project and writing up of the thesis is a major task to undertake - by far the biggest single piece of assessable work you will tackle in the course of your degree. It is also quite different in kind from the work involved in the other subjects.

In the other subjects, with the setting of tutorials, continuous assessment tasks and so on, students are led step by step through the required material. In contrast, when it comes to the final year thesis, ***the student is primarily responsible for the progress of the project*** - setting of goals, timetables and monitoring rate of achievement of these tasks. A very significant part of the thesis is the effective "project management" aspects associated with meeting the various deadlines set out in the previous section. A particular challenge in this subject is to maintain progress whilst still meeting the assessment requirements of the remaining subjects.

Consequently in grappling with this project it is not surprising that most, if not all, students will feel some degree of stress at some stage during the project. This is true to some extent with any assessable task, but given the magnitude of this task may reach higher levels - and in some cases may impede the successful completion of the thesis.

There are several points that may assist with regard to the handling, and hopefully relieving of this stress:

- Stress, to some degree, is a common part of the effort involved in tackling a major and significant task of this sort. You will not be the odd one out if you are experiencing this.
- If you are a "bright" student with a good academic record you are not immune - you are likely to have set your personal standard for the thesis at a challenging level - and you need to be careful that it is not too challenging (regular interaction with your supervisor should help).
- Stress free thesis completion is invariably associated with good project management and disciplined time management - including the ability to prevent thesis work being swamped by the requirements of your other subjects.
- The student is basically the "project manager" for the thesis - not the supervisor - and is responsible for seeing that the thesis gets done. However you should draw on your supervisor's experience and guidance regularly throughout the thesis. Regular meetings with your supervisor (weekly or fortnightly) are perhaps the best way to ensure this. The best way of relieving stress in the thesis is to catch the causes early and solve them. *A problem shared is a problem halved - therefore make it part of your project management plan to organise regular meetings with your supervisor.*
- If there are problems that you do not appear to be able to resolve in conjunction with your supervisor, you should discuss them with the coordinator of the final year thesis subject.

The University has a counselling service, located in the UniCentre building, to assist students. A significant part of their work involves assisting students in coping with the stress associated with tackling this type of major project. Be aware of and make use of this resource sooner rather than later if you feel stress levels building. There are techniques and strategies you can use to help you not only in this task but also in your future career.