

# The Part II Year

## Part II Induction Course

*recommencing Monday 2<sup>nd</sup> November 2020*

# Part II Handbook

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- **This presentation is a brief introduction to your Part II Handbook  
- will be available on-line**
- It is NOT a substitute for you reading the Part II Handbook
- Part II Handbook is/will be available on-line at:  
<http://www.materials.ox.ac.uk/teaching/part2/pt2handbooks.html>
- There are likely to be up-dates over the next few weeks  
– you will be informed as and when these happen

# Lab Books

- **Aim: To enable you to keep a complete record of everything that you do during your Part II project**
- Extremely useful for writing up
- Good scientific practice - very common in industry and academia to document procedures, results and analysis
- Maintains traceability of records, and safeguards intellectual property rights (IPR)
- Your supervisor may expect to retain your lab book or a copy of it at the end of the project
- **They WILL NOT be used for examining purposes**

# Induction: Monday morning

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## Departmental Matters

09.30-10.30	<b>Keyna O'Reilly</b>	<i>Welcome &amp; Introduction</i>
10.30-11.30	<b>Ian Bishop</b>	<i>Safety Lecture</i>
11.30-11.40	<b>Gareth Hughes</b>	<i>Electron Microscopy Courses</i>
11.40-12.30	<b>Paul Warren</b>	<i>Department IT</i>
12.30-12.40	<b>Keyna O'Reilly</b>	<i>Project Management &amp; The Part II Talk</i>
12.00-12.45	<b>Les Chorley</b>	<i>Workshops (video to watch)</i>

# Induction: Wednesday afternoon (via Teams)

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## Project Management

15.00-16.50	<b>Gerry Litchfield</b> <b>QinetiQ</b>	<i>Project Management</i>
16.50-17.00	<b>Keyna O'Reilly</b>	<i>Project Management - Quotes</i>

**NB. You will need to do work in preparation for this**

# Induction: later in the year

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## ➤ **Ethics and Sustainability Workshop**

Weds 18<sup>th</sup> Nov, 2:00-5:00pm (via Teams)

lead by Steve Newbury (Williams Advanced Engineering)

*This will be followed by a 2<sup>nd</sup> workshop in HT exploring the ethics and sustainability of your own projects*

## ➤ **Engineering Context Workshop**

Mon 30<sup>th</sup> Nov, 9:30am (recorded lecture)

Roger Reed

# Induction: later in the year

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## ➤ LabView Workshop

Mon 30<sup>th</sup> Nov, 9:30am (in Teaching Labs)

one of:

Thurs 19<sup>th</sup> Nov, 9:00am-12:00pm

Thurs 26<sup>th</sup> Nov, 9:00am-12:00pm

Thurs 3<sup>rd</sup> Dec, 9:00am-12:00pm

Andrew Watt & Dr Vigneau

# Part II Project Organisation

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**Part II Project Organiser:** Keyna O'Reilly

Room 10.02 21 Banbury Road (working from home some of the time)

Phone: (2)73743 (not forwarded to home)

keyna.oreilly@materials.ox.ac.uk

(email is usually the best way of contacting me)

## **Administration of Part II Projects:**

Education Manager

Philippa Moss

Room 30.05, Hume-Rothery (currently working from home)

Phone: (2)73750 (forwarded to home)

philippa.moss@materials.ox.ac.uk



# Extended Terms and Residency Requirements

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- Statutory residence of **37 weeks** (Examination Decrees and Regulations)
- Extended terms:
  - **Michaelmas Term 2020**  
Monday, 2<sup>nd</sup> November - Saturday, 12<sup>th</sup> December
  - **Hilary Term 2021**  
Friday, 8<sup>th</sup> January - Saturday, 27<sup>th</sup> March
  - **Trinity Term 2021**  
Friday, 9<sup>th</sup> April - Saturday, 3<sup>rd</sup> July (NB. End of 10<sup>th</sup> week)

# Postgraduate and Part II Lectures

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- You are strongly encouraged to attend any postgraduate lectures (on-line) that you and/or your supervisor(s) consider useful or interesting (see Lecture Lists on Departmental website)
- In particular, if you are planning to use:
  - **X-ray diffraction** – you must attend the course on ‘X-ray diffractometry’ given by Chris Grovenor
  - **Electron microscopy** you must first receive instruction organised by Neil Young/Gareth Hughes and/or Pete Nellist

