DEPARTMENT OF
MATERIALS

M.Eng in Materials Science
Final Honours School
Course Handbook 2023-24

Department of Materials

The M.Eng in Materials Science Final Honours School Course Handbook 2023-24[1] Version 1.0 (13/11/2023)

This handbook applies to students starting Final Honour School in Michaelmas term 2023. The information in this handbook may be different for students starting in other years.

The Examination Regulations relating to this course are available at (2022/23) Honour School of Materials Science Exam Regulations (ox.ac.uk). If there is a conflict between information in this handbook and the Examination Regulations then you should follow the Examination Regulations. If you have any concerns in the first instance please contact Philippa Moss (philippa.moss@materials.ox.ac.uk).

The information in this handbook is accurate as at 13th November 2023, however it may be necessary for changes to be made in certain circumstances, as explained at www.ox.ac.uk/coursechanges . If such changes are made the Department will publish a new version of this handbook together with a list of the changes and students will be informed.

Version	Action	Date
Version 1.0	Published in MT23	13/11/2023
	-	

[1] This handbook is for students entering Final Honours School in 2023 and applies to both Part I and Part II

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Welcome

Welcome back to Oxford, and congratulations on passing your Prelims Examination! In the second year, you will be introduced to more advanced topics in Materials, but these are all firmly based on the work in the first year - so don't throw away your notes or forget all your thermodynamics! In addition, the more advanced courses e.g. in electronic properties and in statistical mechanics, go a great deal further than the physics component of the first year material.

The pattern of teaching will be very familiar. Lectures are the main way of offering you the content of the programme, supported by tutorials as before. However, do not think that lecture handouts are all you need to do the tutorial sheets; using textbooks to read around the subject is much more important this year. The Practical Classes continue to be a critical part of our teaching strategy, and some of the second year practicals are demanding and quite long - be prepared! Do not forget that practical marks contribute directly to one of the papers in Finals, and similarly other coursework elements such as industrial visits and the business plan should allow you to broaden your horizons beyond the lecture materials and text books.

The Department takes a great deal of trouble to try and ensure that the coursework we ask you to study is both relevant and interesting. Please make full use of the lecture and practical questionnaires, found online, to feedback your thoughts on what we offer!

I hope that you have a very stimulating and energetic year.

Professor Hazel Assender
Head of Department

Important Dates and Deadlines

Materials Science

SECOND YEAR

Michaelmas Term:

- **Week 1 Wednesday** deadline for registration with Language Centre for foreign language course.
- **Week 4 Friday** deadline for submission of application for the Supplementary Subject.

Hilary Term:

- **Week 9 (week following the end of term) Monday Noon EXAMINATION** deadline for submission of Business Plan to the Chair of Examiners in the Honour School of Materials Science, via Inspera.
- **Week 9 (week following the end of term) day tbc EXAMINATION** written examinations for Supplementary Subjects

THIRD YEAR

Michaelmas Term:

- **Week 2 Tuesday Noon EXAMINATION** Submission of Practical Books and complete set of Practical Reports to the Chair of Examiners in the Honour School of Materials Science, c/o Education Support Team.
- **Week 3 Tuesday Noon EXAMINATION** absolute deadline for submission of Team Design Project report to the Chair of Examiners in the Honour School of Materials Science, via Inspera.
- **Week 3 Friday EXAMINATION** Team Design Project presentations.
- **Week 3 Friday** Deadline to transfer from MEng to B.A. in Materials Science, taking a reduced set of Options courses with a literature based research module in the 3rd year.
- **Week 9 (week following the end of term) Tuesday noon EXAMINATION** deadline for submission of Introduction to Modelling in Materials report to the Chair of Examiners in the Honour School of Materials Science, via Inspera.

Hilary Term:

- **Week 2 Friday Noon** deadline for receiving entries for the Part I examination **College co-ordinated.**
- **Week 3 Tuesday Noon EXAMINATION** deadline for submission of Characterisation / Atomistic Modelling Option report to the Chair of Examiners in the Honour School of Materials Science, via Inspera.
- **Week 6 Wednesday 2.00 p.m**. Part II Open Day.
- **Week 7 Friday** submit your Part II Preference form to the Part II Project Organiser.

Trinity Term:

- **Week 6 Monday EXAMINATION** start of the Part I examination (provisional).
- **Week 8 Friday** Deadline to transfer from MEng to B.A. in Materials Science, taking a literature based research module during the Long Vacation.

FOURTH YEAR

Michaelmas Term:

- **The Monday and Thursday** (provisional) **following the first day of the Part II Michaelmas extended term**, which is the fifth Friday before Michaelmas full term, and is typically around September 12-17: Part II Induction Course.
- **Week 0 Friday** deadline for submission of completed Project Management Form 1 to Part II Project Organiser.
- **Week 4 Friday Noon** deadline for receiving entries for the Part II examination **College co-ordinated.**
- **Week 6 Friday** deadline for submission of Project Management Form 2 to the Part II Project Organiser.

Hilary Term:

- **Week 6 Friday** deadline for submission of Project Management Form 3 to the Part II Project Organiser.

Trinity Term:

- **Week 2** (provisional) Part II talks.
- **Week 7 Monday 4 p.m. EXAMINATION** submission of Part II thesis to the Chair of Examiners in the Honour School of Materials Science, via Inspera

How to use this handbook

This handbook is intended as a guide and reference for you throughout the Final Honours School. It is your responsibility to read the handbook and familiarise yourself with the requirements of your course. The handbook read in conjunction with supplementary material such as the synopses of lecture courses for each year of your course, provides you with information to help you understand the processes and procedures of the Department and the other facilities such as libraries and computers to which you have access. Additionally, it will give you details of how you will be assessed and how your examination will be classified.

A further handbook will be issued to you at the start of your Part II which provides more detailed guidance about your research project. Lecture synopses, together with supplementary information, are available on the Department website at www.materials.ox.ac.uk. The synopses reflect the intended content of the corresponding lecture courses, although the lecturer may include material which enhances the syllabus but which does not form part of the syllabus for the examinations. You should note that, as part of the lecture synopses, supporting **readings lists** are issued (see Section 6.1 for further information).

The full lecture programme is captured in a document called the "General Scheme of Teaching". This describes how the programme fits together, setting out the structure, the contact hours and the terms in which each lecture course is delivered. The termly lecture lists provide the detail of the actual schedule. Used together, these provide you with a detailed outline of the entire programme.

The General Scheme of Teaching and each term's lecture list will be published online on the Department's website at: www.materials.ox.ac.uk/teaching/lecturelists.html. Lecture lists are subject to change. Lecture lists are usually not published till 1-2 weeks before term starts.

Any changes to the published lecture lists will be communicated to you via email; this is our primary method of disseminating information and you must ensure that you check your email regularly (see Section 15.3 for further details).

YOUR COURSE HANDBOOK SHOULD BE YOUR FIRST PORT OF CALL FOR ANY MINOR QUERIES CONCERNING THE COURSE. For other concerns or if you genuinely cannot find the correct information then your College tutor and the Education Support team are happy to help.

Other sources of information

You should also receive:

- further information about your particular college's regulations and requirements,
- Student Handbook (formerly known as the Proctors' and Assessor's Memorandum - available electronically at www.ox.ac.uk/students/academic/student-handbook.) This includes general information about health and welfare matters; the Student Union; accommodation; sport and recreation; transport; personal safety and security. It provides a source of information about the University's academic support services including the University Language Centre and Careers Services. The booklet also gives the University's formal, statutory rules and requirements in relation to Conduct of Examinations, Harassment, Freedom of Speech, etc.

Further details may be found via the student portal of the University intraweb (https://www.ox.ac.uk/students).

General

Comments or suggestions for matters which might be amended or which might usefully be covered in future editions of this handbook would be welcome. They should be sent to the Education Support Team in the Department of Materials, or emailed to undergraduate.studies@materials.ox.ac.uk.

If you require this handbook in a different format, please contact the Education Manager: philippa.moss@materials.ox.ac.uk or 01865 273750.

Useful Websites

Materials Department website

www.materials.ox.ac.uk

Undergraduate teaching page

www.materials.ox.ac.uk/teaching.html

Canvas

https://canvas.ox.ac.uk/

Inspera – submission site for coursework

https://oxford.inspera.com/

Oxford University information for students

www.ox.ac.uk/students/

Oxford Exam Papers Online

https://weblearn.ox.ac.uk/portal/hierarchy/oxam

Examination Regulations

(2022/23) Honour School of Materials Science Exam Regulations (ox.ac.uk)

Electronic resources available through the University libraries

www.bodleian.ox.ac.uk/eresources

Radcliffe Science Library

www.bodleian.ox.ac.uk/science

Careers Service

www.careers.ox.ac.uk

Language Centre

www.lang.ox.ac.uk

Institute of Materials, Minerals and Mining

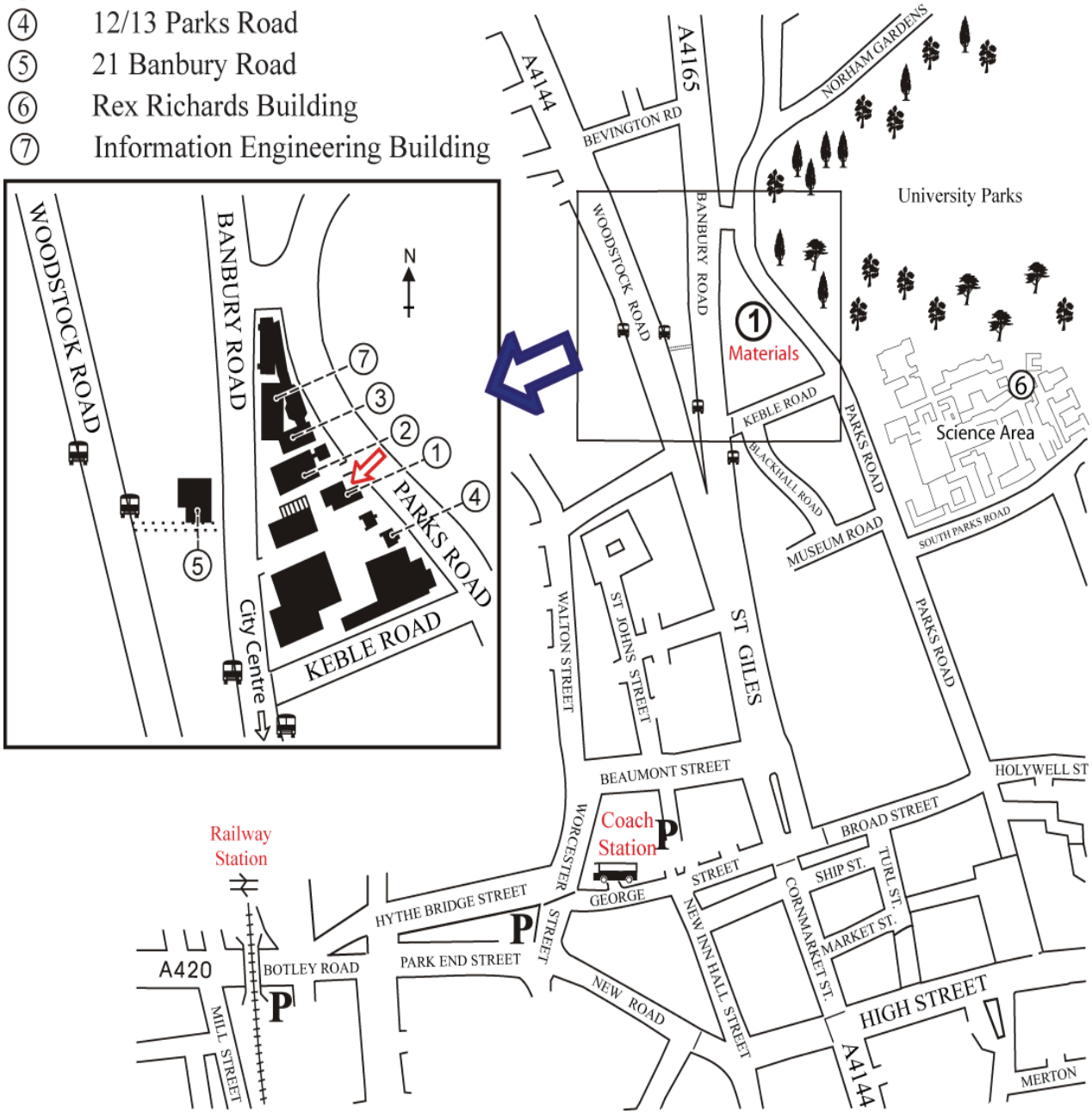
www.iom3.org

Materials Society (Undergraduate)

www.matsoc.com

Department of Materials - Map of Central Site

⇨ Reception
① Hume-Rothery Building
② Holder Building
③ Engineering Technology Building
④ 12/13 Parks Road
⑤ 21 Banbury Road
⑥ Rex Richards Building
⑦ Information Engineering Building



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1 Where to find places in the Department

The map of the Science Area shows the location of various buildings of interest to Materials undergraduates. The location of some places of note within the various buildings is listed below.

Entry to the Hume-Rothery Building, the Holder Building and 21 Banbury Road is controlled by means of a swipe card access system. All people wishing to enter these buildings must carry their University card and use this to swipe themselves in. All undergraduates should have been entered automatically into the system; this will give you entry between 8 am – 6 pm, Monday - Friday. If you have any problems with your swipe card, please see Reception in the Hume-Rothery Building.

1.1. Hume-Rothery Building (HR)

The Lecture Theatre is on the ground floor.
The Reception Area is on the ground floor.
The Education Support Team can be found in rooms 30.05 and 30.06 on the second floor.
The Finance team is located on the second floor.
The Departmental Library is in room 20.19 on the first floor.
The main photocopier is in the foyer by Reception on the ground floor.
The Head of Department's office is room 30.16 on the second floor.
The Head of Administration and Finance's office is room 30.22A on the second floor.
Stores are in room 10.17 on the ground floor.

1.2. Holder Building (HB) (includes Common Room (Café))

The Teaching Laboratory and the Computer Room (room 316) are on level 3.
The Electron Microscope Suite is on level 1.
The Common Room, which is a shared facility with the Department of Engineering Science, is on level 2. Undergraduates are welcome to use the Common Room, where you can buy coffee, tea, lunches and snacks.

1.3. Engineering and Technology Building (ETB)

The ETB is also known as the Wolfson Building.
The Wolfson Committee Room (or ETB Committee Room) is room 20.30.

1.4. 21 Banbury Road (BR)

The Lecture Theatre is room 00.19 on the ground floor.
The Conference Room is room 10.04 on the first floor.

1.5. Thom Building (Department of Engineering Science)

Lecture Rooms 1, 2 and 3 are on level 1.

1.6. Information Engineering Building (Department of Engineering Science)

The IEB is most easily accessed through the ETB Building.

Lecture Room 7 is on the ground floor.

Lecture Room 8 is on the ground floor.

2. Staff of the Department of Materials

2.1. Professors

Professor David Armstrong, Professor of Materials Science and Engineering, Fellow and Tutor of Corpus Christi College, Practical Courses Organiser

Professor Hazel Assender, Head of Department, Fellow of Linacre College

Professor Simon Benjamin, Professor of Quantum Technologies, Fellow of Wolfson College

Professor Harish Bhaskaran, Professor of Applied Nanomaterials, Entrepreneurship Organiser

Professor Sir Peter Bruce FRS, Wolfson Chair in Metallurgy, Professorial Fellow of St Edmund Hall

Professor Martin Castell, Professor of Materials, Fellow of Linacre College

Professor Ralf Drautz, Visiting Professor of Materials

Professor Patrick Grant FREng FIMMM, Vesuvius Professor of Materials, Pro-Vice Chancellor (Research), Director of Faraday Partnership in Automotive and Aerospace Materials, Fellow of St Catherine's College

Professor Nicole Grobert, Professor of Materials, Fellow of Corpus Christi College

Professor Chris Grovenor, Associate Head of Department (Research), Professor of Materials, Fellow and Tutor of St Anne's College

Professor Saiful Islam, Professor of Materials Modelling, Professorial Fellow of St Anne's College

Professor Angus Kirkland, Professor of Materials, Fellow of Linacre College

Professor Sergio Lozano-Perez, George Kelley Professor of Materials,

Professor James Marrow, Associate Head of Department (Teaching), James Martin Chair in Energy Materials, Director of Undergraduate Studies, Chair of Academic Committee, Summer Exchanges & Placements Organiser

Fellow of Mansfield College

Professor Michael Moody, Professor of Materials, Fellow and Tutor of Trinity College, Characterisation Module Organiser

Professor Peter Nellist FRS, Professor of Materials, Fellow and Tutor of Corpus Christi College

Professor Mauro Pasta, Professor of Applied Electrochemistry, Fellow and Tutor of St Edmund Hall

Professor Roger Reed FREng, Professor in Materials and Solid Mechanics, Fellow of St Anne's College

Professor Jason Smith, Associate Head of Department (Infrastructure), Professor of Photonic Materials and Devices, Fellow and Tutor of Mansfield College

Professor Susie Speller, Professor of Materials Science, Fellow and Tutor of St Catherine's College

Professor Richard Todd, Professor of Materials, Goldsmiths Fellow and Tutor of St Catherine's College

Professor Angus Wilkinson, Professor of Materials, Chair of Equality & Diversity Committee and Fellow of St Cross College

Professor Jonathan Yates, Professor of Materials Modelling, Fellow and Tutor of St Edmund Hall, CMS Class Organiser, IMM & Atomistic Modelling Module Organiser

2.2. Associate Professors and Lecturers

Professor Sebastian Bonilla, Associate Professor of Materials and Fellow and Tutor of St Anne's College

Professor Jan Czernuszka, Associate Professor of Materials, Harassment Advisor, Fellow and Tutor of Trinity College, Part II Project Organiser

Professor Marina Galano, Associate Professor of Materials, Fellow and Tutor of Mansfield College

Professor Katharina Marquardt, Associate Professor of Materials, Fellow and Tutor of St Edmund Hall

Professor Rebecca Nicholls, Associate Professor of Materials

Professor Keyna O'Reilly, Associate Professor of Materials, Fellow and Tutor of The Queen's College

Professor Ed Tarleton, Associate Professor of Engineering Science

Professor Andrew Watt, Associate Professor, Fellow of St Cross College, Team Design Projects Organiser

Professor Rob Weatherup, Associate Professor of Materials, Chair of Tutors' Committee, Fellow and Tutor of The Queen's College

2.3. Senior Research Fellows and others involved in teaching

Dr Chris Allen, Research Fellow

Dr Marveh Forghani, Research Fellow

Dr James Gibson, Research Fellow

Dr Phani Karamched, Research Fellow

Dr Balint Koczor, Senior Research Fellow in Quantum Technologies and Glasstone Research Fellow

Dr Emanuela Liberti, Academic Visitor Diamond Lightsource

Dr Enzo Liotti, Departmental Lecturer in Processing of Advanced Materials and Industrial Visits Organiser

Dr Ali Mostaed, Research Fellow and Crystallography Class Organiser

Dr Sreejith Olakkil Veedu, Research Fellow

Dr Chris Patrick, Departmental Lecturer, Senior Research Fellow in Materials Modelling

Dr Talha Pirzada, Research Fellow

Dr Andrey Poletayev, Research Fellow

Dr Joe Prentice, Cooksey Early Career Teaching and Research Fellow at St Edmund Hall

Dr Alex Sheader, Research Fellow and Crystallography Organiser

Dr Michael Slota, Research Fellow

Dr Yige Sun, Research Fellow

Dr Stuart Wilkinson, Business Plan Tutor, Assistant Director of Innovation & Engagement Team, Research Services, Entrepreneurship Fellow of Reuben College

Dr Neil Young, Senior Research Scientist, DCCEM Manager

2.4. Support staff

Mr Chris Akinola, IT Officer

Mr Tauseef Ansari, IT Officer

Ms Helena Cotterill, Access and Outreach Manager

Mrs Kay Davies, Reception, Outreach and Access Officer

Mrs Christina Foldbjerg Holdway, Teaching Class and Chemical Safety Technician

Ms Fernanda Haswell-Martin, Head of Administration and Finance, Departmental Safety Officer

Mr Tom Heath, Senior Education Officer, Disability Contact

Mrs Sharmaine Ijada, Education Support Officer

Mrs Alison Jewitt, Administrative Secretary

Ms Lorraine Laird, EA to the Head of Department

Mr Tim McAree, Finance Manager

Ms Shreya Manna, Education Support Assistant

Ms Philippa Moss, Education Manager, Disability Contact

Dr Safa Najjar, Education Support Officer

Ms Diana Passmore, Teaching Laboratory Technician

Dr Jo Roberts, Research Finance Manager

Mrs Grace Sewell, Librarian

Dr Adrian Taylor, Director of Graduate Studies, Admissions Coordinator

Dr Paul Warren, IT Manager

2.5. Where to find members of staff

Table 1 lists the locations, telephone numbers and email addresses of members of staff. Note that all email addresses end with @materials.ox.ac.uk. The full names and locations of buildings can be found in Section 1.