# Ordering Materials, Equipment, etc.

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- You should agree your request for consumables, materials, equipment etc. with your supervisor
- Your supervisor will give you an account code for minor items to be obtained from the **Departmental Stores** (to a total of £50). You should not disclose this account code to others
- A catalogue of items held in Stores is available on-line at <http://www.materials.ox.ac.uk/local/stores.html> , as is the form you will need to fill out. Your supervisor will need to sign the form.

# Ordering Materials, Equipment, etc.

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- If the items are not held in stores you should complete a **requisition form**, obtainable from the Department's internal web pages at <http://www.materials.ox.ac.uk/local/documents.html> . You may **NOT** place an order directly with a supplier
- Where possible, use a supplier with whom the University already has an account (see above website again). Setting up new accounts is very costly, and **GREATLY SLOWS** the ordering process
- You **MUST** get your supervisor to sign the form, and state where the funding is coming from (it will be returned otherwise!)
- Further advice on how to order is in your Part II Handbook

# Department Handbook

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- In the past I have handed out copies of the *Department Handbook* (N.B. *This is a separate document from the Part II Handbook*) that describes the Department's facilities and procedures, but I have decided to save on paper:

<http://www.materials.ox.ac.uk/local/DH.html>

- it's a document primarily aimed at graduates and employees new to the Department, hopefully most of the info relevant to you has been included in your Part II Handbook, but you may find it useful
- NB It **doesn't** contain a list of equipment in the Department!  
(If your group doesn't have equipment/small quantities of materials etc that you need, try emailing **notices@materials.ox.ac.uk**)

# Managing your project starts...now!

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- If you want your project to be well managed what do you think is the first thing you need to know?

The ultimate objective

To maximise your mark and get a good degree

- How can this be achieved?  
The Thesis

# The Thesis

- **Layout**
- must be word-processed with double line-spacing
- on A4 paper, and printed on one side only of each sheet
- within a page area of 247 mm x 160 mm (i.e. the sum of the top and bottom margin should be 50 mm, and the sum of the left-hand and right-hand margins should be 50 mm)
- with a left-hand margin of at least 30 mm (to allow ease of reading after binding)
- using type of at least 11pt font size
- presented in a binder

# The Thesis

- **Word & Page Limits**
- **Word limit: 12,000** words for the main body of the thesis, plus **1,500** words for a mandatory final chapter on project management. Word counts **exclude** references, title page, acknowledgements, table of contents and the three project management forms
- **Page limit: 100** pages. Page count **includes** an abstract, the text as described in the word limits above, the three project management forms, computer programs, graphs, diagrams, photographs, tables and similar material
- All pages of the thesis should be numbered sequentially
- If you wish to be exempted from the word and/or page limit you and your supervisor should, at an early stage, contact the Part II Co-ordinator who will put your case to the Chairman of the Part II Examiners
- The examiners will enforce the word and/or page limit strongly, and any thesis submitted over the word limit may be subject to penalties



# The Thesis

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- **Appendices**
- Word & Page limits imposed to prevent the inclusion of material that is unnecessary for development of the key argument(s) of the thesis
- Additional material, e.g. further detailed data, may be included in appendices
- Examiners are required to read only the main body of the thesis. They will read appendices entirely at their own discretion

# Thesis Contents

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- The thesis **MUST** include:
- A one-page abstract
- A literature survey
- A brief account of the *Engineering Context/Relevance* of your project (a requirement of Accreditation)
- A final chapter containing an account of the project management aspects of your investigation
- A signed statement that the thesis is your own work and that it adheres to the word and page limits (see Appendix A in Part II Handbook)

# COVID-19 and Project Management

- Keep a diary noting all ways in which the pandemic is affecting your Part II
  - including access to equipment and training
  - any impact of accessing workspace
  - if you need to work from home, any affect of working space, lack of quiet space etc
  - any impact on mental health
  - you can use it when writing your Project Management review
- also, last year we added in an extra Project Management Form to seal specifically with effects of the pandemic