Also, www.materials.ox.ac.uk/infoandnews/peoplecontact.html gives access to the full business card details.

Table 1: Offices, telephone numbers and email addresses of staff members.

Name	Building	Room	Phone	First part of email
Prof. D.E.J. Armstrong	BR	20.08	73708	david.armstrong
Prof. H.E. Assender	HR	30.16	73781	hazel.assender
Prof. S.C. Benjamin	PR	40.02	73732	simon.benjamin
Prof. R.S. Bonilla	ETB	50.15	73736	sebastian.bonilla
Prof. M.R. Castell	ETB	40.24	73786	martin.castell
Prof. J.T. Czernuszka	BR	10.15	73771	jan.czernuszka
Prof. M.L. Galano	BR	20.07	73776	marina.galano
Prof. N. Grobert	BB	20.09	83720	nicole.grobert
Prof. C.R.M. Grovenor	ETB	50.12	73751	chris.grovenor
Mr T. Heath	HR	30.05	73703	thomas.heath
Mrs S. Ijada	HR	30.06	73695	sharmaine.ijada
Prof. A.I. Kirkland	HB	30.07	73662	angus.kirkland
Ms L.I. Laird	HR	30.17	73737	lorraine.laird
Dr E Liotti	BB	10.03	83714	enzo liotti
Prof. S. Lozano-Perez	HB	30.23	73707	sergio.lozano-perez
Ms S. Manna	HR	30.06	73703	shreya.manna
Prof. T.J. Marrow	BR	10.12	73938	james.marrow
Prof. K. Marquardt	BR			katharina.marquardt
Prof. M.P. Moody	HR	30.21	73693	michael.moody
Ms P.J. Moss	HR	30.05	73750	philippa.moss
Dr S Najjar	HR	30.06	83226	safa.najjar
Prof. P.D. Nellist	HB	30.04	73656	peter.nellist
Prof. K.A.Q. O'Reilly	BR	10.02	73743	keyna.oreilly
Ms D. Passmore	HB	30.20	73658	diana.passmore
Prof. M. Pasta	HB	40.22	83324	mauro.pasta
Dr C.E Patrick	RR	40.27	12790	christopher.patrick
Mrs G. Sewell	HR	20.19	73697	library / grace.sewell
Prof. J.M. Smith	PR	30.10	73780	jason.smith
Prof. S.C. Speller	BR	20.05	73734	susannah.speller
Dr A.O. Taylor	HR	30.19	83227	adrian.taylor
Prof. R.I. Todd	ETB	40.23	73718	richard.todd
Dr P.J. Warren	HR	30.06	73727	paul.warren
Prof. A.A.R. Watt	PR	20.03	73790	andrew.watt
Prof. R.S. Weatherup	PR	30.09	73724	robert.weatherup
Prof. A.J. Wilkinson	HR	30.16	73737	angus.wilkinson
Prof. J.R. Yates	MML	30.06	12797	jonathan.yates

3. General Safety and Security

3.1. Fire

You should familiarise yourself with the general procedures involved if a fire breaks out. These are described below.

If a fire breaks out:

The main consideration is to get everyone out safely.

Sound the fire alarm (break glass alarm points are situated at all exits) and dial 999 from any phone.

Follow the evacuation procedure:

Familiarise yourself with escape routes.

- **Do Not** wedge open or obstruct fire doors.
- **Do Not** use lifts.

If there is time, close windows and doors, and switch off electrical appliances.

Go to the assembly point.

3.2. Security

Please do not leave personal belongings around. Thefts do occur with depressing regularity! You must use your university card to gain access to the Hume-Rothery Building (outside the Reception area only) and 21 Banbury Road. If you leave a Departmental building, please ensure that the door closes securely after you.

3.3. University Policy Statements

For further information on University Policy Statements and full statements of Safety Organisation, please visit the University Web Site at: https://safety.admin.ox.ac.uk

Further information on safety in the Teaching Laboratory is found in Section 10.1.

4. Who to ask for information about the course

If you have any queries about the running and scheduling of your course, i.e. deadlines for coursework, timetable issues, the titles of coursework, when the exams are going to start, etc. then you should consult the Education Support Team at undergraduate.studies@materials.ox.ac.uk as your first port of call. If they cannot help, they will refer your question to the appropriate member of staff.

Exceptions are:

a) matters concerning voluntary industrial placements, for which your first port of call should be the Summer Exchanges and Placements Organiser,
b) matters concerning team design projects, for which your first port of call should be the Team Design Project Organiser, and
c) matters concerning Part II projects, which are looked after by the Part II Project Organiser, assisted by the Education Support Team.

Table 2 lists the staff members, both academic and non-academic, who are involved with the administration of the course. Please note though, if you have worries about your academic work (for example, maybe you feel overwhelmed or confused about certain topics) **then you should obviously first consult your College Tutor.**

Table 2: Administration of the course

Prof. James Marrow	Director of Undergraduate Studies, Chair of the Academic Committee and Summer Exchanges & Placements Organiser
Dr Adrian Taylor	Director of Graduate Studies and Admissions Coordinator
Ms Philippa Moss	Education Manager, Disability Contact
Mr Tom Heath	Senior Education Officer, Disability Contact
Mrs Sharmaine Ijada	Education Support Officer
Dr Safa Najjar	Education Support Officer
Ms Shreya Manna	Education Support Assistant
Mrs Grace Sewell	Librarian
Prof. David Armstrong	Practical Courses Organiser
Prof. Jan Czernuszka	Part II Project Organiser
Dr Enzo Liotti	Industrial Visits Organiser
Prof. Rob Weatherup	Chair of the Tutors' Committee
Ms Diana Passmore	Teaching Lab Technician
Prof. Andrew Watt	Team Design Projects Organiser
Dr Alex Sheader	Crystallography Class Organiser
Dr Ali Mostaed	Crystallography Class Organiser
Prof. Simon Benjamin	CMS and Maths Class Organiser
Prof. Jonathan Yates	Modelling Module Organiser
Prof. Michael Moody	Characterisation Module Organiser
Dr Chris Patrick	Atomistic Module Organiser
Dr Paul Warren	IT Manager

If you have any issues with teaching or supervision please raise these as soon as possible so that they can be addressed promptly. Details of who to contact are provided in Section 24 about complaints and appeals.

5. Consultation, Feedback from you to us, on our teaching provision and feedback from us to you on your work and progress

5.1. The Joint Consultative Committee for Undergraduates (JCCU), Feedback from students to the Department, and other Student Representation

The JCCU constitution states:
'The committee shall consider and make recommendations upon teaching arrangements, lectures, seminars, the practical course, syllabuses, examinations, libraries and welfare of junior members'.

In other words, the JCCU provides a direct opportunity for you to constructively criticise, praise and complain about the course, and also to suggest improvements. Information about the JCCU, including the current student representatives, and previous minutes can be found on the JCCU site in Sharepoint and via Canvas.

The Committee consists of normally three students from each year group, as well as members of academic staff. We meet once a term over a light lunch. The Chair is always an undergraduate (currently Qianyi (Q) Sun (qianyi.sun@seh.ox.ac.uk) and the Secretary is currently the Senior Education Officer, Tom Heath, who is also an ex officio member of the Committee. Other ex officio members of the Committee are the Director of Undergraduate Studies, Prof. James Marrow, the Chair of Faculty, Prof. Susie Speller, the Practical Courses Organiser, Prof. David Armstrong, the Part II Project Organiser, Prof Jan Czernuszka and the Education Manager, Philippa Moss.

Probably the most obvious indication to undergraduates of the JCCU's existence is the lecture and coursework feedback questionnaires that are considered by the Committee each term. We use electronic questionnaires and the online surveys will be available towards the end of each course or piece of coursework. The questionnaires are analysed and summarized by the Education Manager and then passed to the lecturers for review.

Positive comments are encouraged as well as negative ones. Please do take the time to complete these. All comments are carefully considered by the Academic Committee and both major and minor changes are continually made to courses in the light of student feedback. In addition, a summary of the completed questionnaires is available to the Head of Department, for use in lecturers' annual appraisals, and cases for promotion and references.

If you have any issues regarding the course, from lectures, to practicals, to maths classes, you should raise these with your year representative who in turn will raise them at the following JCCU meeting.

Another role of the JCCU is to arrange social functions (such as the annual drinks party) and overseas industrial tours (usually annually). Previous successes were the industrial tours to: Beijing in Easter 2017, the south of France in Easter 2018, Singapore in Easter 2019 and, following a gap due to the pandemic, to Leipzig in Germany in Easter 2023. The Worshipful Company of Armourers' and Brasiers', The Worshipful Company of Ironmongers, The IOM3 and industrial sponsors supported these trips.

The Mathematics, Physical and Life Sciences (MPLS) Division has a similar forum, the Undergraduate Joint Consultative Forum (UJCF), with a broader agenda, on which the Department of Materials has student representation. Further information may be found at www.mpls.ox.ac.uk/study/applicants/student-representation. Student representatives sitting on the Divisional Board are selected through a process organised by the Oxford University Student Union. Details can be found on the Oxford SU website along with information about student representation at the University level.

Students on full-time and part-time matriculated courses are surveyed once per year on all aspects of their course (learning, living, pastoral support, college) through the Student Barometer. Previous results can be viewed by students, staff and the general public at: www.ox.ac.uk/students/life.

Final year undergraduate students are surveyed instead through the National Student Survey. Results from previous NSS can be found at www.officeforstudents.org.uk. The results of these surveys are considered by various committees, namely the JCCU and the Departmental Academic Committee.

5.2. Feedback to our Students

There are many mechanisms by which you gain feedback from us on the quality of your work and receive guidance on how to improve. Your primary resource for feedback and guidance is your college tutor, who will be pleased to talk to you about how to best make use of the feedback we provide.

The following list summarises many of the ways in which we provide you with feedback:

- Discussion in weekly tutorials and/or written comments on returned tutorial work.
- Termly reports on TMS.
- Written comments on your lab reports, and the mark you receive for the lab reports and notebook entries.
- Comments from Junior Demonstrators on your use of your laboratory notebook.
- Feedback on your answers to college collections (mock exams).
- Exam marks.
- Comments on your first Industrial Visit report.
- Discussion of work submitted for revision tutorials.
- Discussion of work submitted for Y2 Maths classes.
- Comments and peer review on your Y2 Business Plan talks.
- Comments and peer review on your Y2 Materials Selection poster.
- Comments on your Part II (Y4) Research Project talks.
- Comments on your progress by your team design project supervisor, by Senior Demonstrators for the modelling and characterisation modules and by your Part II project supervisor.

In addition, more generic feedback is found in the detailed reports of the Examiners, which are available to you via the Canvas site, and in the Y3 workshop “Answering finals exam questions”.

6. Overview of the Course

The Master of Engineering in Materials Science, FHEQ level 7, is a 4-year course, accredited by the Institute of Materials, Minerals and Mining (IOM3) on behalf of the UK Engineering Council, towards the achievement of Chartered Engineer status. The relevant subject benchmark statements are Materials and Engineering under the UK Quality Code for Higher Education.

6.1. General Structure of the Materials Science Programme

The overall structure of the MS programme is shown in the following outline.

An Outline of the Programme Content, Assessment and Key Progression Criteria for the M.Eng in Materials Science

(Please note that this outline is for illustrative purposes and that details may change from time to time)

THE **CURRENT** OXFORD M.ENG DEGREE PROGRAMME IN MATERIALS SCIENCE IS ACCREDITED BY THE INSTITUTE OF MATERIALS, MINERALS AND MINING (IOM3), ON BEHALF OF THE UK ENGINEERING COUNCIL, TOWARDS THE ACHIEVEMENT OF **CHARTERED ENGINEER STATUS**.

1st year ("Prelims")

Courses

Directly examined

- Physical Foundations of Materials
- Structure and Mechanical Properties of materials
- Transforming materials
- Mathematics for Materials Science

Continual assessment

- Practical work
- Crystallography classes
- Computing for Materials Science project

Additional elements

- Crystal Model Building
- Engineering drawing and CAD classes
- IT skills
- Industrial visits (optional)
- Career planning
- Foreign language (optional)
- Introduction to errors in measurement
- Introduction to LabVIEW

Assessment

First University examination ('Prelims'): Four written papers; continual assessment components equivalent to a fifth paper. Resit for written papers available in September.

Progression

Normally, students are required to achieve an overall mark of at least 40% in the first year examination in order to progress to Year 2.

(The 'prelims' mark does not contribute to the final degree classification upon graduation.)

2nd year & 3rd Year ('Part I Final Honours School')

2nd year

Courses

Directly examined

- Lifecycle, Processing & Engineering of Materials
- Electronic Properties of Materials
- Mechanical Properties of Materials
- Structure & Thermodynamics of Materials
- Foreign language (optional)
- Supplementary subject (optional)

Continual assessment

- Practical work
- Industrial visits and talks
- Entrepreneurship course

Additional elements

- Mathematics
- Communication skills

3rd Year

Courses

Directly examined

- Options courses in Materials

For further information about the options courses we offer at present please see our Lecture Course Synopses

Continual assessment

- Team design project, assessed by written report and oral presentation
- 'Introduction to Modelling of Materials' module, assessed by written report
- 'Atomistic Modelling' or 'Characterisation of Materials' module, assessed by written report
- Industrial visits

(At the start of Year 3 it is possible to transfer to a 3-year B.A. degree in Materials Science, graduating at the end of Year 3. A student opting to do this takes a smaller set of materials option lecture courses and carries out a literature-based research module. The B.A. degree is not accredited by the IOM3/UK Engineering Council. This option is intended for the occasional student who may change their mind about their career path while following our M.Eng programme.)

Assessment

Final University examination, Part I: Six written papers; continual assessment components equivalent to a further two papers. Resit available one year later.

Progression

Normally, students are required to achieve an overall mark of at least 50% in the Part I assessment in order to progress to Part II.

4th year (extended terms) Part II Final Honours School

Courses

Research project (full-time)

Additional elements

Presentation skills
Project management skills
Engineering Ethics & Sustainability
Industrial visits (optional)
Careers events
Information skills & Reference Management
Writing skills, IPR, patents
Foreign language option
Technology transfer (tbc)
Workshop skills
LabVIEW

Assessment

Final University examination, Part II (equivalent to 4 papers): Part II dissertation submitted and assessed; Oral examination of project dissertation. No resit.

More details of the courses taken each year and the options available are discussed in the following sections.

Lectures are an important part of the teaching in science subjects, and whilst attendance at lectures is not compulsory in Oxford, we strongly advise you to attend them. In many cases the material that is taught in lectures is not available in books. Tutorials are likely to be based on the lectures so attendance at lectures ensures you will get the most from your tutorials. Lecturers are free to give out lecture handouts for their courses and many do. **However, the Departmental policy on this practice allows to the lecturers' discretion as to whether they provide notes or not, and as to how detailed those notes may be.** Ordinarily, those who do issue lecture notes provide these via Canvas (provided there are no copyright issues that restrict electronic publication).

The Department is conscious that some students will always prefer to work and revise from notes in hard copy. Although notes will not be issued as standard in hard copy (in an attempt to save some trees!), the Department invites those who wish to print their notes to claim a set amount (currently £75 per term) to cover the cost of printing for those whose colleges charge for printing.

You are reminded that the use of electronic media (e.g. smart phones) to record material from lectures (visual and audible) is **not permitted** unless express permission is granted. This includes taking photos of projected slides, not least because of copyright law (the copyright is owned by the lecturer!). The Faculty of Materials has currently agreed that the majority of lectures will be recorded and the recordings will be made available to the year cohort via Canvas, normally within 24 hours of the lecture. See https://academic.admin.ox.ac.uk/educational-recordings-policy for the full policy on the recording of lectures and other teaching sessions.

Definition of Examinable Material

Examinable material is defined broadly by the course synopses and includes all material covered in lectures and all material covered in course handouts of any type (including problems sheets issued by the lecturers). The only exceptions to this rule are:

(i) If a course handout states in writing that the material below is for background information only and is non-examinable

(ii) Notification by the Chair of Examiners to all students taking the course indicating that a specific part of the course is non-examinable.

Reading Lists

You should note that each course synopsis also includes a reading list. Reading lists are an integral part of learning and teaching at university, being a collection of reading materials either necessary or helpful to your lecture courses.

At Oxford we use ORLO (Oxford Reading Lists Online) which provides an easy link to all the texts (or chapters of texts) that have been identified by your course lecturers as useful resources to help your understanding of the material.

Reading lists are not pointless. If you disregard the reading lists, you are limiting yourself only to the material delivered at the lectures which really is just the entry point to a whole new world of knowledge. And the lecturers have already invested their time identifying the most useful resources to save you wading through text after text in case it is relevant. If you engage with the recommended reading as identified by your lecturers to deepen your understanding of a subject, you will be far better placed to achieve superior results.

It is also crucial to note that the definition of examinable material, that is the material from which exam questions may be drawn, includes any essential texts as identified on reading lists.

6.2. The Second Year

In the second year, you will study core courses, which are divided into four main subject areas, which are examined by the four General Papers of the Part I Examination: Lifecycle, Processing & Engineering of Materials, Electronic Properties of Materials, Mechanical Properties of Materials, and Structure & Thermodynamics of Materials. Practical work in the form of set practicals continues in the second year (see Section 10).

Table 3 below provides the outline syllabus for the 2nd year, listing the courses taken in each subject area. More detail can be found in the FHS Core Lecture Course Synopses booklet available at www.materials.ox.ac.uk/teaching/ug/uglectures.html.