# Thesis Submission

- **FOUR** copies of the thesis must be submitted to the Chairman of the Examiners in the Honour School of Materials Science, Part II, c/o the Head of Examinations and Assessments, Examination Schools by **4.00 pm on Monday of week 7 of Trinity Term**
- Each copy must be presented in a binder – binding assisted by the Teaching Lab Technician (Diana Passmore)
- The **viva voce examination** is normally held in 9<sup>th</sup> or 10<sup>th</sup> week of Trinity Term. Keep these weeks clear in your diary. **NB. Extended term dates are to end of 10<sup>th</sup> week. Expect to have to be here in 10<sup>th</sup> week**
- Following submission of your thesis, you will be required to submit an electronic version of your thesis

# Marking The Part II Project

## ➤ The Procedure

- The Part II contributes a maximum of 400 marks / total of 1200 marks for the degree
- Theses will be read by two internal examiners. Each independently allocates a provisional mark
- Each thesis will be seen by one of two external examiners before the viva
- After the viva the Part II examiners will discuss the provisional marks and agree collectively a mark out of 400
- Further guidance on last year's marking process is given in the Part II Handbook but this will be reviewed this year – you will be informed if there are to be any changes to procedures

# What Makes A Good Part II Thesis?

- High quality scientific work, carried out professionally and well presented
- Remember, scientific research is unpredictable. There may be unexpected difficulties, of one sort or another. You may have limited control over such events
- You do not have to discover something entirely new
- Your report is on **your** investigations. Tell us what you did
- If it worked, that's great
- If it didn't, suggest reasons why, and if appropriate, improvements to the project
- If other people have duplicated your work, include a critical comparison of your work and theirs

# How To Write A Good Part II Thesis

- Your literature survey should be concise and **critical**, and you should include mention of what literature, databases or other information sources you have used in compiling it (**write notes on each paper you read, as you read it – key findings/relevance**)
- Full information should be given about the materials that you study – their source, purity, full composition, prior thermal and mechanical treatments, etc (**detail in your lab book**)
- Experimental procedures should be carefully described and sufficiently detailed to allow another scientist to repeat them (**detail in your lab book**)
- The thesis should contain a clear summary of the main results and conclusions and (where appropriate) should identify key objectives for further work

# How To Write A Good Part II Thesis

- The scientific significance of your results should be discussed, including e.g. a comparison with the findings of other scientists, conformity to known understanding etc
  - Analysis of the statistical significance of experimental results should be included whenever appropriate
  - The reproducibility of experimental measurements should be stated. An estimate of experimental errors and uncertainties should be included alongside the results
  - Where computer modelling has been used, an assessment of the reliability of the model and the accuracy of the calculations should be attempted
- **Start writing as early as possible!!**



# Analysis of Errors

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- Some years ago, one external examiner, Professor Goodhew of Liverpool University, commented in his report on the  
    'almost complete absence of sensible estimates of experimental errors, or any careful attempts to assess the reproducibility of individual data points'
- There was also a  
    'complete absence of use of any form of statistical analysis or even proper curve fitting in order to establish confidence limits for results'
- He concluded that  
    'critical judgement was seriously lacking'

# Remedies?

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- 1<sup>st</sup> year “Errors in Measurement” lectures
- Handout from Dr Jakubovics (Appendix B of your Part II Handbook)

# Plagiarism

## Essential Information for Students

You must read the Proctors' Disciplinary Regulations for University Examinations, which make clear that:

- you must indicate to the examiners when you have drawn on the work of others, using quotation marks and references in accordance with the conventions of your subject area
- other people's original ideas and methods should be clearly distinguished from your own
- the use of other people's words, illustrations, diagrams etc should be clearly indicated regardless of whether they are copied exactly, paraphrased or adapted
- material you have previously submitted for examination, at this University or elsewhere, or published, cannot be re-used – including by drawing on it without referencing it, which constitutes 'autoplagerism' - unless specifically permitted in the special Subject Regulations.