Table 3: The Second Year Courses and General Lectures

Subject	Lecture Content Hours per course
Lifecycle, Processing & Engineering of Materials	
Selection & Production of Engineering Materials	10
Processing for Control of Materials Properties & Performance	16
Materials End-of-Life	12
Electronic Properties of Materials	
Electronic Structure of Materials	12
Semiconductor Materials and Devices	10
Magnetic Properties of Materials	10
Electrical & Optical Properties of Materials	8
Mechanical Properties of Materials	
Elastic Deformation of Materials	10
Plastic Deformation of Materials	10
Structural Failure of Materials	16
Structure & Thermodynamics of Materials	
Statistical Mechanics & Thermal Properties of Materials	8
Structural & Compositional Characterisation of Materials	16
Phase Transformations	16

Subject	Lecture Content Hours per course
Supplementary Subjects (optional)	
History & Philosophy of Science: The Origins of Science	16
Quantum Chemistry	32
Other Lectures	
Introduction to the Pt I Materials Programme	1
Maths - Partial Differential Equations & Fourier Series and Tensors	12
Entrepreneurship Module: Building a Business	12
Entrepreneurship: Team Building Workshop	2
Introduction to Industrial Visits	1
Industrial Talks	3
Year 2 Summer Business Placements Briefing	2
Industrial Placements Briefing	1
Practical class meetings	3

You are required to produce **Entrepreneurship** coursework (see Section 7.3), comprising one piece of work for which lectures are provided. You must also submit reports on four Industrial visits undertaken during your second and third years, and reports on two Industrial Talks undertaken during your second year. Details are given in Section 7.1.

Students may take an optional Supplementary Subject in their second year (see Section 9), or they may take a foreign language option (see Section 8).

6.3. The Third Year

The third year Materials lectures are offered as option courses with lectures taking place in Michaelmas and Hilary terms. Students who are following the MEng programme normally choose 3 courses each term from the courses listed below in Table 4. Each 12 hour lecture course is accompanied by normally 3 classes (of 1-2 hours in length).

At the beginning of the third year it is possible to opt to transfer to a 3-year classified Bachelors degree. A student opting to do this takes a smaller set of materials option lecture courses and carries out a literature-based research module. This option is intended for the rare case when a student may not wish to pursue the study of Materials Science for a further fourth year. Further details about this are available in Section 16.

Details of each course can be found in the FHS Materials Options Lecture Course Synopses document at www.materials.ox.ac.uk/teaching/ug/uglectures.html.

Table 4: Option Courses Available for 3rd years in 2023/24*

Lecture Course	Term	Lectures
Prediction of Materials' Properties	M	12
Engineering Ceramics: Synthesis & Properties	M	12
Materials and Devices for Optics & Optoelectronics	M	12
Microstructural Control in Engineering Alloys	M	12
Magnetic & Superconducting Materials	M	12
Quantum Technology	H	12
Energy Materials	H	12
Enabling Nanotechnology – From Materials to Devices	H	12
Biomaterials and Natural Materials	H	12
Advanced Polymers	H	12
Materials for Nuclear Systems	H	12

*The Option Courses available in any given year will be as per the list published in the Materials Options Lecture Course Synopses for that academic year.

Further information regarding the structure of the options courses is provided at the front of the options synopses document.

In addition, you will carry out a Team Design Project in the first two weeks of Michaelmas Term and the Introduction to Modelling of Materials module in the sixth week of Michaelmas Term. In the first and second weeks of Hilary Term, you will also undertake one of two options modules: Characterisation of Materials or Atomistic Modelling.

Normally, you must achieve an **overall mark at Part I of at least 50%** if you are to progress to Part II.

It is also possible to opt to transfer to a 3-year classified Bachelors degree after you have sat your Part I written papers in Trinity term but BEFORE the examiners meet to consider the Part I results. In this case a student carries out a literature-based research module over the Long Vacation and the results are considered by the examiners the following Trinity term. Please see Section 16 for details.

6.4. The Fourth Year (MEng)

The fourth year consists of an 8-month research project, examined by a thesis and viva. Further information is available in Section 17.

6.5. Recognised Teaching Patterns

Course structure

Six compulsory written exam papers:

- General Paper 1 – Lifecycle, Processing and Engineering of Materials
- General Paper 2 – Electronic Properties of Materials
- General Paper 3 – Mechanical Properties of Materials
- General Paper 4 – Structure and Thermodynamics of Materials
- Materials Option Paper 1
- Materials Option Paper 2

Compulsory Coursework:

- Practicals
- Industrial visits and talks
- Entrepreneurship coursework
- Team Design Project
- Introduction to Modelling of Materials module
- Characterisation of Materials or Atomistic Modelling module

Supporting Lectures:

- Maths

From Section 13.2: 'Tutorials form a very important component of teaching at Oxford. Each college makes provision for its own students. College Fellows and other academic staff carry out most of this teaching themselves, usually with pairs of students but sometimes in singles or groups of three. In the second year, tutorials are assigned to different areas of the syllabus at a rate of about 1 per 4 lectures, varied as thought appropriate by individual tutors. A typical term's lecture load of 60 hours would require 15 tutorials.'

YEARS 2&3 'FHS Part I' **Paper**	**Term**	**Dept/ Faculty**		**College**		**Comments**
		Lectures	**Classes**	**Tutorials**	**Classes**	*Figures in this table are in hours unless otherwise stated.*
[1.] General Paper 1 – Lifecycle, Processing & Engineering of Materials (38)	MT	4		10		
	HT	12				
	TT	22				
[2.] General Paper 2 – Electronic Properties of Materials (40)	MT	12		10		
	HT	10				
	TT	18				
[3.] General Paper 3 – Mechanical Properties of Materials (36)	MT	10		10		
	HT	18				
	TT	8				
[4.] General Paper 4 – Structure & Thermodynamics of Materials (40)	MT	24		10		
	HT	8				
	TT	8				
[5.] Materials Option Paper 1 (36)	MT	36	3			
[6.] Materials Option Paper 2 (36)	HT	36	3			
[7.] Practicals (2nd year)	MT		36			Department classes hours for practicals = 3 hours per afternoon + marking to the nearest ½ hour
	HT		36			
	TT		36			
[8.] Entrepreneurship coursework (2nd year)	MT	2	2			
	HT	10	2			

Notes

Students also attend 11 hours of Maths lectures in MT to support the examined materials, with one class and one tutorial in support.

Part II of Final Honours School

YEAR 4 'FHS Part II' Paper	Term	Dept/ Faculty		College		Comments
		Lectures	Classes	Tutorials	Classes	*Figures in this table are in hours unless otherwise stated.*
[1.] Research Project	MT					The 37-week research project is conducted across all 3 (extended) terms with the expectation of 40 hours per week of focussed work on the project, usually in the laboratory, with regular meetings with the project supervisor(s).
	HT					
	TT					

6.6. The lecture timetable

The timetable of lectures each term and the general scheme of lectures for the whole year are available at www.materials.ox.ac.uk/teaching. Changes are notified to students by e-mail and on the website.

7. Coursework

As mentioned in the sections above, you will continue with coursework during your 2nd and 3rd years. Coursework items are listed in Table 5 below. Further details on coursework can be found below or in Section 10 for Practical work.

Table 5: FHS Coursework MS MEng students

Coursework item	Year and term studied	Notes
Materials Practical Classes	2nd year (M, H, T)	See Section 10
Industrial Visit and Talks Reports	2nd and 3rd years	
Entrepreneurship Module	2nd year (M, H)	
Team Design Project	3rd year (M)	
Introduction to Modelling of Materials	3rd year (M)	
Characterisation of Materials / Atomistic Modelling	3rd year (H)	Either Characterisation or Atomistic Modelling is chosen

Regulations state that the Examiners shall require evidence of satisfactory completion of each element of coursework in Materials. 'Satisfactory completion' is defined as: normally all reports expected for an element of coursework must be submitted and an overall mark of at least 40% must be achieved for that element of coursework. Further details are given in later sections.

7.1. Industrial Visits and Talks

At least one industrial visit to an industrial company or research laboratory related to the materials field is arranged each term by the Industrial Visits Organiser (IVO) (often, but not exclusively, on Thursday or Friday afternoon of week 4 or 5). The Industrial Visits Organiser for 2023-24 is Dr Enzo Liotti (email enzo.liotti@materials.ox.ac.uk).

As part of your coursework as a Part I student, you are **required** to attend 4 visits during "**the 5 terms subsequent to the sitting of the First Public examination**" (Examination Regulations 2022). This translates as: the **Michaelmas, Hilary, and Trinity Terms of your second year** and the **Michaelmas and Hilary Terms of your third year**. Third year students **will not** be offered places on the Trinity Term industrial visit of their third year. Therefore, we urge you to attend every visit you can from the start of your 2nd year. (You are not permitted to submit reports on placements undertaken in the vacation following your first year.)

Industrial visits are open to all undergraduate and graduate students in the Department, although Part I students will have priority. Details of each visit are circulated to students by email. Signing up for the visits is done via Canvas and booking is on a first come, first served basis. Sign-up will open each term on Monday of week 2 at 8.00pm and will close on Monday of week 4 at 8.00pm. If you know that you wish to sign up for a visit but have an immoveable commitment at this time which means that you will be unable to access Canvas, you should advise your tutor of the reason and then contact the Education Support Team (EST) via undergraduate.studies@materials.ox.ac.uk, no later than noon on Monday of week 2 with a request for special consideration to be added manually. The EST will then liaise with your tutor and confirm the position to you. Numbers for each trip are usually restricted to 20-25 people but it may be possible to sign up to a waiting list. Students may remove themselves from the sign-up list at any point until sign-up closes on Monday of week 4. **It is your responsibility to check after sign-up closes to see if you are expected to attend.**

If you have signed up for a visit and then unexpectedly find that you cannot attend, you must notify the Industrial Visits Organiser as soon as you become aware, stating the reasons why you cannot attend. Your tutor will be informed. Sometimes it is necessary to submit attendance details to the company in advance, for security purposes, etc. Therefore, do not assume that if you withdraw with late notice that someone on the waiting list can take your place.

Due to the pressure of student numbers, if you sign up for a visit you are expected to attend and **if you attend a visit you are required to submit a report on it. Failure to submit a report by the deadline will result in a non-satisfactory mark (0)**. **Such non-satisfactory marks cannot then be superseded by the submission of an extra report based on another *Departmentally-organised* visit** (but you may submit a report on a self-organised visit providing this is arranged and the report submitted within the agreed timeframe)**.**

Remember, you need to have submitted four visit reports before you sit your Part I examination at the end of your 3rd year.

The coach usually leaves from the Hume-Rothery Building after morning lectures and returns around 18:30, depending on travel time to the destination.

N.B.: Health and Safety issues are important on all industrial visits. Make sure you wear sensible clothes, and always follow the instructions given by the guides at the host institution.

Each industrial visit is assessed by means of a submitted word-processed report of a maximum **of 1-2 pages, and 2 supporting diagrams (if appropriate)**. Based on **what you learned on the visit**, your report should include:

- Several relevant technical or business/financially related insights learned on tour, highlighting materials-related aspects or design considerations if possible. The aim of the report should not be to describe what you saw during the visit. Instead, the aim of the report should be to show that you learned something related to how materials science or basic scientific principles are applied in industry. At least one of the diagrams included in the report should be of a technical nature highlighting the science used by the industrial entity you are visiting.
- Proper use of citations / sources used in the main text, including for images, and in the list of references. The report should follow the same referencing approach as in a scientific paper published in the literature. URLs or internet webpages should be avoided as references unless absolutely necessary.
- The report should look professional. Professional writing style / layout / correct spelling & grammar are necessary.

The reports are to be submitted by 1pm on the Friday of the week following the visit.
Reports are submitted online via the Industrial Visit Canvas site. Thus, the report for a 5th week visit must be submitted by 1pm on Friday of 6th week.

In addition to selecting from the Departmentally-organised visits, a maximum of **two** of the assessed visits may be selected from: the Industrial Tour (see Section 11.1), industrial placements (see Section 11.2) or personally-arranged industrial visits. You are actively encouraged to submit a report from at least one visit that is not Departmentally-organised. To be eligible, this **visit must be approved by the Industrial Visit Organiser in advance** and you should email them at least a week in advance of attendance (including any visits arranged during the vacation).

If an individual or a group of students wish to organise a personal visit they must provide with their report a letter or email from a company representative, giving their name(s), the duration of the visit and confirming that they were shown around the site. The letter should be on company paper and signed, or sent from a company email address. Normally students organise these visits to take place during the vacations; if organised for term-time you should not miss any scheduled classes, lectures, practicals, or tutorials. The submission deadline for a self-organised visit that takes place during a vacation is 1pm on Friday of week 1 of the term following the visit. The Department does not provide travelling expenses for students on personal visits. A similar letter or email must be provided if you wish to submit a report on an industrial placement.

The reports are marked by the Industrial Visits Organiser, and are graded **good** (2 marks), **satisfactory** (1 mark) or **non-satisfactory** (0 marks).

Additionally, in your second year, the Department arranges two lunchtime talks from industry representatives, who describe some of the applications of materials science in their industry. There is typically one talk in Michaelmas Term and a second talk in Hilary Term. **You are required** to attend these talks in your second year and to submit a brief report (no more than 1 page), describing the key scientific content of the talk.

Submission of these reports is also via the Industrial Visit Canvas site, with the deadline being 1pm on the Friday of the week following the talk. These shorter reports are graded **satisfactory** (1 mark) or **non-satisfactory** (0 marks).

For this element of coursework as a whole to be judged satisfactory by the Examiners, normally (i) all four industrial visit reports must be submitted and (ii) these four reports must score an average mark of at least 40%. In total, therefore, completion of 4 good reports will contribute 8 marks towards the Part I mark. With the addition of 2 satisfactory reports on the industrial talks, it is possible to achieve 10 marks for this element of coursework. Appendix G contains information on the criteria used for assessment. Formative feedback will be given by the Industrial Visits Organiser on the first industrial visit report that you submit.

Your industrial visit and talks reports are part of the University's examination system; any student caught copying another student's work will be reported to the Proctors who have wide-ranging powers including the power to reduce the class of your degree. **Your attention is drawn to the statement on plagiarism in Appendix B** you are reminded that this applies equally to text and diagrams/figures**.**

7.2. Practical Work

Full details on this can be found in Section 10.

7.3. Entrepreneurship Module (Business Plan)

Candidates for Part I who do not opt to take the Foreign Language Option or offer a Supplementary subject for examination must submit a piece of work in the field of **Entrepreneurship**. The coursework requirement this year is a business plan of 3,500 words or less.

The course is delivered via a series of lectures, covering the business plan model, technology and IP strategy, commercialisation, risk assessment and funding. Further support is offered via a project clinic in Hilary Term, and there will be an opportunity for receive feedback on a draft report at a pre-scheduled session. The course will provide an opportunity for individuals to gain experience of creative business thinking, with a focus on commercialization of inventions, using study material relevant to Science and Technology where possible. The course has been developed to achieve a balance between generally applicable business and management skills and those specific to science and technology new ventures.

Students will also be invited to attend events arranged by Enterprising Oxford (www.eship.ox.ac.uk) which is a University of Oxford initiative to help encourage and support entrepreneurs, and promote entrepreneurship across Oxfordshire.

This coursework is completed in a self-formed group of students and it is expected that each student will make an equivalent contribution. The optimum number of students per team is 5, but there should be no fewer than 4, or more than 6. A workshop on Team Building will be held in Michaelmas term to help you get the best out of working as a team. The final report must be written as a team project, with the primary author of each section identified by candidate number.

The business plan should be typed and submitted as a single pdf document to the Chair of Examiners in the Honour School of Materials, via Inspera, no later than noon on the Monday following the end of Hilary Term in the second year (namely, the Monday of 9th week). **It should be noted that this deadline may occur during the Industrial Tour, in which case care must be taken by the group to ensure this deadline is met.**

The business plan is assessed by the Entrepreneurship Module Organiser, currently Prof. Harish Bhaskaran, and a member of the University who specialises in innovation. Appendix E contains information on the criteria used for assessment.

In Trinity Term, each group is required to make a professional standard presentation (involving all the team members) to members of staff and, sometimes, industry entrepreneurs. You should expect to limit your presentation to half an hour, including coping with interruptions and allowing time for questions at the end. These presentations are **not assessed** but are designed to give useful preparatory training for the presentations for the 3rd year Team Design Projects. There is a prize for the team judged to have given the best presentation. **It should be noted that all the skills learned in this course, with the experience of group project work, will provide a useful foundation for the third year Team Design Projects.**

Normally, to be judged as satisfactory, the Business Plan must score at least 40% and the team must have submitted a written report.

Your attention is drawn to the statement on plagiarism in Appendix B

7.4. Team Design Project (TDP)

During the Michaelmas term of your third year, you will undertake a teamwork project. Your contribution to this is expected to take 100 hours. The project will primarily concern design and market analysis, though it may also include limited experimental work if you wish. The project titles will be announced on Friday, 0th week, Michaelmas term. Students will be allocated groups and meet the supervisors on Monday, 1st week.

The aim of the project is to provide you with experience and insight into the industrial design process. The projects are designed to promote working in teams, i.e. managing a team project, dividing up the work load between team members, and reporting on it regularly. As is common in industry, your design will be constrained by the limited time available, and you will have to work efficiently and enthusiastically to get your final report and presentation ready.

The project is assessed in two ways:
First, each group submits a written report, in the form of a design proposal that could be used by a manufacturer as the basis for a marketable product, or by an engineer as the basis for a new process. The final report must be written as a team project, with the primary author of each section identified. The reports should be word-processed and you should allow between 1,000 - 3,000 words (and $\leq$ 12 figures absolute maximum) per team member. Your report should be written in such a way that it can undergo initial evaluation in half an hour. Appendix H contains the marking scheme used to assess Team Design Projects in 2022-23.

Second, each group is required to make a professional standard presentation (involving all the team members) to members of staff including the TDP Examiners. Your attitude should regard them as potential board members such as the Chief Engineer and Finance Director, i.e. intelligent and influential people whom you wish to convince of the merits of your product, but who do **not** know as much as you do about your specialism. You should expect to limit your presentation to twenty minutes, including coping with interruptions. There will be 10 minutes allocated to questions from the examiners afterwards.

The project takes place entirely within the first 3 weeks of Michaelmas term. There are no third year Materials lectures scheduled during weeks 1 and 2 to ensure that students can work full-time on the project. All reports must be submitted as a single pdf document to the Chair of Examiners in the Honour School of Materials, via Inspera, by noon on Tuesday, 3rd week Michaelmas term, and the presentations are held on Friday, 3rd week Michaelmas term.

Normally, to be judged as satisfactory, the TDP must score at least 40% overall and the team must have submitted a written report and delivered an oral presentation. For an individual candidate, normally the TDP will be judged satisfactory only if the candidate has contributed to both the written report and the oral presentation.

Your attention is drawn to the statement on plagiarism in Appendix B.

7.5. Introduction to Modelling for Materials

Assessment will be through a combined report of 2000-3000 words on two mini-projects, which will be marked out of a maximum of 30 marks. The report must be submitted as a single pdf document to the Chair of Examiners in the Honour School of Materials, via Inspera, by noon on Tuesday of the week following the end of Michaelmas Term (namely, Tuesday of 9th week). Normally, to be judged as satisfactory, the report must score at least 40%. Appendix I contains information on the criteria used for assessment.

7.6. Characterisation / Atomistic Modelling Options Modules

Students are required to spend weeks 1 and 2 of Hilary term of their third year attending one of two modules which comprise a combination of lectures, demonstrations and hands-on practical work. The modules will be assessed as coursework, and the marks will contribute directly to the Part I Examination in Materials Science.

Atomistic Modelling

Assessment will be through a report of no more than 3000 words, which will be marked out of a maximum of 30 marks. The report must be submitted as a single pdf document to the Chair of Examiners in the Honour School of Materials, via Inspera, by noon on Tuesday of week 3 of Hilary Term. Normally, to be judged as satisfactory, the report must score at least 40%. Appendix J contains information on the criteria used for assessment.

Characterisation of Materials Module

Assessment will be through a report of no more than 3000 words, which will be marked out of a maximum of 30 marks. The report must be submitted as a single pdf document to the Chair of Examiners in the Honour School of Materials, via Inspera, by noon on Tuesday of week 3 of Hilary Term. Normally, to be judged as satisfactory, the report must score at least 40%. Appendix K contains information on the criteria used for assessment.

8. Foreign Language Option

We recognise that many students who have studied a foreign language may be keen to maintain and develop their language skills during their studies of materials. We are pleased to offer the possibility of taking a Foreign Language Option as part of your degree programme. The Language Centre (www.lang.ox.ac.uk) offers a range of courses in Arabic, Dutch, French, German, Greek, Italian, Japanese, Mandarin, Portuguese, Russian and Spanish in a variety of formats. In the 2nd year, if taking a language course as the Foreign Language Option you would need to enrol for one of the **Fast Track** courses offered by the Language Centre.

The Department may fund the cost for, normally, up to 10 students to attend one of these courses. The courses are fast paced and are intended for those who are highly motivated, can commit to regular attendance (80% requirement), are prepared to spend a substantial amount of time each week on follow-up and preparatory work, and are confident that they will not encounter workload problems later in the year.

In 2023 the language courses will be taught through a flexible and inclusive mode of delivery, with many of the courses offered in in-person and/or online variants. Please see the Language Centre website https://www.lang.ox.ac.uk/language-courses#/) for further information about the different courses, what these entail and the detailed timetables.

There is a progress test, normally in week 7 of Hilary Term, and a presentation towards the end of Trinity Term. It is important that you are confident that you can attend the entire course as your marks will be derived from both and will contribute to Part I. Upon satisfactory completion, you will receive a Certificate of Competence from the Language Centre.

If you are interested in the Foreign Language Option, we recommend that you complete the appropriate proforma in Trinity term of your first year as this allows us to liaise with the Language Centre in advance of their registration window to try to ensure a place on your chosen course.

It is also possible for students to take the 2nd year Foreign Language Option without having studied this language in the first year, normally providing you have previously studied the language to GCSE or A Level (or equivalent). In this case, it is essential that you have your tutor's support and agreement before you enrol in any courses. The second year workload in Materials is quite demanding and taking the Foreign Language Option as part of your degree may prove challenging for some with the hours you need to devote to learning a new language.

You must register with the Language Centre by **Wednesday of week 1**. To confirm, the Department will pay the fees for the second year Foreign Language Option. You must confirm your intention to take the Foreign Language Option by Monday of week 2 via undergraduate.studies@materials.ox.ac.uk so the team may arrange payment.

Note that it may be possible to take a voluntary foreign language course in your fourth year, subject to approval from your tutor and your Part II project supervisor. As a voluntary extra, you may wish to explore some of the other pathways offered by the Language Centre, such as the General Language Courses where there is further flexibility around the duration and intensity of course. Whilst any fourth year courses would not contribute towards your degree, you will be able to obtain a Certificate of Attendance from the Language Centre, if you have attended at least 80% of the course, and a Certificate of Completion, on satisfactory completion of an in-class test. Subject to production of one of these certificate, and receipts for payment, the Department will look to reimburse the fees, together with your college.

All courses are calibrated on the Common European Framework of Reference (CEFR) for Languages – see the Language Centre website for further details (www.lang.ox.ac.uk).

9. Supplementary Subjects

A Supplementary Subject may be taken in the 2nd year. Anyone who takes a supplementary subject can drop the course on Entrepreneurship (See Section 7.3). It should be noted that you may follow the lecture course for interest as an additional course, subject to your tutor's approval, but you may only enter for the examination if you are taking this in place of the Entrepreneurship module.

The Supplementary Subjects are advertised each year and are currently (for synopses see the information on Canvas):

- Quantum Chemistry - https://canvas.ox.ac.uk/courses/219547
- History and Philosophy of Science - https://canvas.ox.ac.uk/courses/70250/

Each course is taught via a programme of lectures and classes, held throughout Michaelmas Term and Hilary Term, and for those taking the course in lieu of the Entrepreneurship module, is normally examined by a 3-hour written examination paper sat at the end of Hilary Term (typically week 9).

If you are interested in attending one of the Supplementary Subjects, you will need to confirm this to the Education Support Team by the end of week 0. If you wish to take a Supplementary Subject instead of following the Entrepreneurship module you **must** discuss this with your Tutor and complete the proforma found at Appendix C. This form must be submitted to the Education Support Team by the end of week 4 of Michaelmas Term. You must also ensure that you enter for the Supplementary Subject examination when you register for your examinations through your college.

10. Practicals

Materials Science is predominantly an applied science and much of the research in Materials Science is experimental in nature. It is therefore important that you learn appropriate experimental skills as part of your degree. This involves not only practical skills in handling samples and equipment in the laboratory, but also associated skills such as reading and assimilating briefing documents, effective time management, working in groups and ability to meet deadlines in writing and submitting reports. We also hope that you will find the teaching laboratory experiments to be interesting and enjoyable, and that they help reinforce your learning in other parts of the degree course. Attendance at all practicals is **compulsory,** for each day your practical is scheduled.

Set experiments are conducted in the Teaching Laboratory in the first two years. The experiments are done by students in small teams (normally teams of three or pairs). The first two terms sees several teams working on the same experiment in parallel, using separate sets of apparatus, with all teams completing that experiment over a two-week cycle, normally on Monday, Tuesday and Wednesday afternoons. The exceptions to this are experiments run in Trinity term which use equipment, such as electron microscopes, that is too costly to duplicate.

The current Practical Courses Organiser (PCO) is Professor David Armstrong; he has overall responsibility for the smooth running of the practicals and for applying any penalties such as those incurred for late submission of a report. The Teaching Laboratory is open only in the afternoons.

At the start of each practical the Senior Demonstrator (SD), who is normally a member of staff or a postdoctoral researcher, will give a full briefing on the theory and practice of each experiment, safety issues, what is required in the report and the arrangements for marking. The Teaching Lab Technician (TLT) and a Teaching Assistant (TA) who is a specialist in the current experiment will be present throughout the course of the experiment. The SD will be present for periods throughout each experiment.

We recommend that you read through the instruction sheets in advance of the practical (they are all available on the website at www.materials.ox.ac.uk/teaching/ug/ugpracticals.html as well as on Canvas). Do make sure that by a combination of the briefing and the instruction sheets you understand what is required for each specific experiment. If you have any doubts, please ask the SD when they are present during the practical.

Your practical work will be assessed by a combination of your lab notebook entries and the submission of a scientific report. A maximum mark of 3 will be available for lab notebook entries and a maximum mark of 13 will be available for each of the summatively assessed scientific reports.

Scientific reports will be required for the following practical classes:

- 2P4 Casting
- 2P7 Corrosion
- 2P9 X-ray Diffraction

Your laboratory notebook entries will be summatively assessed for the following practical classes:

- 2P2 Steels
- 2P3 Extrusion
- 2P5 Mechanical Properties of Polymers
- 2P6 Dislocations and Plasticity
- 2P8 Diffusion
- 2P10 SEM and Fracture
- 2P12 Semiconductor Devices

2P1 Materials Selection will be assessed by way of a poster but no marks will be awarded. As the first second-year practical, your lab notebook entries will assessed for formative reasons only.

An example of the marking scheme to be used in the assessment of the lab notebook entries is available at Appendix F.

You have been provided with hardback practical notebooks (hereafter referred to as the “practical book”) which you **must** use whenever you are in the lab to record your data, observations, results of any analysis, etc. Following good practice in research and industrial labs, all entries should be legible, written in pen and if you make a mistake, just draw a line through the entry. Practical books **MUST NOT** be removed from the practical labs.

There is a prize of £250 for the best overall performance in Part I practicals awarded by Tata Steel.

10.1. Safety in the Teaching Laboratory

One of the aims of the Materials Science degree is to teach you to be a professional scientist. The teaching laboratory is a professional space, and we expect an appropriate conduct in the laboratory. Every effort has been made to make the laboratory a safe place in which to work. However, you also have an obligation to help. Below is a list of 'do-s and don't-s’ that you should follow:

DO pay attention to the Teaching Lab Technician, Teaching Assistants and Senior Demonstrators.
DO read and follow the safety instructions.
DO concentrate on what you are doing to avoid mistakes.
DO familiarise yourself with fire escape routes.
DO keep fire doors closed and escape routes clear.
DO sign-in / sign-out at the start / end of **each day** of the practical.
DO wear appropriate eye and hand protection.
DO wash hands after working with chemicals.
DO work in the fume cupboard with etchants and solvents.
DO use minimum quantities of flammable liquids.
DO keep the laboratory clean.
DO tie back long hair.
DO speak in English at all times in the labs.
DO alert the teaching lab technician if you need to leave the laboratory for any reason before the end of the afternoon.
DO NOT remove your practical book from the lab at any time.
DO NOT eat, drink or put on make-up in the laboratory.
DO NOT use your mobile phone.
DO NOT mouth-pipette or lick things (this includes sucking your pen!).
DO NOT smoke in the laboratory.
DO NOT mess around.
DO NOT wear inappropriate clothing and shoes, e.g. sandals, short skirts, long scarves.

At the briefing given before each experiment the SD and/or TLT will cover safety issues specific to that experiment.

Note: it is important that the only language spoken in the Teaching Labs is English - whether that be student-to-student or demonstrator-to-student - such that if incorrect (and potentially unsafe) instructions are given, there is a better chance someone overhearing them will realise and be able to act.

10.2. Practicals in the Second Year

Students do four practicals per term in their second year, of which three are assessed via submitted report, and seven by practical book (2P11 TEM is not assessed but must still be completed); for the twelfth practical, Materials Selection, in your practical groups you will produce a poster for entry to the Poster Competition. Practicals in the second year normally take three afternoons each to complete and in Michaelmas and Hilary Terms are carried out on Monday, Tuesday and Wednesday afternoons. The experiments in Trinity Term are timetabled differently. Details of teams and timetabling are arranged at a meeting on Monday of first week each term, at which attendance is **compulsory**. It is expected that you attend labs for each full afternoon the practical is scheduled and you will need to secure permission if you have a good reason to leave early. You will also be required to sign-in on arrival and sign-out on departure, for safety reasons.

Completion of all practicals, including submission of the reports and practical books, and production of the poster, is a requirement for Part I of the final examination.

Practical books and marked reports are **not** returned to students after the Part I examinations.

N.B. YOU MUST NOT START AN EXPERIMENT WITHOUT PERMISSION. In practice, this means you must not begin the experimental work before the TLT has date stamped your book. This requirement arises in order for the Department to comply with the Health and Safety regulations; this date stamping will take place immediately after the SD's briefing, during which they and the TLT will have covered the relevant safety issues and highlighted any particular hazards. It is **your responsibility** to ensure that your book is stamped at this time. Any student starting an experiment without permission will be penalised (see Section 10.6) and will be liable to disciplinary action.

10.3. Absence from Practical Labs.

If you miss a scheduled session in the teaching laboratory your tutor will be informed. Any student who misses a scheduled practical class must inform the TLT (Diana Passmore) of the reason as soon as possible. It is a requirement for every student to sign-in on each day of the practical that they attend and it is **your responsibility** to ensure you have signed-in each day.

If the whole practical is missed then the Education Manager (Philippa Moss) must be informed. The student must provide appropriate written evidence for a valid reason that the practical session has been missed, or if the student is unable to complete a report by the deadline for some reason. Appropriate evidence includes a medical certificate to cover illness (details of the illness need not be specified by the doctor but they must state that in their opinion you are/were unfit to attend the practical class / write-up the report by the deadline) or a signed letter from a College Tutor to cover other circumstances.

Normally no later than one week after the missed session or missed report deadline you should provide one copy of this evidence to the Education Manager (Philippa Moss) and one copy to the TLT (Diana Passmore). The latter copy will be passed to the PCO (Professor David Armstrong). Subsequently your college may need to present this evidence in any case they might make to the Proctors in respect of missing examinable coursework.

10.4. Practical Assessment

Whilst you are working on your practicals in the teaching labs, you are expected to make entries in your practical book, capturing a brief outline of the method, recording your observations and relevant data and calculations. For seven of the experiments (2P2, 2P3, 2P5, 2P6, 2P8, 2P10, 2P12) up to three marks will be awarded for the quality of your practical book entry.

In awarding these marks the Senior Demonstrator will consider all of the following:

- Presentation and completeness of results, where they'll check you have followed the "best practice guidelines in this document (e.g. "Things to check section") and whether you have included and correctly described all the data/results specified in the script.
- Data analysis and errors, where we will evaluate if the analysis of data, including error analysis, is adequate.
- Interpretation of results and conclusions, where we will evaluate your understanding of the experiment, its results and how you summarize it all in some brief but meaningful conclusions.

The practical book MUST NOT be removed from Teaching Labs at any time. When you have finished each practical, you should present your practical book to the TLT who will stamp this at the end of your entry for that practical. The Senior Demonstrator will review the practical books before your next practical and provide a sheet with some feedback. The marks awarded will contribute a maximum of 21 marks in total towards Part I. An example of the feedback sheet may be found at Appendix F.

For three of the practicals, you are required to write a scientific report, each of which will attract a maximum of 13 marks towards Part I. Reports will be required for practicals 2P4: Casting, 2P7: Diffusion, and 2P9: X-ray Diffraction. For these experiments a report must be typed or word-processed and converted to a pdf file prior to submission via the assignment tools on Canvas (https://canvas.ox.ac.uk/courses/227401). At the start of the year, the Practical Courses Organiser will provide you with some generic guidance about how to approach writing your report. Typically, you will have 3 weeks from completing the practical before you need to submit the report, which should be no more than 3000 words and include no more than 10 figures.

The Senior Demonstrator will mark your work, normally within three weeks of submission of the report. Your work will be returned via the Practicals Canvas site annotated with comments available for you to view.

Whilst practicals are performed in pairs / threes in the laboratory, all write-ups should be completed, as far as possible, individually. You are referred to Section 10.8 on Plagiarism.

Completion of all twelve practicals, including submission of reports for three, as defined, and completion of a poster for Materials Selection, is a requirement for Part I of the final examination. The practical marks contribute directly to the final mark for Part I. For this reason, the practical books and reports will be made available to the Examiners in the Honour School of Materials Science.

10.5. Submission of reports and marking arrangements

The practical report must be typed or word-processed and submitted via Canvas normally within 3 weeks of the completion date of the experiment. Each page of the report must give the page number and the total number of pages in the report, i.e. page 3 of 4. Your report must be submitted to Canvas as **a pdf file** by 1.00pm on the stated deadline. You can use any PDF-converter software to create a PDF. Converters include Adobe Acrobat, and a converter built into Microsoft Word 2010.

Your PDF "assignment filename" should be in the following format, without the square brackets: [Practical number (e.g. 2P3)] - [your first name and family name]. Care must be taken on each submission of an "assignment" (your report file) as the Senior Demonstrator will mark only this submission: you are not permitted to submit subsequently a revised version should you discover problems with the file, e.g. you omitted some relevant information, pages had been deleted, the file had become scrambled prior to submission, etc.

10.6. Penalties

The writing of reports and assessment arrangements are simple and straightforward. Unfortunately, without a sanction, a small minority of students will choose not to comply. To assist the smooth running of the Class and in fairness to other students, there is a system of penalty marks.

Penalties may be deducted from the marks given by the Senior Demonstrator for the scientific reports, subject to approval by the FHS Examiners. These penalties will be incurred as a result of late submission in the absence of illness or other legitimate mitigating circumstances or other non-compliance of the rules given above.

1. Cheating is a Proctorial Offence. Your practical reports are part of the University's examination system; any student caught copying another student's work will be reported to the Proctors who have wide-ranging powers including the power to reduce the class of your degree. For more information on the seriousness of plagiarism, see Section 10.8. Note that you will need to 'sign' an electronic Declaration of Authorship when submitting your reports (see sample at Appendix D) and all submitted reports will be scanned by plagiarism detection software.

2. Other penalties are imposed by recommending that the FHS Examiners deduct marks from those awarded by the SD, as listed below:

a) **Starting an experiment without permission:**
The number of marks available for notebook assessment for that practical or -3 marks in the event of a practical assessed via report.

b) **Late submission of report in the absence of illness or other legitimate mitigating circumstances:**
If the report is submitted late via Canvas (i.e. later than 1.00 pm on the Wednesday three weeks after the starting date):- 3 penalty marks
If within 4 weeks of the scheduled starting date a practical is not carried out, or within 4 weeks of the actual starting date the report is not submitted, then a default mark of zero will be awarded and no feedback will be provided.

c) **Failure to hand in your practical book at the end of each day:**
1 penalty mark. (If data or material is needed from the book, this should be photocopied or photographed.)

d) **Non-attendance at labs for part of or all a practical without approval:**
The number of marks available for notebook assessment for that practical or -3 marks in the event of a practical assessed via report.

10.7. Satisfactory Performance in Practicals

Examination Regulations require satisfactory completion of Coursework. With Materials Science being a practical subject, the full set of Practical Classes is an essential component of the coursework. To be judged satisfactory, candidates must normally have achieved at least 40% overall, and have submitted a scientific report for marking on three of the practicals as defined above; the practicals on TEM and Materials Selection must be completed, and for Materials Selection the poster produced by all members of each practical group. The examiners may consider that non-submission of one report indicates a lack of engagement with the practical side, and deem performance to be non-satisfactory.

10.8. Plagiarism

Information from the University's Proctors and Assessor on plagiarism is provided in Appendix B. This information can be applied to all aspects of assessment during the course.

11. Other Course-related Events

11.1. The Industrial Tour

Normally, the JCCU organise an industrial tour during the Easter vacation. Previous destinations have included Canada, Sweden, China, the south of France, Singapore and the most recent tour was to Germany. All of these tours were very enjoyable, as well as being extremely valuable in terms of the scientific, technical and cultural experience gained. The Department is keen to encourage further such initiatives. Suggestions should be made via the JCCU. Reports and photographs from recent industrial tours can be viewed at www.materials.ox.ac.uk/teaching/tour.html.

11.2. Summer Vacation Projects in Industry and University Research Laboratories

In addition to attending departmentally-organised industrial visits in the second and third years, all students are strongly encouraged to undertake a vacation placement in industry during their course. A short report on this (if accompanied by a letter from their line manager confirming they were employed by the particular company in question) can substitute as one of the required 4 industrial visit reports submitted during Part I.

The Department also coordinates a number of partially-funded opportunities to study in research laboratories at overseas universities. Details are provided at the Hilary Term briefing mentioned below. Usually opportunities are available in the USA (MIT), China (Tsinghua, Shanghai Jiao Tong and Zhejiang), Japan (Tokyo Institute of Technology) and Germany (Bochum).

The ideal time to undertake this summer project / placement is during the second long vacation. You should make all the arrangements yourself, usually during the course of your second year.

To qualify as the subject of an industrial visit report the placement **should have a substantial materials content**.

If you have arranged your project / placement in good time, you can apply for external financial assistance from the grants made to us by the Ironmongers' and the Armourers' and Brasiers' towards travel and accommodation. All applications for financial assistance must be made through the Placements Organiser, Prof. James Marrow; ideally, these should be made as soon as possible in Hilary term. Further advice on finding a project / placement can be gained from the Placements Organiser. A lunchtime talk will be arranged early in Hilary Term of the second year. You **must** attend this talk if you wish to be considered for placement / project opportunities coordinated by the Department.

12. Teaching and Learning throughout your Degree

The MS MEng programme is accredited by the Engineering Council. The aims and objectives of the course are shown below in Table 6.