The Proctors Disciplinary Regulations for Examinations:  
[www.admin.ox.ac.uk/statutes/regulations/288-072.shtml](http://www.admin.ox.ac.uk/statutes/regulations/288-072.shtml)

# The Part II Talk

- You will be **required** to give a talk on your project at a session of Part II presentations **early in Trinity Term**
- **NO exemptions**
- **AIM: To give you experience of giving an oral presentation**  
(but it also helps with writing your thesis)
- Each talk will last 12 minutes + 3 minutes for discussion
- The talk is NOT examinable!

# The Part II Talk

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- All members of the Department are invited, except the Part II Examiners (unless they are a Supervisor of a particular project)
- You will receive brief, confidential, feedback about your talk from the Part II Project Organiser
- Prize of £450 and a medal from The Worshipful Company of Ironmongers for the best talk
- The talk should be aimed at non-specialist scientists. It should include a brief description of the “Engineering Relevance” of your project

# The Ironmonger's Hall



# Armourers and Braziers' Prize

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- The Armourers and Braziers award a medal and a prize of £250 for the best Part II project
- The award is based on the recommendation of the Part II Examiners, after the examination of the Part II theses is completed
- The Armourers like to award the prize and medal at a formal presentation by one of their senior people, on a public occasion

# Leaving The Department

- **Part II Leavers Form A (available on WebLearn)**
  - Relates to sponsorship and vacation work whilst on course, and your onward career
  - Very important information for Department and University audits and assessments
  - Hand in to Diana Passmore when you have your thesis bound
- **Part II Leavers Form B (available on WebLearn)**
  - A declaration that you have returned your library books and keys, and have handed in your Form A and electronic copy of your thesis, etc



# Other Transferable Skills

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- You may find it useful to attend some of the following workshops/events. For details see the on-line termly lecture list
  - Part II writing skills, plagiarism, laboratory notebooks, IPR & patents, HT, Dr Assender & others
  - Presentation skills, HT, Mr Baker & Dr Taylor
  - The Oxford University Careers Service – Active job hunting, MT, Dr Evans
  - Careers & networking evening with alumni, MT
  - DPhil poster competition, HT
  - Technology and knowledge transfer, TT (tbc)
  - Preparing an article for submission to a materials journal, TT (tbc)

# Project Management

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- You are required to complete THREE 1-page forms throughout your Part II, and send copies of them to the Academic Administrative Office. These forms should be downloaded from the Part II section of Canvas
- The project management forms are reviewed by the Part II Project Organiser, and if your project is falling on stony ground then she will invite you for a discussion, possibly with your supervisor
- You are required to include in your thesis a mandatory final chapter (1,500 words) on project management which should include a reflective account of how you managed your project and copies of the three project management forms

## PROJECT MANAGEMENT FORM 1

### Part II Project Description Form

After discussion with your supervisor YOU should complete this form and send a copy to the Education Support Office by Friday of 5th week of Michaelmas Term.

Name: \_\_\_\_\_ College: \_\_\_\_\_

Address for correspondence: \_\_\_\_\_

Contact telephone number: \_\_\_\_\_

Title of project: \_\_\_\_\_

Supervisor: \_\_\_\_\_

What are the objectives of the project in order of priority?

List the major milestones that must be accomplished in order to meet the objectives of the project

Are you working essentially on your own or as part of a team? If you are part of a team what is your role, and to what extent is the success of your project dependent on other members of the team?

What resources (equipment, materials, technician support etc.) will you need?

Do you require any training to meet your objectives, e.g. in the use of specific experimental equipment or software, and how are you going to obtain that training?

Complete the following plan for your entire project as you see it now. List each major task down the left hand column, and for each one draw a horizontal line to indicate the period you expect to allocate to it. For example, the final task, writing your thesis, is shown as occupying mid-April to mid-June.

Task	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Writing up									

Has your supervisor completed a Risk Assessment Form about your project yet? ☐ Yes ☐ No

Your signature:  
Date: \_\_\_\_\_

Your supervisor's signature:  
Date: \_\_\_\_\_



## PROJECT MANAGEMENT FORM 2

### 1st Part II Project Analysis Form

**Complete this form and send a copy to the Academic Administrative Office by Friday of 9th week of Michaelmas Term**

Name:

Title of Project as given in your Project Description:

Refer back to the project plan in your Project Description and list the goals you set for this term.  
Comment briefly on the extent to which you have achieved them.