Table 6: Aims and Objectives of the Course

Materials Science
• to provide a course of the highest academic quality in Materials Science in a challenging and supportive learning environment that attracts the best students from the UK and elsewhere; • to provide students with a broad, balanced knowledge of Materials Science, supported by the necessary background science; • to develop transferable skills related to problem solving, communication, practical experimentation, and computing; • to bring students to a position on graduation that allows them to choose confidently from many careers, whether within Materials Science or not, and enables them to contribute rapidly to their chosen employment. This includes bringing them to a position to start graduate study for a research degree at a leading university either in the UK or overseas.

12.1. Learning Development, Study Skills and Tutorials

Learning Development is the gradual process by which students become increasingly competent, independent and sophisticated in their approach to their studies. This comes from a combination of increasing experience of being responsible for your own learning, picking up ideas from fellow students, both your peers and those more senior to you, and by guidance from your college tutor. Partly the increasing sophistication is driven by the structure and content of your 4-year MEng degree programme. For example, in year 1 you began to develop basic laboratory skills in groups of three by following straightforward 6h practicals according to written instruction sheets, in the third year you carry out a two-week full time open-ended team design project where your team is devoting 600 person hours to a task defined only in outline in a couple of hundred words. Then in your final year you carry out a six or eight month full-time individual research project and write this up in a thesis of about ten to twelve thousand words (100 pages).

In Michaelmas term of your first year you will have attended a short workshop on "Teaching, Study Skills and Learning Development in the Context of the Materials Degree Programme" run by the Director of Undergraduate Studies. The process of learning development is broad, ranging from the acquisition of basic study skills and knowledge to the development of high levels of academic rigour and critical ability – from the generic to the subject specific.

Your course has been designed with this in mind and will provide opportunities for you to develop a wide range of skills. Further information about these skills, together with details of how they are assessed, can be found in Appendix M.

Of all the **Study Skills** that you will develop, that of organizing your time (both apportioning it and using it efficiently) is one of the most important.

In your first year, this might have been as simple as getting to a lecture on time, increasing to thinking ahead over a period of two or more weeks to make sure that as well as attending scheduled lectures, tutorials and classes, you give appropriate time to preparation in advance of and submission of written work for: tutorials, maths classes, crystallography classes, and practical classes plus the associated lab reports.

In your second and third year the pace and volume of all this quickens and there will be longer term objectives to factor-in such as arrangements for a voluntary summer placement, writing joint reports on extended pieces of team-based coursework (and submitting them by the deadlines). Then in the final year you will apply simple project management techniques to help you make best use of the fifteen hundred hours that you will devote full-time to your Part II research project. Thus you begin simply needing to get to the next day's lecture on time, and three years later you will start your 4th year project by mapping out what you will do over the subsequent eight months!

The on-line bridging programme that you were provided access to immediately before you arrived in Oxford includes a study skills module on time management. You may find it helpful to revisit this periodically. [It is intended to add more study skills modules in the future.]

Tutorials are a key part of your programme and are compulsory. They are the responsibility of your college and you will receive guidance from your college tutor on how to make best use of this resource. Many of the tutorials are given by senior members of the Faculty of Materials but some will be given by younger staff and by research students. In small groups, typically of two or at most three students, you will discuss topics on which you have submitted written work in advance. The written work is based on question sheets issued by the course lecturers and typically you will spend 6 to 8 hours on the written work for a one-hour tutorial. Your tutors will also discuss additional topics as they judge appropriate and of course you may raise specific topics yourself. Thus the tutorial is a key resource to help you to develop an in-depth understanding of and ability to apply the material you are introduced to in lectures.
The feedback you will gain during tutorials should help you to judge your progress and to identify areas of strength and weakness in your understanding. Your tutor will offer guidance on how you might improve your understanding of and insight into our subject.

The University's Education Committee summarises the purpose of tutorials as follows:
"To develop an individual student's capacity to think in depth about a subject area, and to operate with growing confidence within its techniques and methodologies, with the expectation that the process will promote increased understanding of the discipline for both tutor and student".

This Committee also notes that "feedback should be seen as a key characteristic of tutorial teaching and a routine expectation".

A wide range of information and training materials are available to help you develop your academic skills – including time management, research and library skills, referencing, revision skills and academic writing - through the Oxford Students website www.ox.ac.uk/students/academic/guidance/skills.

12.2. Research-Teaching Nexus

The Department of Materials has an international reputation for its research profile and this University believes that there are many benefits to the teaching of its courses that are a consequence of this high level of research activity. The tutors and lecturers with whom you will interact during this course are not only employed to teach you, but are also (in nearly all cases) actively engaged in the direction of, or participation in, one or more of the wide range of research projects that contribute to the Department's research reputation. Many of the individual academic staff in this department are recognised internationally as leaders in their own field of specialisation.

The impact of research on teaching in this department may take many forms: tutors and lecturers including their own data or ideas from research in their teaching; the regular updating of reading lists and curricula to reflect research developments; the development of research skills and research-based approaches to study through your participation in research projects (particularly in the 4th year of your degree); special topics provided as options in year 3; the use of research equipment in practical classes; access to research seminars in the later years of your course; opportunities to visit academic and research facilities outside Oxford; the many opportunities to meet with research students and members of the faculty, particularly at the research project stage; experience of preparing research reports including papers for external publication in some cases. In general, you will be encouraged to develop the ability to interpret and critically appraise new data, to critically appraise research literature, and to build the sense that scientific knowledge is contestable and that its interpretation may be continually revisited.

12.3. Communication Skills

Although just one part of Learning Development, communication skills are so highly valued throughout life that they deserve their own entry! From what you have read so far, you will be aware that the different methods of teaching and assessment provide various methods for developing communication skills. As well as the immediately apparent writing skills that you develop throughout the course of the programme, tutorials develop and refine your abilities in both written and oral communication; practical classes provide opportunities for collaboration and team-work, as well as the written report and lab notebook entries; the Business Plan and Team Design Projects have team oral presentation sessions following the team written reports, and the Y2 Poster Competition provides yet another medium to communicate your scientific understanding. Your ability to write individual reports is developed gradually; initially through lab reports, then the Y3 Modelling and Options modules and finally the Part II thesis. In Part II, you will need to report your findings to your supervisor, identify why these are useful and whether or not they support your thesis, as well as produce a substantial written thesis, defend this at an oral examination and give a research talk to your peers on your Part II work.

13. Teaching Norms (Expectations of Study & Student Workload)

The University's expectation is that undergraduate students treat academic study as a full-time commitment during Full Term, with approximately 40 hours per week typically being spent on academic work; this includes both scheduled contact time (tutorials, lectures, classes, practicals etc.) and time spent in private study. This is based on the expectation that these hours are spent on focussed, concentrated academic work.

It is recognised that workloads will vary week to week, and you will sometimes need or wish to work for longer. If you find it impossible to meet your academic obligations without spending significantly longer than 48 hours per week on academic study on a regular basis (rather than occasionally, or for a limited time period), you should seek advice from your tutor.

You should also note that it is an expectation of the Oxford Materials Programme that you engage in private study and/or revision during part of each vacation. You will need to do this in preparation for College collections that are held at the end of 0th week in most terms – your tutors will provide you with the specific details. During the vacations, you should go over the tutorial problems and your notes, revising the material and supplementing it with information gained from tutorials and from your own reading. In addition to consolidating the previous term's work, there may be preparatory reading for the next term's courses. Your tutors may also set you some specific vacation work.

Please note that the following teaching norms are for guidance only. Your college tutor will advise you more specifically on matters such as the amount of time you devote to private study and revision, and may vary the number of tutorials given on a particular lecture course based on their judgement of your needs. Tutorials and Maths & Materials Options Classes are nominally one hour in length although classes may vary from 1-2 hours. Tutors may vary this to suit individual courses or needs.

13.1. Lectures & Laboratory Classes (as detailed in the General Scheme)

Lecture loads, including introductory talks, industrial talks and transferable skills workshops, are as scheduled in the General Scheme of Lectures, which can be viewed on the Oxford Materials website. For the Materials Options those of you following the MEng programme will select three 12h courses per term in MT & HT of the third year.

Laboratory classes are scheduled for two 3h sessions per fortnight for first years (ten practicals in total) and three 3h sessions per fortnight for second year MS Part I students (12 practicals in total).

The load involved in the Foreign Language Option is described in a separate section of this handbook.

13.2. Tutorials

Tutorials form a very important component of teaching at Oxford. Each college makes provision for its own students. College Fellows and other academic staff carry out most of this teaching themselves, usually with pairs of students but sometimes in singles or groups of three.

In the first year, students have about 3 tutorials per examination paper per term, except in subjects where Departmental classes are provided.

In the second year, tutorials are assigned to different areas of the syllabus at a rate of about 1 per 4 lectures, varied as thought appropriate by individual tutors. Each tutorial requires about 6-8 hours of preparatory work by the students. Thus, a typical term's lecture load of 60 hours would require 15 tutorials, involving about 105 hours preparation, or 13 hours per week. In this Department most tutors coordinate their teaching closely with the lecture programme, seeing that students complete appropriate exercises (usually question sheets devised by the course lecturers) as the lectures progress, and that any problems are cleared up promptly.

Each tutor has the flexibility to teach each group in a way to meet the needs of the individual students. There is a Tutors' Committee in the Department, which is a forum to solicit opinions, discuss common problems and coordinate actions on a termly basis. The current Chair of the Tutors' Committee is Professor Rob Weatherup.

13.3. Maths Classes and Materials Options Classes

These classes typically involve groups of 6 to 10 students. First and second year students take Maths Classes (currently organised by Prof. Simon Benjamin); these are normally at the rate of one class for every two maths lectures, which is an average of about one class per week. Third year students take Materials Options classes (co-ordinated by the Education Support Team); there are normally three classes per 12h lecture course.

13.4. Other Coursework and Final Year Projects

(i) Industrial Visits – typically 3 to 5 hours for each of four visits and 1.5 hours writing per report.

(ii) Industrial Talks – typically 1-1.5 hours for each of two industrial talks and up to 1 hour writing per report

(iii) Business Plan – typically 20h writing up time for the Business Plan

(iv) Team Design Project – typically 100h, including writing the team report.

(v) Introduction to Materials Modelling module –- typically 100h, including writing the report.

(vi) Characterisation of Materials or Atomistic Modelling – typically 100h, including writing the report.

(vii) Literature-based research module (for 3 year BA (Hons) degree) – typically 3, and no more than 4, weeks full-time equivalent effort, including writing the essay.

13.5. Final year Part II Projects (MEng)

Detailed guidance is issued for Materials Science students in the MS Part II Handbook (see Oxford Materials website).

For the MS Research Project, typically you will spend 40h per week in the laboratory and should expect to hold regular meetings with your supervisor. These meetings will normally be held at

least every two weeks for the duration of the project but significantly more intensive support is usual in the initial and final stages of the project. You are also likely to spend additional time in private study outside of the laboratory.

13.6. Revision

Revision classes are scheduled for some courses and revision tutorials are often arranged too, typically at a rate of 3 to 4 tutorials per paper. During the formal revision periods in Trinity Term and in part of the Easter Vacation preceding the Part I Examination it is not unusual to study for 60h per week.

13.7. Paid Work Experience

Term-time employment is not permitted, except under exceptional circumstances and in consultation with your tutor and senior tutor. During vacations you will be required to complete academic work and this should take priority over other commitments. However, work experience placements may be sourced with help from the Department and the University Career's Service. See Section 21 for further details.

14. Libraries

Do not think that a complete set of lecture notes for a course removes the need to consult textbooks. You will need constant access to books in the course of your studies, for clarifying points made in lectures, doing things in different ways, helping with problems and so on. The reading lists issued as part of the lecture synopses are revised regularly, and contain a range of suggestions, including alternatives and suggestions for further reading.

There are three types of library provision available to undergraduates:

- **College Libraries**, which provide books for members of the College. Most Colleges that accept undergraduates in Materials have good collections of undergraduate textbooks in the subject. If you find that a book you require is not stocked by your College library, please consult your College Tutor or College Librarian. Often the book will then be added to the library.
- **The Radcliffe Science Library (RSL)**, which is a UK Copyright Library, with a large collection of books and journals, and extensive reading rooms. The RSL is both a lending and reference library. You need a University Card to be admitted to the RSL. Students register through their Colleges to use the RSL.
- **The Departmental Library**, where we aim to stock all books recommended for individual lecture courses in Materials. We also have many other textbooks, monographs, conference proceedings, key materials journals and some electronic publications. A lending service is offered to students.

Further information about the library can be found on the Departmental website, at www.materials.ox.ac.uk/library. **For undergraduates this library is considered to be a secondary support system to the other libraries**; its purpose is **not** to stock multiple copies of all course books.
Many of the books are kept for use in the library only so students can study in between lectures / practicals etc. The "reserve copies" of key course textbooks are kept in the Librarian's office. THE DEPARTMENTAL LIBRARY ALSO PROVIDES A STUDY AREA AND IS EQUIPPED FOR WIRELESS INTERNET ACCESS.

15. Computing

15.1. Facilities available

The use of computers forms an important element in our degree courses. The Teaching Laboratory contains a suite of networked, PC-compatible computers and peripherals with a wide range of software, including teaching software for materials science. Most colleges provide computing facilities for undergraduates, and computing facilities are also provided centrally at IT Services (ITS).

Students are expected to access the internet frequently for communicating by email and for searching for information on the web. There is lots of useful information on the Department's website at: www.materials.ox.ac.uk.

The teaching of computing is part of the undergraduate courses. An introduction is available in the first year. Some practicals have a computing element either in carrying out the experiment or in processing the results.

The Departmental Library has facilities for online searching of the library catalogues within the University. There is also online access to databases of papers on materials science topics published in scientific journals, which are updated regularly. Papers on topics of interest can be found either in the Departmental Library or in the Radcliffe Science Library. Many journals are also available online from any computer on the University network. (www.materials.ox.ac.uk/library)

The Department also has a Materials Modelling Laboratory with several linux HPC clusters (see mml.materials.ox.ac.uk) and the University also provides larger facilities for Advanced Research Computing (see www.arc.ox.ac.uk).

15.2. Use of the Internet Facilities

Access to the internet is encouraged by the university provided it is solely for legitimate academic purposes. All users of networked services should read the regulations that further define permissible use and access, which are given in full in Appendix N.

Please remember that because of abuses in the past the levels of logging and auditing are now so high on most service providers that your every keystroke and action can be traced with milli-second accuracy. The penalties that are being imposed can range from fines, suspension of accounts, rustication (in the Oxford sense) to prison sentences and a criminal record. If you are the victim or target of unacceptable behaviour contact the IT Manager and prompt action will be taken to resolve the problem.

15.3. Email

All undergraduates are provided with an email address by ITS but arranged through their colleges. Every student is allocated an oxford username consisting of 8 characters. The first four are an abbreviation of the College name, and the last four are a four digit number. The email address for the account will be easier to remember, and is usually of the form

firstname.lastname@college.ox.ac.uk

The Department uses email to communicate with undergraduates about many important matters, such as industrial visits and talks, changes in lecture venues, etc. It is therefore very important that you check your email regularly; if you don't, you might miss useful messages.

In addition, if you have too many unread messages, your disk quota will be exceeded, and eventually (after 7 days) messages sent to you will bounce back. You can also use email to contact members of staff quickly (see Table 1).

15.4. Social Media

The Department recognises the benefits and opportunities that a social media presence offers for students (and staff) and realises that social media is a part of everyday life for most students. Freedom of expression and academic freedom are central beliefs of the University and it encourages its staff and students to exchange ideas and participate in discourse and debate, including in a social media context. The University is mindful that the use of social media can carry risks and IT Services have produced some helpful guidance on etiquette (see www.ox.ac.uk/students/life/it/socialmedia). Students should also familiarise themselves with the Code of Discipline under Statute XI as breaching this could result in disciplinary action by the Proctors.

15.5. Programming and Computation

The Department understands that some students will have a particular desire to develop and enhance programming and computational skills during their time here. There are many opportunities available throughout the University for personal development such as via the IT Learning Programme's classroom-based courses.

An additional resource that sits alongside this is LinkedIn Learning, which provides a vast online library of instructional videos covering a good number of technical topics, particularly programming and web development. You have access to this using your Oxford credentials - login and give it a try! https://skills.it.ox.ac.uk/linkedin-learning

Within the course program, student will receive training in MATLAB, which is a high-performance language for technical computing. It is a tool that provides a graphical interface for numerical and symbolic computation along with a number of data analysis, simulation and acquisition functions. Following the introductory practical in the first year, you will come across problems requiring the use of MATLAB in tutorial sheets, as well as further use in lab practicals.

16. B.A. (Hons) in Materials Science

On rare occasions, it may be that a student changes their mind about their career path and decides they no longer wish to pursue Materials Science into the 4th year. In this event, following careful consideration and discussion with their tutor, it is possible to opt to transfer to the Bachelors degree in the 3rd year. There are two potential transfer points in the 3rd year, one at the start of the year, and one at the end of the year. The exact course content required for the Bachelors degree will vary depending on the point at which the transfer is requested.

16.1. Transfer to BA at start of Year 3

Should you decide to transfer to the Bachelors programme at the start of the 3rd year, you will follow a reduced set of Options lecture courses, studying two of the 12h courses in each of Michaelmas and Hilary term rather than three, and complete a literature-based research module throughout Michaelmas and Hilary term. This will be under the guidance of an Academic Advisor normally from within the Department of Materials. Your results will be considered with the rest of the Part I results so you would be eligible to graduate at the end of the third year.

You will sit the same Options papers as the MEng candidates but will answer only two questions per paper, each from a different section, and will be allowed 1.5h for each paper. These shorter option papers will be worth 50 marks each. See Table 4 in Section 6.3 for details of the Option courses available in 2023/24.

The literature-based research module will comprise an extended essay on a subject in Materials Science approved by the Departmental Academic Committee, at the level of a research review article as published in Materials Today or Scientific American. The topics on offer will depend on the particular Academic Advisors available. The essay, of no more than 4,000 words, is worth 50 marks and candidates will be required to upload this using the University approved online assessment platform by noon on the third Monday following the end of Hilary Full Term. Normally, to be judged as satisfactory, the essay must score at least 40%.

16.2. Transfer to BA at end of Year 3

Should you reconsider your future career goals after Year 3 MT week 3 and decide that you do not wish to continue with Part II of the MEng programme, it is possible to opt to transfer to the Bachelors degree **after** sitting the six written papers but **BEFORE** the results are considered by the examiners.

In this case, you will follow the same elements of Part I as the MEng candidates and during the Long Vacation complete the literature-based research module as specified in Section 16.1 above, excepting that it must be submitted by a date specified by the Chair of Faculty (but no later than the last Friday of the Long Vacation).

Your results would be considered by the FHS examiners at the end of the following Trinity term so you would be eligible to graduate at the end of the academic year following that in which you sat your written papers.

If you are confident that you do not wish to continue with Materials Science into the 4th year, you must submit the form at Appendix Q or Appendix R (depending upon when you make the decision) to the Education Support Team either by Friday of week 3 of Michaelmas term or by Friday of week 8 of Trinity term.

The Bachelors degree is not accredited by the IOM^3 / UK Engineering Council.

17. The MS Part II (M.Eng)

Part II of the MS MEng programme is a full-time research project lasting nine months from mid-September to mid-June of the fourth year. The results are presented in a thesis of not more than 12,000 words, and an oral examination based on it is held towards the end of June.

Your attention is drawn to the statement on plagiarism in Appendix B. Further details are given in the Part II handbook which is issued at the start of the project.

The project is supervised either by a member of staff or by someone approved by the Faculty of Materials. Nearly all the research facilities within the Department are, in principle, available to Part II students. Projects are usually carried out in the Department but they can also be carried out in UK industrial laboratories or overseas with prior approval. There is a prize of £250 and a medal from the Armourers' and Brasiers' Company for the best Part II project.

All Part II MS students are **required** to give a 15 minute talk on their work to the Department at the beginning of Trinity Term. A prize of £450 and a medal is awarded by the Worshipful Company of Ironmongers for the best talk. Part II students are also encouraged to attend some graduate lecture courses, the programme of which is published in the Lecture List. Other broader skills training will be provided.

MS students will be allocated a Part II project during their 3rd year. They will receive a collation of proposed project descriptions at the start of Hilary Term, and are required to attend an open day in week 6 of Hilary Term during which they will have an opportunity to discuss projects with potential supervisors. Subsequent to the open day students will complete a Part II Project Preference Form on which they are able to make a selection of up to six projects in order of preference. The Part II Project Organiser, currently Professor Jan Czernuszka, will then allocate projects to students such that as many students as possible are able to carry out their first or second choice project.

18. Important dates and deadlines

A list of important dates and deadlines is provided at the front of this handbook. The information is based on the current regulations, and details may vary. The start dates for examinations are provisional. In general, all formally examined coursework must be submitted via Inspera (https://oxford.inspera.com/) as a single pdf file with no identifying features other than your candidate number. The exceptions to this are: the Team Design Project reports, which are not anonymous (as groups also do presentations) and should be submitted with the team number in the file name and names may be included as authors; and the MS Part II thesis should be submitted with your name in the file name: it is not anonymous as each candidate is required to attend a *viva voce*. The industrial visit and industrial talk reports, should be submitted via Canvas (at https://canvas.ox.ac.uk/courses/123286).

19. Examinations

Your attention is drawn to the statement on plagiarism in Appendix B.

During your four-year MEng course, there are 3 sets of examinations. You have already passed your Preliminary examinations at the end of your first year. The Final Examinations are in two parts, Part I at the end of the third year and Part II at the end of the fourth year.

Normally, you must achieve an overall average of at least 50% AND be considered capable of being awarded an honours degree after Part I in order to be allowed to enter Part II. The degree classification is based on the combined results of Part I and Part II.

19.1. Final examinations for M.Eng

Part I of the MEng programme consists of four general papers based on the four core subject areas, and two papers based on the third year Options. Each paper is of three hours duration. In addition, the marks for practicals, industrial visit and talks reports, Entrepreneurship coursework, the Introduction to Modelling for Materials module, the Team Design Project, and either the Characterisation of Materials or Atomistic Modelling module are all taken into account (Table 7). To achieve Honours in Part I it is necessary to obtain a minimum mark of 40% averaged over all elements of assessment for Part I, AND obtain a minimum mark of 40% in each of at least four of the six written papers sat in Trinity term, AND satisfy the coursework requirement as detailed in the Examination Regulations 2022.

Marks in Part II of the MEng programme are awarded for the thesis. There is an oral examination based on the thesis. Table 7 shows the total number of marks allocated to different components of the examination. The examiners have the power to vary the number of marks, but you will be told of any change in the marking schemes shown.

Table 7: Summary of marks to be awarded for different components of the MS Final Examination in the M.Eng programme 2024, subject to confirmation by the examiners

	Component	Mark
Part I	General Paper 1	100
	General Paper 2	100
	General Paper 3	100
	General Paper 4	100
	Materials Options Paper 1	100
	Materials Options Paper 2	100
	Practicals	60
	Industrial visits and talks	10
	Entrepreneurship coursework	20
	Team Design Project	50
	Introduction to Modelling for Materials	30
	Characterisation of Materials or Atomistic Modelling module	30
Part I Total		**800**
Part II	Thesis	400
Overall Total		**1200**

19.2. Final examinations for B.A. (Hons)

A student opting to transfer to the 3-year BA degree takes the same four general papers based on the four core subject areas as in the MEng programme, and two shorter options papers based on a smaller set of the third year Options lecture. The general papers are each of three hours duration, whereas the two options papers are each of 1.5 hours duration. In addition, the marks for practicals, industrial visit and talk reports, Entrepreneurship coursework, the Introduction to Modelling for Materials module, the Team Design Project, and either the Characterisation of Materials or Atomistic Modelling module, and are all taken into account (Table **8**).

Further, this student carries out a literature-based research module throughout Michaelmas and Hilary terms of the third year. This option is intended for the occasional student who may change their mind about their career path while following our MEng programme. To achieve Honours in the Bachelors programme it is necessary to obtain a minimum mark of 40% averaged over all elements of assessment, AND obtain a minimum mark of 40% in each of at least four of the six written papers sat in Trinity term, AND satisfy the coursework requirement as detailed in the Examination Regulations 2022.

Table 8 Summary of marks to be awarded for different components of the MS Final Examination in the B.A. (Hons) exit award in 2024, subject to confirmation by the examiners

If opting to exit the MEng degree at the start of Year 3

	Component	Mark
Part I	General Paper 1	100
	General Paper 2	100
	General Paper 3	100
	General Paper 4	100
	Materials Options Paper 1	50
	Materials Options Paper 2	50
	Practicals	60
	Industrial visits and talks	10
	Entrepreneurship coursework	20
	Team Design Project	50
	Introduction to Modelling for Materials	30
	Characterisation of Materials or Atomistic Modelling module	30
	Literature-based research module	50
Overall Total		**750**

If opting to exit the MEng degree at the end of Year 3

	Component	Mark
Part I	General Paper 1	100
	General Paper 2	100
	General Paper 3	100
	General Paper 4	100
	Materials Options Paper 1	100
	Materials Options Paper 2	100
	Practicals	60
	Industrial visits and talks	10
	Entrepreneurship coursework	20
	Team Design Project	50
	Introduction to Modelling for Materials	30
	Characterisation of Materials or Atomistic Modelling module	30
	Literature-based research module	50
Overall Total		**850**

19.3. Classification Descriptors

The marks for Part I and Part II examinations of the MEng programme, and the BA (Hons) examination for the 3-year exit award, conform to the University's standardised expression of agreed final marks, as follows:

70-100	First Class
60-69	Upper Second
50-59	Lower Second
40-49	Third
30-39	Pass
0-29	Fail

With the qualitative descriptors for each classification level being:

Class I The candidate shows excellent problem-solving skills and excellent knowledge of the material over a wide range of topics, and is able to use that knowledge innovatively and/or in unfamiliar contexts.

Class IIi The candidate shows good or very good problem-solving skills, and good or very good knowledge of much of the material over a wide range of topics.

Class IIii The candidate shows basic problem-solving skills and adequate knowledge of most of the material.

Class III The candidate shows reasonable understanding of at least part of the basic material and some problem solving skills. Although there may be a few good answers, the majority of answers will contain errors in calculations and/or show incomplete understanding of the topics.

Pass The candidate shows some limited grasp of basic material over a restricted range of topics, but with large gaps in understanding. There need not be any good quality answers, but there will be indications of some competence.

Fail The candidate shows inadequate grasp of the basic material. The work is likely to show major misunderstanding and confusion, and/or inaccurate calculations; the answers to most of the questions attempted are likely to be fragmentary.

19.4. Examination Conventions

Examination conventions are the formal record of the specific assessment standards for the course or courses to which they apply. They set out how your examined work will be marked and how the resulting marks will be used to arrive at a final result and classification of your award. They include information on: marking scales, marking and classification criteria, scaling of marks, progression, resits, use of viva voce examinations, penalties for late submission, and penalties for over-length work. The Examination Conventions for 2022-23 can be found in Appendix O.

The Examination Conventions for 2023-24 will be based on these documents but may not be identical and will be published in Hilary Term. The last reports of the examiners can be found via Canvas (https://canvas.ox.ac.uk/courses/227412)

19.5. Sitting your Examinations

Currently all examinations for the Materials Science programme are taken as in-person examinations. Practical information and support for sitting in-person exams is provided on the Oxford students website (www.ox.ac.uk/students/academic/exams/guidance). Information on (a) the standards of conduct expected in examinations and (b) what to do if you would like examiners to be aware of any circumstances that may have affected your performance before or during an examination (such as illness, accident or bereavement) is also available here.

In Prelims and MS Part I the only types of calculators that may be used in examinations are from the following series:

CASIO fx-83
CASIO fx-85
SHARP EL-531

Candidates are required to clear any user-entered data or programmes from memories immediately before the exam begins. The examiners may inspect any calculator during the course of an exam.

19.6. Examination Results

You will be able to access your own results via the Student Self Service portal approximately 2-3 weeks after the end of Trinity Full Term (subject to change). The Academic and Assessment Results page within Self Service details all your assessment results (examination papers and/or submissions) and the result of the year (if applicable), together with your ranking position. You will need your Single Sign-On ID and password to access Student Self Service.

19.7. Examiners

The examiners for Part I and Part II in the Final Honours Schools are appointed on an annual basis. In 2023-24, the examiners for the Part I / Part II Examination in the Department of Materials are as follows:

Professor J.T. Czernuszka, Professor M.L. Galano, Professor Sergio Lozano-Perez (Chair), Professor Mauro Pasta, Professor Richard Todd and Professor Andrew Watt. The external examiners are Professor Paul Midgley, University of Cambridge, and Professor Geraint Williams, Swansea University.

It must be stressed that in order to preserve the independence of the examiners, you are not allowed to make contact directly about matters relating to the content of the exams or the marking of papers. Any communication must be via the Senior Tutor of your college, who will, if they deem the matter of importance, contact the Proctors. The Proctors in turn communicate with the Chair of Examiners.

If you have any queries about the Examinations or anything related to the Examinations, for example, illness, personal issues, please don't hesitate to seek further advice from your College tutor, or one of the Department's Education Support Team.

19.8. Entry for University examinations and examination dates

Instructions for entering for University examination and examination timetables can be found via www.ox.ac.uk/students/academic/exams.

19.9. Preparing for examinations

It is quite normal for students to feel anxious in the run-up to examinations. Developing a strategic approach can help you to take and maintain control of your preparation. The University provides some helpful advice on the website at https://www.ox.ac.uk/students/academic/exams/wellbeing. Mock examinations are run normally in week 3 of Trinity Term down at Exam Schools to help manage your expectations about what will happen during your public examinations, and reduce some of the anxiety by ensuring you are familiar with arrangements. You are strongly encouraged to sign-up and attend one of these sessions. Your College Tutor will be able to offer advice specifically suited to you based on their knowledge of your strengths and weaknesses. Past exam papers are available online through OXAM at http://oxam.ox.ac.uk/ (you will need to sign in using your Single Sign-On).

19.10. Collections

Collections are examinations sat in Colleges during 0thweek at the start of term. The Department of Materials uses centrally set Collections, so that all students in the same year sit the same paper. Collections questions are often drawn from past examination papers and your own reflection on your performance in Collections together with the feedback from your tutor on this performance should help you to understand what is required for a first-class answer to an exam question. In your third year, there will be a double collection on the previous year's work at the start of the Michaelmas Term. This collection will be centrally set and marked and you will receive feedback from the return of the commented scripts and from feedback sessions open to all 3rd years led by the markers of the collection, in week 4.

20. Student Prizes

The Department has a large number and variety of prizes available to students in all years of their degree.

Johnson–Matthey Prize for best overall performance in Prelims - **£1,000**

Armourers' and Brasiers' Company / Rolls Royce prize for outstanding overall performance in Prelims (awarded to the students with the 2nd and 3rd highest marks) - total prize **£400**

Armourers' and Brasiers' Company / TATA Steel Prize for the best overall performance in Prelims practicals - **£500**

Armourers and Brasiers' Company Prize for best 2nd Year Materials Selection poster **- £100 per student** (students work in groups)

Armourers and Brasiers' Company Prize for best Year 2 Business Plan Team Presentation **- £50 per student** (students work in groups)

TATA Steel Prize for best overall performance in Part I practicals - **£250**

Armourers' and Brasiers' Company / TATA Steel Prize for the best Team Design Project - **£150 per student** (students work in groups)

Gibbs Prize for best overall performance in MS Part I - **£800**

Worshipful Company of Ironmongers Prize for best MS Part II presentation - **£450 and a medal**

Armourers' and Brasiers' Prize and Armourers' Medal for the best MS Part II project - **£250 and a medal**

Institute of Materials, Minerals and Mining Prize for best overall performance in Parts I and II - **£100**

Department of Materials' Annual Prize for the most significant improvement between Part I and Part II - **£100**

21. Employability, Careers and Vacation jobs

The careers taken up by our graduates are of almost bewildering variety! Three broad groupings can be identified: approximately one third go directly into scientific or technology-related employment in industry; another third go on to some form of further postgraduate education or training either in the UK or abroad; and the final third pursue careers which have no immediate relevance to their Oxford studies (although a number of people in this last group discover that their knowledge of materials science is useful, e.g. in technical finance and investment, patent law, and accountancy in industry).

It is a very good idea to work in industry during one or more long vacations, and if possible to obtain industrial sponsorship whilst at University. Employers are becoming increasingly more likely to recruit from the ranks of those who have already spent time working for their organisations. The ability to work in a team, to communicate well, to show initiative, and to get a task completed well

and on time, are all qualities vital to the employer, and can best be assessed on the basis of experience, rather than under the artificial conditions of an interview.

Advice about vacation placements and jobs for graduates can be obtained from a variety of sources. The University Careers Service (56 Banbury Road, www.careers.ox.ac.uk) has outstanding resources, and provides an excellent service. Professor Andrew Watt gives a briefing early in Hilary Term for all students who are interested in vacation placements. Normally, several opportunities are available overseas, including China, Japan and the USA.

Tutors should also be consulted. They receive a lot of information from potential employers, and may also be in touch with previous graduates who are working in industry. Many of them also have direct links with particular industrial companies, and a personal recommendation always helps!

The Oxford University Careers Service has a number of programmes and workshops that provide opportunities to develop skills and experience for your career. Further information about various opportunities can be found at www.ox.ac.uk/students/life/experience.

In Michaelmas of your final year you will be invited to meet informally with several alumni of the Department to enable you to seek advice and inspiration on careers available to Materials graduates.

Or are you an entrepreneur?

What are the top skills needed to be an excellent researcher? Creative problem-solving? Resourcefulness? Confidence and determination? Did you know these are also key attributes of an enterprising or entrepreneurial mind-set?

But what does “enterprising” actually mean? If “Dragon’s Den” or “The Apprentice” is the first thing you think about, then check out Enterprising Oxford, where you will see what being enterprising is and where it can take you.

Enterprising Oxford is an online map and guide to innovation and entrepreneurship in Oxfordshire, developed here at the University of Oxford. Start at the beginning, with Entrepreneurship 101, to discover how being entrepreneurial can help with research or employability, or go straight in to Explore & Build your idea. Read about entrepreneurs at all stages of the journey, mingle with successful startups, and find creative ways to fund your ideas and initiatives. Whether you have an idea, a start-up or a well and truly established venture, Enterprising Oxford highlights opportunities to develop further or help support others.

22. Intellectual Property Rights

Appendix P outlines the University policy on Intellectual Property Rights (IPR).

23. If you need help

23.1. Asking for assistance

This section could be sub-titled ‘What to do if things go wrong’. The first thing to recognise is that it is not unusual for students to experience a difficulty of one kind or another. Some aspect of the course might be horribly difficult to understand; a personal relationship might break down; a health problem might arise; or domestic or financial difficulties might crop up. Such difficulties may give rise to feelings of inadequacy, compounded by the impression that everyone else is coping better. What is the best way to deal with such difficulties? There are perhaps three main aspects to this:

As far as possible, **be prepared**. Expect the unexpected. From the start of the first term of the first year, work systematically and regularly on your studies, and don't rely on 'last minute panics' to get you out of difficulties. Take the time and effort to cultivate good friends, to whom you will be able to turn in times of trouble. And don't forget the basics of regular meals, some form of physical exercise, and enough sleep. In engineering terms, this amounts to building a margin of safety into your design for living, so that when extra stress is applied at some point, the whole structure does not immediately collapse in a heap!

Be positive. Try to remind yourself that you are not the only person in this position. Learning to cope, and learning how and where to seek help when you need it, is part of the natural preparation for your future, and part of your progress towards personal maturity.

Be proactive in seeking help. Go and talk to somebody. It is very common to feel that nobody can help you with your particular insurmountable difficulty. In fact, the opposite is the case, and there are a lot of people ready to assist you. Usually the best advice (but sometime a difficult step to take) is to go and talk to your Tutor.

If you feel that you cannot do that, then at college level, you can go to your College Adviser (if one has been appointed), or to a College Counsellor, or one of your College Officers with particular responsibility for looking after students e.g. the College Doctor, Dean, Chaplain, Senior Tutor or Head of House.

At the Departmental level, you can consult any member of staff, and in particular, the Director of Undergraduate Studies, Prof. James Marrow; the Education Manager, Ms Philippa Moss; the Head of Department, Professor Hazel Assender; or one of the Harassment Advisers (Dr Clara Barker, Miki Bennett and Professor Jan Czernuszka).

Or you might find it easier to talk to an older student or a postgraduate in your college, who may have experienced similar problems. Your JCR should also have a Welfare Representative who may be able to help.

There is information available that may be of help on the Oxford Wellbeing site at https://www.ox.ac.uk/wellbeingatoxford. Further details about support available through the University may be found at www.ox.ac.uk/students/welfare/. In addition, there are several organisations that exist to help you, including:

- The University Counselling Service, 3 Worcester Street (appointments may be made by telephoning 70300 from within the university or 270300 from outside, or by email: counselling@admin.ox.ac.uk).
- Nightline - a student-run counselling service (https://oxford.nightline.ac.uk/), Oxford 270270. You can reach Nightline via phone, instant message, or Skype, term time, 8 p.m. to 8 a.m.).
- Student Advice & Wellbeing Service, a confidential service offered by the Oxford University Student Union - https://www.oxfordsu.org/advice-wellbeing. Contact advice@oxfordsu.ox.ac.uk for confidential advice on a wide range of issues such as academic appeals, money management, accommodation problems, disciplinary matters, harassment and many other aspects of student wellbeing and healthcare.
- Turning Point offer a range of confidential health and wellbeing services encompassing mental health concerns to drug and/or alcohol issues. See https://www.turning-point.co.uk/services/oxfordshire#about for details of the Oxford hubs; or call on 01865 261690 between 9am and 5pm on weekdays to speak to one of the team.
- The Samaritans (email jo@samaritans.org or call 116 123 or 0330 094 5717 for the Oxford branch), who can provide counselling, as well as an emergency service for the suicidal and despairing. For further details, refer to the Samaritans Oxford website at www.samaritans.org/branches/oxford-samaritans.
- Papyrus (https://www.papyrus-uk.org/) is a UK charity dedicated to the prevention of suicide, and promoting positive mental health and emotional wellbeing in young people. Contact pat@papyrus-uk.org or telephone 0800 068 4141 / text 07860 039967
- The Libra Project (Oxford 749800) has been set up by a voluntary organisation to provide free counselling and advice for anyone worried about their drinking, or any drugs they may be taking.
- University Harassment Line (70760 from within the university or 270760 from outside, email: harassment.line@admin.ox.ac.uk).

- University Equality and Diversity Unit (email disability@admin.ox.ac.uk or call 89830 from within the university or 289830 from outside; https://edu.admin.ox.ac.uk/disability-support).
- The Sexual Harassment and Violence Support Service - offers free confidential support and advice to all students. This service is delivered by Student Welfare and Support Services (SWSS) and was set up in collaboration with Oxfordshire Sexual Abuse & Rape Crisis Centre, and works closely with the University's wider welfare community. Contact supportservice@admin.ox.ac.uk for confidential advice. For further information, see the Oxford Against Sexual Violence page on the University website.