Identify clearly any difficulties you have encountered. Are they surmountable in the time available?

State any refinements, modifications or replacements of the original objectives for your Part II project:

Are you intending to change the title of your project? If so, state the new title:

Have the training needs you identified in the Project Description been met, and have you identified any further training requirements?

Tick the appropriate box. Do you have:

Results	<input type="checkbox"/> None	<input type="checkbox"/> Some	<input type="checkbox"/> Sufficient
Analysis of results	<input type="checkbox"/> None	<input type="checkbox"/> Some	<input type="checkbox"/> Sufficient

Do you have any other comments you wish to make?

After looking at the project plan in your Project Description complete the following project plan for the remainder of your Part II.

Task	Dec	Jan	Feb	Mar	Apr	May	Jun
Writing up					xxxxx	xxxxx	xxxxx

General comments by the supervisor:

Your signature:  
Date:

Your supervisor's signature:  
Date:

Refer back to the project plan in your Project Description and list the goals you set for this term. Comment briefly on the extent to which you have achieved them.

Identify clearly any difficulties you have encountered. Are they surmountable in the time available?

State any refinements, modifications or replacements of the original objectives for your Part II project:

Are you intending to change the title of your project? If so, state the new title:

Have the training needs you identified in the Project Description been met, and have you identified any further training requirements?

Tick the appropriate box. Do you have

	None	Some	Sufficient
Results			
Analysis of results			

Do you have any other comments you wish to make?

After looking at the project plan in your Project Description complete the following project plan for the remainder of your Part II.

Task	Dec	Jan	Feb	Mar	Apr	May	Jun

### PROJECT MANAGEMENT FORM 3

#### 2nd Part II Project Analysis Form

Complete this form and send a copy to the Assistant to the Academic Administrator (Academic) by Friday of 6th week of Hilary Term

Name:

Title of Project:

Refer back to the project plan you made last term and list the goals you set for this term. Comment briefly on the extent to which you have achieved them.

Identify clearly any difficulties you have encountered. Are they surmountable in the time available?

State any refinements, modifications or replacements of the objectives you set for your Part II project.

Are you intending to change the title of your project? If so, state the new title:

What is the title of the talk you will give to the Department?

Have all your training needs for this project now been met?

Tick the appropriate box. Do you have

	None	Some	Sufficient
Results			
Analysis of results			

Do you have any other comments you wish to make?

General comments by the supervisor:

Your signature:  
Date:

Your supervisor's signature:  
Date:

Refer back to the project plan you made last term and list the goals you set for this term. Comment briefly on the extent to which you have achieved them.

Identify clearly any difficulties you have encountered. Are they surmountable in the time available?

State any refinements, modifications or replacements of the objectives you set for your Part II project:

Are you intending to change the title of your project? If so, state the new title:

What is the title of the talk you will give to the Department?

Have all your training needs for this project now been met?

Tick the appropriate box. Do you have

	None	Some	Sufficient
Results			
Analysis of results			

Do you have any other comments you wish to make?



# What you need to do before Wednesday

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- Meet remotely with your supervisor and group members
- Have available
  - your project description
  - your Supervisor's form (ask your supervisor for a copy)
  - a blank PMF1 (and have these available on Wednesday too!)
- Find out more about your project
  - about what experiments you will need to do
  - what equipment you will need to use
    - how will you be trained
  - what materials will you use
    - are they available
- Start thinking about contingencies

# What you need to do before going into the Department

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- Meet remotely with your supervisor who will induct you for each building you will need to access
- This involves talking through the COVID-19 Risk Assessment for each building
- Talking through the Building Movement Plans for each building

# Lab Notebooks

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- Please come and collect your Lab Notebook from me on Thursday morning from outside Reception (just inside if the weather is very bad – in which case I will direct you as to how to leave the building – one-way system)
- I'll be there 9:30-10:30 and 11:15-12:15
- Please bring a face covering with you in case we need to be inside
- If there is a queue, please ensure you keep 2m social distancing