23.2. Special Needs

Specialist advice and assistance is available for dyslexic, blind/partially sighted, and other disabled students from the University Disability Office (www.ox.ac.uk/students/shw/das or disability@admin.ox.ac.uk or 01865 (2)80459.

If you experience difficulties with your course because of a disability then you should discuss this with your college tutors. Some colleges have a specific member of staff who assists students with welfare difficulties. Alternatively – or as well – contact the Education Manager, Ms Philippa Moss, who is one of the Disability Contacts within the Department and is well-placed to help ensure your requirements for support on the course are met. Mr Tom Heath is another Disability Contact, working within the Education Support Team.

24. Complaints and Appeals

The University has procedures for students should they believe a formal complaint or appeal is required. The details (in Appendix A) outline the procedures for this within the Department of Materials. Before embarking on any formal procedure, you are advised to approach a relevant senior figure with your concern and discuss it informally as soon as you think there is a problem.

25. Policies and Regulations

The University has a wide range of policies and regulations that apply to students. These are easily accessible through the A-Z of University regulations, codes of conduct and policies available on the Oxford Students website www.ox.ac.uk/students/academic/regulations/a-z.

Appendix A The University's Complaints and Appeals Procedures

Complaints and academic appeals within the Department of Materials

The University, the MPLS Division and the Materials department all hope that provision made for students at all stages of their course of study will make the need for complaints (about that provision) or appeals (against the outcomes of any form of assessment) infrequent.

When such a need arises, an informal discussion with the person immediately responsible for the issue that you wish to complain about (and who may not be one of the individuals identified below) is often the simplest way to achieve a satisfactory resolution.

Many sources of advice are available from colleges, faculties/departments and bodies like the Counselling Service or the Oxford SU Student Advice Service, which have extensive experience in advising students. You may wish to take advice from one of these sources before pursuing your complaint.

General areas of concern about provision affecting students as a whole should be raised through Joint Consultative Committees or via student representation on the faculty/department's committees.

Complaints

If your concern or complaint relates to teaching or other provision made by the faculty/department, then you should raise it with the Director of Undergraduate Studies, Professor James Marrow. Complaints about departmental facilities should be made to the Head of Admin and Finance, Ms Fernanda Haswell-Martin. If you feel unable to approach one of those individuals, you may contact the Head of Department, Professor Hazel Assender. The officer concerned will attempt to resolve your concern/complaint informally.

If you are dissatisfied with the outcome, then you may take your concern further by making a formal complaint to the Proctors under the University Student Complaints Procedure (https://www.ox.ac.uk/students/academic/complaints).

If your concern or complaint relates to teaching or other provision made by your college, you should raise it either with your tutor or with one of the college officers, Senior Tutor, Tutor for Graduates (as appropriate). Your college will also be able to explain how to take your complaint further if you are dissatisfied with the outcome of its consideration.

Academic appeals

An academic appeal is an appeal against the decision of an academic body (e.g. boards of examiners, transfer and confirmation decisions, etc.), on grounds such as procedural error or evidence of bias. There is no right of appeal against academic judgement.

If you have any concerns about your assessment process or outcome it is advisable to discuss these first informally with your subject or college tutor, Senior Tutor, course director, director of studies, supervisor or college or departmental administrator as appropriate. They will be able to explain the assessment process that was undertaken and may be able to address your concerns. Queries must not be raised directly with the examiners.

If you still have concerns you can make a formal appeal to the Proctors who will consider appeals under the University Academic Appeals Procedure (www.ox.ac.uk/students/academic/complaints).

Appendix B Plagiarism

This information can be applied to all aspects of assessment during the course.

In their Disciplinary Regulations for University Examinations, the University's Proctors and Assessor draw attention to two extremely important disciplinary regulations for all students.

"**3 No candidate shall cheat or act dishonestly, or attempt to do so, in any way, whether before, during or after an examination, so as to obtain or seek to obtain an unfair advantage in an examination. Examples include unauthorised use of artificial intelligence.**

4 Candidates shall submit their own work for examination. No candidate shall plagiarise by presenting work from another source as their own, or by incorporating work or ideas from another source into their own work without full acknowledgement. Examples of this practice include: verbatim quotation, cutting and pasting from the internet, and paraphrasing without clear acknowledgement; collusion; misleading citation; failure to acknowledge assistance; and unacknowledged use of material written by professional agencies or other persons, or material generated by artificial intelligence."

All undergraduate and graduate students must carefully read regulations 3 and 4 in the Proctors' Disciplinary Regulations for University Examinations. These make it clear that you must always indicate to the examiners when you have drawn on the work of others; other people's original ideas and methods should be clearly distinguished from your own, and other people's words, illustrations, diagrams etc. should be clearly indicated regardless of whether they are copied exactly, paraphrased, or adapted. This includes the use of artificial intelligence. Failure to acknowledge your sources by clear citation and referencing constitutes plagiarism. The University reserves the right to use software applications to screen any individual's submitted work for matches either to published sources or to other submitted work. Any matches might indicate either plagiarism or collusion. Although the use of electronic resources by students in their academic work is encouraged, you should remember that the regulations on plagiarism apply to on-line material and other digital material just as much as to printed material.

…Where plagiarism is proven, it will be dealt with severely: in the most extreme cases, this can result in the student's career at Oxford being ended by expulsion from the University."

(The University Student Handbook Section 7.7; available at www.ox.ac.uk/students/academic/student-handbook)

The University definition of plagiarism is:

"Presenting work or ideas from another source as your own, with or without consent of the original author, by incorporating it into your work without full acknowledgement. All published and unpublished material, whether in manuscript, printed or electronic form, is covered under this definition, as is the use of material generated wholly or in part through use of artificial intelligence (save when use of AI for assessment has received prior authorisation e.g. as a reasonable adjustment for a student's disability). Plagiarism can also include re-using your own work without citation. Under the regulations for examinations, intentional or reckless plagiarism is a disciplinary offence."

Useful information on plagiarism can be found on the Study skills and training pages at www.ox.ac.uk/students/academic/guidance/skills

You are strongly advised to complete the Online Plagiarism Course
(You will be required to complete this before you start your Part II Project.)

Some Brief Guidance

Text

Take care when referring to the work of others. Not only are published words subject to plagiarism, but ideas and opinions can be plagiarised too. You should not allow the opinions and conclusions of others to appear to be your own or confused with your own criticism.

An extract from Stone IC & Tsakiropoulos P, Materials Science and Engineering A, Vol.189 (1994) 285-290:

> "The peak-aging time of Al-4wt.%Cu, aged at 463 K, was not altered by the addition of 20 wt.%SiCp. The particle size of the reinforcement and the matrix to reinforcement particle-size ratio did not affect the peak-aging time. This implies that, on a bulk scale, aging is not affected by the spatial distribution of the reinforcement, although it is likely to be affected locally."

Here is one example of the use of this extract:

> Stone and Tsakiropoulos studied the aging of metal matrix composites based on Al-4wt%Cu containing 20wt% SiC particles [Stone & Tsakiropoulos, 1994]. The peak-aging time of Al-4wt.%Cu, aged at 463 K, was not altered by the addition of 20 wt.%SiCp. The particle size of the reinforcement and the matrix to reinforcement particle-size ratio did not affect the peak-aging time. This implies that, on a bulk scale, aging is not affected by the spatial distribution of the reinforcement, although it is likely to be affected locally.

The first sentence is fine and is properly referenced. However, the rest is plagiarised because (i) it is **directly copied** from the original without being identified as a quote and (ii) the author has not attributed the opinion in the fourth sentence to the original authors.

A second example:

> Stone and Tsakiropoulos studied the aging of metal matrix composites based on Al-4wt%Cu containing 20wt% SiC particles [Stone & Tsakiropoulos, 1994]. They showed that the addition of the reinforcing particles had no effect on the time for peak aging of the matrix at 463K. The implication of this is that whilst aging is likely to be affected locally by the dispersion of the particles, it is not affected macroscopically by the spatial distribution of the reinforcement.

This example is an improvement because the second sentence is now attributed to the original authors. The opinion in the final sentence is still plagiarised. This final sentence could be improved by

> The authors concluded that the implication of this is that whilst aging is likely to be affected locally by the dispersion of the particles, it is not affected macroscopically by the spatial distribution of the reinforcement. This is a sensible conclusion.

because whilst the new author agrees with the original opinion/conclusion they have not passed it off as their own. A belt and braces approach might be:

> The authors concluded, “This implies that, on a bulk scale, aging is not affected by the spatial distribution of the reinforcement, although it is likely to be affected locally” [Stone & Tsakiropoulos, 1994]. This is a sensible conclusion.

Quite often you will not be simply referring to a single piece of published work, but comparing & contrasting several reports of relevance to a particular point in your own document and then offering your own considered opinion on this previous work and/or comparing it with your own data and conclusions.

The principles illustrated above in respect of Stone & Tsakiropoulos of course still apply to this more complicated case and in addition it is necessary to separately identify each contribution, for example:

> It has been reported by two groups that the time for peak aging of the matrix at aging temperatures in the range 460-475K is not affected by the addition of reinforcing particles [Stone & Tsakiropoulos (1994), Bloggs & Jones (1997)]. Although a more recent study did observe an apparent influence of the reinforcing particles [Smith (2006)], in the present work we have been unable to reproduce this effect, our data being fully consistent with the original work of Stone & Tsakiropoulos. It seems likely that the results reported by Smith were an artefact of the analytical method that they adopted, such artefacts having been observed by others in related studies of a series of Al-Cu-Mg alloys [Jones et al (1999)].

Figures

Figures too are a potential source of plagiarism. If you use somebody else's diagram, graph, photograph or other artwork without acknowledging the original source then you are guilty of plagiarism (and possibly also of breach of copyright). If you use a figure from elsewhere then you should cite the original reference in the figure caption and in the associated body text. Even if you redraw a figure then you should still refer to the original source, e.g. [redrawn from Jones et al, 2006]. If you use a collection of data from other works to create a completely new figure (e.g. a graph to show a trend arising from a collection of data from several sources) then you must acknowledge the original data sources.

Why is referencing important?

Quite apart from the need to avoid plagiarism because of the danger that this may invalidate a piece of assessed work and/or lead to some other penalty, there are a number of other good reasons for the internationally accepted practise of using references in a factual document:

(i) It is a simple professional courtesy to a fellow scientist who has laboured long & hard to generate the work that you are referring to.

(ii) It enables the reader to verify the statements that you are making, to make his/her own judgements on both the conclusions that you report from the referenced work and the judgements that you make on this work, and of course to learn more about the detail of the original work.

(iii) Your work is strengthened by its reference to respected authorities in a given field; as scientists we all build our work 'on the shoulders of giants'.

(iv) It enables the reader to identify very clearly what are your own original contributions to the matters discussed. Since these contributions will undoubtedly be erudite and valuable, you will want the world to know that they are yours and to be able to give you credit for them when your work is referenced in the future!

The two main referencing systems are Harvard (author name, year of publication) and Vancouver (numbered sequentially in order of use). Whichever system you decide to use, good practice dictates that references should include (depending on publication type): authors, title of book or article, title of journal or other work, name of conference, place of publication, date of publication, publisher and page numbers. The conventions for citing internet resources include URL and date accessed. Where material available on the internet is taken from prior published work you must always reference the original source(s) and, if appropriate, the internet resource too. A useful style guide can be found at authorservices.wiley.com. Your tutor will be able to provide further guidance.

Appendix C Y2 Supplementary Subject

To:	Education Manager
Name:	
College:	

I wish to take the following Supplementary Subject for examination this year, instead of the Entrepreneurship course.

Supplementary Subject:

I can confirm that the College is agreeable to the above:

Signature of Tutor: …… Date: ……..

Signature of student: …… Date: …....

This form must be returned to the Education Support Team by the end of **week 4, Michaelmas Term**

Appendix D Electronic Declaration of Authorship for online reports

Declaration of authorship - I confirm the following:

1. I have read and understood the University's disciplinary regulations concerning conduct in examinations and, in particular, the regulations on plagiarism (The University Student Handbook Section 7.7; available at www.ox.ac.uk/students/academic/student-handbook).
2. I have read and understood the Education Committee's information and guidance on academic good practice and plagiarism at https://www.ox.ac.uk/students/academic/guidance/skills
3. The [thesis/dissertation/extended essay/assignment/project/other submitted work] I am submitting is entirely my own work except where otherwise indicated.
4. It has not been submitted, either partially or in full, either for this Honour School or qualification or for another Honour School or qualification of this University (except where the Special Regulations for the subject permit this), or for a qualification at any other institution.
5. I have clearly indicated the presence of all material I have quoted from other sources, including any diagrams, charts, tables or graphs.
6. I have clearly indicated the presence of all paraphrased material with appropriate references.
7. I have acknowledged appropriately any assistance I have received in addition to that provided by my [tutor/supervisor/adviser].
8. I have not copied from the work of any other candidate.
9. I have not used the services of any agency providing specimen, model or ghostwritten work in the preparation of this thesis/dissertation/extended essay/assignment/project/other submitted work. (See also section 2.4 of Statute XI on University Discipline under which members of the University are prohibited from providing material of this nature for candidates in examinations at this University or elsewhere: https://governance.admin.ox.ac.uk/legislation/statute-xi-university-discipline-0).
10. I agree to retain an electronic copy of this work until the publication of my final examination result, except where submission in hand-written format is permitted.
11. I agree to make any such electronic copy available to the examiners should it be necessary to confirm my word count or to check for plagiarism

☐ (You must respond to submit your assignment.)

Appendix E Business Plan Assessment

The following marking scheme and assessment criteria are to be used in 2023-24:

Marking scheme and Assessment criteria

The business plan should include the following sections with some flexibility according to the commodity. The content of each section has been suggested as a guide. The marking scheme reflects the learning objectives of this assessment and is somewhat different to a real business plan where the market analysis, finance and management sections would be significantly more important. The use of appendices is encouraged.

Executive Summary (5%)

The main aim of the summary is to get the attention of the reader, for example a prospective investor, and to encourage them to continue to read the business plan. It should include a statement of how much funding is being sought and how much of the company is being offered in exchange.

This section must demonstrate that you have a clear understanding of the key technical and commercial fundamentals of your business, and its key issues.

The Product (15%)

What is it that you are trying to sell and why should or would anyone buy it? What problem are you solving in the market today? What are the key competitive benefits of your commodity? What is the development plan for your product? What are the current TRL and MRL levels for your product? What are the ethical and sustainability merits of your product?

This section must demonstrate an understanding of your commodity, its customers and the key need to sell by means of the benefits of the commodity rather than its features.

The Technology and the Protection of the Associated IP (15%)

This section must include a clear description of the technology behind your commodity. How does it work? How does this technology help build the value proposition? What is your IP strategy? Include relevant detail for your audience. What is it about your technology that is particularly clever or innovative?

This section must demonstrate your ability to communicate complex ideas in an appropriate manner with an understanding of the benefits and weaknesses of IP protection.

The Market (15%)

Who will buy your commodity and why? What are the sizes of these markets and how addressable are they? What are the characteristics of the markets, for example a few large players or many and

fragmented? Are there any other commodities that are similar? Who are the key competitors and how are you better or cheaper?

This section must demonstrate your ability to make sensible judgments about the likely interest in your idea using the resources available to you, and understand the competitors in the market.

Business Strategy (15%)

What type of business will you be and what are the activities your business will need to do? What partners will you need to make and develop your commodity? What will be your route to market(s)? Where do you sit in the value chain? What is your pricing strategy? Do you have a target customer for a minimal viable commodity and an intention to then expand on this? If so outline both the minimal viable option and the expansion strategy. At what pace will you grow; will this be through grants, investment or sales profits and is growth time critical?

You must clearly demonstrate you have considered the activities where you can add value, who you will need to work with and how to approach the market(s).

Commercialisation and Risks (20%)

It works in the lab, what makes you think it will work at production scale? This section should explain, possibly using diagrams, what is the development plan to achieve commercialization. Are there specific tests or legislation that must be passed? Must you become an approved supplier? Do you need to agree licensing terms with anyone? This section should also include a Risk Matrix which details the technical, commercial and environmental risks with commercialization, quantifies what are the Importance [I], Likelihood [L], and Overall Risk [I x L], and provide a mitigation statement for each risk. Risks may include things like availability of key skills, technical development risks, market acceptance risks, public perception and speed of adoption.

This section must identify the factors that need to be managed for successful scale up, and the approaches you intend to use to address them.

Finance (15%)

This section should include a four-year Profit & Loss Plan highlighting key revenues and key costs. It should explain what investment is being sought and what will be offered in return - for example, equity, grants or loan, etc. It should also detail the key milestones with this investment round, and explain your preferred exit strategy for the business, identifying targets if known. Normally in a business plan this section would include considerable detail on projected sales figures, estimated cost of sales, profit and loss predictions and examples of cash flows. Your business plan will contain less detail but must include (i) a reasoned analysis of your costs for year one, (ii) a reasoned estimate of your sales and profits/losses for year one, and (iii) an outline of key costs and projected income in years two to four.

This section must present well-reasoned figures.

Appendix F Practical Lab Notebook Assessment

The marking scheme and assessment criteria used in 2023-24 are given below:

Recording research data is as important as the experiment itself. If your lab notebook is well maintained and contains an accurate record of the research protocols used and the results obtained, it will be the basis to reproduce the experiment in the future (if needed) and to write scientific papers and reports. It will also be an invaluable source of information if you want to claim a discovery or an invention, to prove that you have adhered to standards of good practice (e.g. in case of an accident in the lab) and that you have acted with academic and ethical integrity.

The lab notebook doesn't have to look perfect. It should reflect, in a practical and efficient way, your experiences in the lab. Some of you will be tempted to use a "draft" lab notebook and then transfer all its content to the "real" one once you've finished the practical, with all the extra time it takes. This is not encouraged, and it won't bring you any extra marks. If the lab notebook is legible and shows the right content, it's served its purpose.

Means of Assessment:
Up to three marks are awarded for the quality of your lab notebook entry. In awarding these marks the Senior Demonstrator will consider all of the following:

Category	Details	Comments
Presentation and completeness of results	To check you have followed the "best practice guidelines in this document (e.g. "Things to check section") and whether you have included and correctly described all the data/results specified in the script	
Data analysis and errors	To evaluate if the analysis of data, including error analysis, is adequate.	
Interpretation of results and conclusions	To evaluate your understanding of the experiment, its results and how you summarize it all in some brief but meaningful conclusions.	
Overall Mark (integer only	[Not released to student]	

Appendix G Industrial Visit and Industrial Talks Assessment

Industrial Visits

Means of Assessment:

Each visit is assessed individually by the marking of a submitted word-processed report of a maximum **of 1-2 pages, and 2 supporting diagrams (if appropriate)**.

The reports are to be submitted by 1pm on the Friday of the week following the visit.

Reports are submitted online via the Industrial Visit Canvas site.

Industrial Visit Reports:

Each report should include:

- Several relevant technical or business/financially related insights learned on tour, highlighting materials-related aspects or design considerations if possible. The aim of the report should not be to describe what you saw during the visit. Instead, the aim of the report should be to show that you learned something related to how materials science or basic scientific principles are applied in industry. At least one of the diagrams included in the report should be of a technical nature highlighting the science used by the industrial entity you are visiting.
- Proper use of citations / sources used in the main text, including for images, and in the list of references. The report should follow the same referencing approach as in a scientific paper published in the literature. URLs or internet webpages should be avoided as references unless absolutely necessary.
- The report should look professional. Professional writing style / layout / correct spelling & grammar are necessary.

Each report is marked by the Industrial Visits Organiser and graded

- Good (2 marks)
- Satisfactory (1 marks)
- Non-satisfactory (0 marks)

Formative feedback will be given on your first report.

Industrial Talks

Means of Assessment:

Each talk is assessed individually by the marking of a submitted word-processed report giving a brief summary of the scientific content of the talk. The length should be up to 1 A4 page, with a figure if needed. References should be used when appropriate.

Again, these reports are to be submitted by 1pm on the Friday of the week following the talk. Reports are submitted online via the Industrial Visit Canvas site.

Each report is marked by the Industrial Visits Organiser and graded

- Satisfactory (1 marks)
- Non-satisfactory (0 marks)

Appendix H Team Design Project Assessment

Department of Materials Part I 2022-23 - Team Design Projects

Agreed Mark Sheet

Title:

Name of Assessors:

	Comments	Written report	Verbal Presentation	Total
Objectives		/10	/5	
Achievements		/30	/15	
Conclusions		/10	/5	
Clarity **Timing**		N/A	/10	
Teamwork		/15		**/100**

Project mark out of 50 **/50**

Student Name	Suggested Mark up or down	Individual mark

Signature Date

Appendix I Introduction to Modelling for Materials Assessment

The following marking scheme and assessment criteria are likely to be used in 2023-24, subject to approval by the examiners:

Means of Assessment:

Assessed individually by the marking of two project reports each between 1000 and 1500 words long, subject to completing satisfactorily the first-week work sheets.

The reports are to be submitted by noon on Tuesday of week 9 (the week following the end of term) of Michaelmas Term to the Chair of Examiners, via Inspera.

Project Reports:

Each of the two reports will comprise:

- An **introduction** encompassing a brief description of the modelling method, its underlying theory and how it is implemented on a computer. [7]
- A **results** section where the modelling data is presented. [10]
- A **discussion** section where the results are interpreted. [8]
- A brief **outlook** section on how the project could be embedded in a broader multiscale modelling approach. [2]
- A brief **summary and conclusion**. [3]

Total [30]

Appendix J Atomistic Modelling Assessment

The following marking scheme and assessment criteria are likely to be used in 2023-24, subject to approval by the examiners:

Means of Assessment:

Assessed individually by the marking of a project report of up to 3000 words long (including figure captions but excluding references), subject to completing satisfactorily the first-week work sheets.

The reports are to be submitted by noon on Tuesday of week 3 of Hilary Term to the Chair of Examiners, via Inspera.

Project Report:

The report comprises:

- An **introduction** describing the material under investigation [3]
- A **methodology and results** section describing the technical details of the calculations and presenting the calculated results [12]
- A **discussion** section where the results are interpreted. [10]
- A brief **further work** section identifying potential areas for future study. [2]
- A brief **conclusion** section summarising the main findings and explaining their significance [3]

Total [30]

Appendix K Characterisation of Materials Assessment

The following marking scheme and assessment criteria are likely to be used in 2023-24, subject to approval by the examiners:

Means of Assessment:

Assessed individually by the marking of a project report of between 2000 and 3000 words long (including figure captions but excluding references).

The reports are to be submitted by noon on Tuesday of week 3 of Hilary Term to the Chair of Examiners, via Inspera.

Project Report:

The report will comprise:

- An **introduction** encompassing a brief description of the sample, and the rationale for using the characterisation techniques that were chosen. [5]
- A **methods** section where the experimental techniques and sample preparation are described. [3]
- A **results** section where the experimental data is presented. [7]
- A **discussion** section where the results are interpreted. [8]
- A **future work** section, which could include elements of the project that were not fully completed and a description of the possible benefits of using other characterisation techniques that were not used or not available. [4]
- A brief **summary and conclusion**. [3]

Total [30]

Appendix L External MS Part II Briefing Notes

These notes are to give you some guidance only, on making arrangements for external Part II projects. They are not exhaustive and no two cases are quite the same. There are many pitfalls to making such arrangements and whilst it is your own responsibility to organise external projects yourselves, it is important that you keep the Part II Organiser (currently Prof. Jan Czernuszka) informed, such that they can offer guidance, can ensure that the arrangements (host institution, project) are appropriate for an Oxford Part II, can help to protect your interests if necessary, and ultimately approve the project. If you are interested in undertaking an external Part II project, the earlier you start organising it the better.

Note that although external projects are allowed, we do not necessarily encourage them, and particularly not for all students. You will need to secure the permission of your tutor to undertake an external project before progressing arrangements.

Timeline

- By the end of MT you should be aiming to have
    - secured approval from your tutor,
    - identified a host institution,
    - identified a supervisor at the host institution,
    - identified an internal Oxford academic supervisor,
    - have agreed an outline project description.
- By the end of MT you **must** have notified the Part II Project Organiser of your intention to proceed with an external project and at which institution. There are strict legal requirements that must be addressed before your project can be formally approved and it can be a lengthy process for the Department and your intended institution to finalise these.

Responsibility and Requirements for Organising External Projects

- Arrangements are entirely your responsibility - we can of course offer some guidance and help.
- You must keep the Part II Project Organiser in the loop, i.e. informed of all developments.
- External projects are attractive for your CV, but there are risks involved in such projects:
    - we may not know the external supervisor or how well respected they are,
    - we cannot guarantee that an external supervisor fully understands what is required of the Part II,
    - we cannot keep a constant eye on the progress of you or your project, etc.

- Given those risks, we will only allow you to carry out your project externally if
    - we feel that the external supervisor is appropriately senior,
    - the project is appropriate for the length and standard of Part II,
    - that the college tutor, the Part II Organiser and the appointed internal Oxford academic supervisor feel that the student is academically able and sufficiently self-motivated and strong to work well away from Oxford.
- In the case of an external Part II project that is enabled by an exchange scheme between Oxford Materials and the external host, the Oxford Materials student's college must guarantee that they will provide the following for the student hosted by Oxford:
    - Visiting Student status and,
    - accommodation for two terms (Note: this may not map directly to the terms of the Oxford Materials student's external project).

Project Length

- The Part II year is longer than usual.
- At least 36 weeks long, over "extended" terms (longer than the normal 8 week terms).
- Mid-September to the end of June (The thesis is handed in on Monday of 7th week of Trinity Term).
- Whole of Trinity term in Oxford, and so must return to Oxford shortly after Easter, in time for the Part II talks.

Assessment

- The thesis is key to the assessment of Part II.
- The external institution is not required to provide any formal assessment of the project, but all supervisors are requested at the end of the project to make some comments on the way the student has dealt with the project, if any difficulties arose, how much help they had etc.
- After submitting the thesis you will be subject to a viva voce exam in week 9 or 10 of Trinity Term.
- In addition to the thesis all Part II students are required to give a presentation (early Trinity Term), but the presentation does not count towards the exam mark.

Lecture Courses and Training

- The Part II is a research project and you are not required by us to sit any lecture courses.
- We do encourage Part II students to attend some lectures that might be of use to their projects or be of general interest.
- In Oxford these often take the form of postgraduate lecture courses or departmental seminars/colloquia for instance.

- Part II students carrying out their projects in Oxford may be required to attend lectures associated with training for the use of certain experimental techniques, e.g. electron microscopy, or safety lectures.
- Essentially then you would be at the host institution there to do research, but it is likely that host institutions will take a similar approach to us and you should attend any courses necessary, as required by the host institution, for training on instrumentation and safety etc.
- You will need to check with the host institution how you will receive training etc

Publication

- There is no requirement to produce published works from your Part II project
    - although some research publications are produced after projects have been completed,
    - examiners may well consider if the work is publishable.

Confidentiality and Intellectual Property

- Host institution will be concerned with issues of confidentiality and IP, e.g.
    - project may be part of a large research programme that has restrictions on what information can be released,
    - or you may be working as part of a team that invents something that could be of commercial benefit to the host institution.
- Better to avoid such projects if possible
    - but if these issues are apparent then a research contract will need to be drawn up between the host institution and the University of Oxford which will establish what measures need to be taken to preserve confidentiality and to assign the ownership of any IP that might be developed during your project, and to protect your interests in ensuring that you are not prevented from fulfilling the requirements of your degree.
- Such negotiations can be very protracted and it is best that we know if this is likely to be an issue at the earliest possible stage.
- Do NOT sign any such agreements the host institution before getting advice from the Part II Organiser.

Oxford Academic Supervisor

- It is likely that the time spent abroad would be for practical work and reviewing the literature, whilst the bulk of the thesis will be written once you have returned – no later than Monday of week 0 of Trinity Term.
- As a result, and to ensure that your progress is being monitored continually, we insist that an internal (Oxford based) supervisor is appointed to the project.
- The internal supervisor should be knowledgeable in the field in which you will be working.

- It is up to you to find an internal supervisor who is willing to oversee your progress remotely, and to give guidance during the preparation of the thesis (of course you should keep in contact with the external supervisor during this period).
- We will also ask the internal supervisor to comment on the suitability of the project in the first place.
- If an internal supervisor cannot be found, the project will not be approved.

Project Management

- All Part II students are required to complete a series of project management forms during the project, to encourage you to think periodically about your objectives and progress.
- You should discuss the completion of these forms with **both** your external and internal supervisors – both will be required to sign these.
- If you are away from Oxford, you will miss the Project Management Workshop given to Part II students by an external professional project manager,

Costs

- Any costs associated with carrying out the project externally, e.g.
    - travel,
    - maintenance,
    - health insurance,
    - course fees required by the host institution must be met by you.
- We can offer some assistance in applying for funding to contribute towards the costs.
- No fees are to be paid to the external institution; you will still be liable for Oxford fees and your college will require fees for the full year.
- Your college may be able to help financially, but you will have to investigate this with your particular college.
- It is quite possible that you will meet students from other Oxford departments at the same host institution. They may be there under a specific scheme and may be receiving funding. You will not. (Princeton is an example.)
- MIT do not currently charge a fee – if your potential supervisor there tells you they do, ask them to speak with Prof. Juejun Hu.
- **There may be implications for your fee status and your student loan. It is very important you understand this fully before you commit to an external project.**

Checklist

- Identify host institution.
- Identify supervisor at host institution.
- Inform the Part II Organiser of your plans (they will seek confirmation from your College tutor on your suitability for an external project).
- Approach host institution. Make the host supervisor aware of the MS Part II Course Handbook, so that they can familiarise themselves with the course requirements.
- Obtain one or more project descriptions (one side of A4 for each project should be sufficient).
- Identify an internal Oxford academic supervisor who would be willing to act.
- Discuss project descriptions with Part II Organiser, College Tutor and Oxford supervisor.
- Put your proposed host institution supervisor in contact with the Part II Organiser to discuss any confidentiality/IP issues.
- Identify personal costs for the project, and apply for supporting funds.
- Alert the Exchange and Placements Organiser that a Memorandum of Understanding (MoU) will be required between Oxford and the host institution.

Later in the process

- There will be another checklist dealing with such items as flights, health insurance etc.
- You will have to take out appropriate **travel** insurance and **health** insurance, **including travel insurance cover through the Oxford University block policy**.
- In order to obtain the University Insurance you will need to do a risk assessment for your project. You will be provided with some initial guidance on this, but it will be your responsibility.
- You may need to take out additional insurance to that provided via the University if you intend to take holiday while away or take part in potentially dangerous leisure activities.
- You will need to take out additional health insurance – the insurance via the University only covers you in case of emergency.
- Oxford Materials will check with your host institution as to **their insurance cover for you** while you are working there. This is known as their *liability insurance*. If we have concerns over the adequacy of this cover and are unable to arrange appropriate independent cover **it may be necessary to cancel your external project**.

Appendix M Learning Development

Skills that the Materials degree programme enable a proactive and fully-engaged student to develop

Intellectual Skills for Materials Science:-

1) Appreciation of the underlying principles of Materials Science, supported by an understanding of the necessary basic science required in studying this interdisciplinary subject.
2) An understanding of the processes and principles involved that lead to the appropriate application of materials, the importance of materials to industry and society as well as an awareness of sustainability, environmental issues and safety.
3) An understanding of engineering principles in order to understand the manufacturing methods and service performance of materials.
4) Ability to apply appropriate mathematical or numerical techniques to materials-based phenomena.
5) Ability to conduct a logical discussion and argue a coherent point of view.
6) Ability to solve a range of known problems and tackle unseen and more open-ended ones.
7) Ability to collate, analyse and interpret complex experimental data and infer conclusions where appropriate.
8) Ability to summarise scientific arguments and facts and to give succinct oral and written presentations, using IT-based methods where appropriate.
9) Ability to search for, summarise and critique information in the scientific & engineering literature.

Teaching/learning methods and strategies

The programme is designed so that lectures, tutorials, industrial visits, coursework, projects, classes, self-study and practicals (both in the classroom and independent projects) complement each other to allow the student to develop the above intellectual skills.

Assessment

Skills 1-6 are summatively assessed through written examinations, written coursework assignments and project work. These skills are also assessed formatively through tutorials, which provide regular feedback on the student's progress. Skills 6-9 are assessed through practicals, project reports and public presentations. For students following the BA in Materials Science programme, 'project work' includes the extended essay.

Practical Skills:

1. Awareness of the need for safety in practical laboratories, and the importance of good laboratory practice including the use of a laboratory notebook.
2. Ability to use a wide range of experimental techniques to make quantitative measurements, and to be able to draw scientifically rigorous conclusions from these observations.
3. Ability to plan, execute and write up both short projects, and long open-ended projects.
4. Awareness of the applications of practical Materials Science.
5. Basic knowledge of safe workshop practice and development of basic workshop skills.

Teaching/learning methods and strategies

These skills are developed through (i) the practical courses, undertaken in the 1st and 2nd year of the programme in the Departments' teaching laboratories, (ii) observations made during industrial visits, (iii) open-ended mini-projects in the 3rd year, and (iv) the full-time, eight-month final year research project.

The teaching laboratory has an academic supervisor (The Practical Courses Organiser) and a Teaching Lab Technician, as well as a team of demonstrators and teaching assistants to guide the students through their practicals. Practicals are undertaken as a cohort, normally in groups of three, and are scheduled throughout the academic year in order to support the lecture courses.

The students attend two industrial talks during the 2nd year, and undertake four industrial visits during the 2nd and 3rd years of the programme and, in the 3rd year of the programme, a team design project (TDP), an introduction to modelling of materials module and either a materials characterisation or atomistic modelling module. The TDP teams comprise 5-8 students and the mini-projects in the characterisation and modelling modules take the form of individually written-up open-ended practical or computational modelling work.

The 4th year consists of a full-time independent research project, undertaken in the University, overseas or in industry.

Assessment

The teaching laboratory practicals are continually assessed and contribute to both the Preliminary examination and the Part I examination. Three of eight Prelims practicals are written up by each student as 'Acta Materialia' style papers which are marked by the member of academic staff in charge of the practical. The first of these is marked formatively only. Three of twelve Part I practicals are written up as 'Acta Materialia' style papers which are summatively marked by the member of academic staff in charge of the practical and one is 'written up' in the form of an A0 poster. The three co-authors of the best poster in a cohort receive a prize and the student groups provide peer-feedback to each other on the strengths & weaknesses of their posters. In addition, the member of staff in charge of the practical provides written or face-to-face formative feedback on the 'Acta' style practical reports. Summative marks and formative feedback are also given for the student's use of their laboratory notebook for all twenty practicals.

The industrial visit and industrial talk reports are also continually assessed and contribute towards the Part I examination.

The 3rd year team design project is assessed both by written and oral presentations. The 3rd year introduction to modelling and characterisation/modelling mini-projects are assessed by means of a written report. All 3rd year projects contribute towards the Part I examination.

Marks for the final year project (Part II) are awarded for the standard of the project based on the evidence of the thesis (max 12,000 words) and discussions in a *viva voce* examination.

Appendix N University Rules for Computer Use

Regulations Relating to the use of Information Technology Facilities

Statutes and Regulations

ICTC Regulations 1 of 2002

Made by the ICTC on 6 June 2002

Approved by Council on 24 July 2002

Amended on 2 October 2003, 23 October 2003, 16 February 2006, 1 June 2006, 3 June 2010 and 19 July 2012, *7 August 2015 (*Gazette*, Vol. 145, p. 694-696, 23 July 2015), 5 August 2016 (*Gazette*, Vol. 146, p. 706-708, 21 July 2016)), 1 October 2016 (*Gazette*, Vol. 146, p. 619, 9 June 2016) and 29 November 2016 (*Gazette*, Vol. 147, p. 127, 10 November 2016) and 9 August 2019 (Gazette, Vol.149, p.632, 25 July 2019), and 1 August 2023 (Gazette, Vol. 153, p. 336, 4 May 2023)*

1. In these regulations, unless the context requires otherwise, 'college' means any college, society, or Permanent Private Hall or any other institution designated by Council by regulation as being permitted to present candidates for matriculation.

2. University IT and network facilities are provided for use in accordance with the following policy set by Council:

   (1) The University provides computer facilities and access to its computer networks only for purposes directly connected with the work of the University and the colleges and with the normal academic activities of their members.

   (2) Individuals have no right to use university facilities for any other purpose.

   (3) The University reserves the right to exercise control over all activities employing its computer facilities, including examining the content of users' data, such as e-mail, where that is necessary:

      (a) for the proper regulation of the University's facilities;

      (b) in connection with properly authorised investigations in relation to breaches or alleged breaches of provisions in the University's statutes and regulations, including these regulations; or

(c) to meet legal requirements or otherwise in the context of legal proceedings or the taking of legal advice, in accordance with such procedures as may be approved by Council for this purpose.

(4) Such action will be undertaken only in accordance with these regulations.

3. These regulations govern all use of university IT and network facilities, whether accessed by university property or otherwise.

4. Use is subject at all times to such monitoring as may be necessary for the proper management of the network, or as may be specifically authorised in accordance with these regulations.

5. (1) Individuals may make use of university facilities only with proper authorisation.

(2) 'Proper authorisation' in this context means prior authorisation by the appropriate officer, who shall be the Chief Information Officer or his or her nominated deputy in the case of services under the supervision of IT Services, or the nominated college or departmental officer in the case of services provided by a college or department.

(3) Any authorisation is subject to compliance with the University's statutes and regulations, including these regulations, and will be considered to be terminated by any breach or attempted breach of these regulations.

6. (1) Authorisation will be specific to an individual.

(2) Any password, authorisation code, etc. given to a user will be for his or her use only, and must be kept secure and not disclosed to or used by any other individual. Exceptions may be made for accounts set up specifically to carry out business functions of the University or a unit within it, but authorisation must be given by the head of the unit.

7. Users are not permitted to use university IT or network facilities for any of the following:

(1) any unlawful activity;

(2) the creation, transmission, storage, downloading, or display of any offensive, obscene, indecent, or menacing images, data, or other material, or any data capable of being resolved into such images or material, except in the case of the use of the facilities for properly supervised research purposes when that use is lawful and when the user has obtained prior written authority for the particular activity from the head of his or her department or the chair of his or her faculty board (or, if the user is the head of a department or the chair of a faculty board, from the head of his or her division);

(3) with the intention of drawing people into terrorism (contrary to the University's statutory duty under Prevent);

(4) the creation, transmission, or display of material which is designed or likely to harass another individual in breach of the University's Policy and Procedure on Harassment;

(5) the creation or transmission of defamatory material about any individual or organisation;

(6) the sending of any e-mail that does not correctly identify the sender of that e-mail or any message appearing to originate from another individual, or otherwise attempting to impersonate another individual;

(7) the sending of any message that attempts to disguise the identity of the computer from which it was sent;

(8) the transmission, without proper authorisation, of e-mail to a large number of recipients, unless those recipients have indicated an interest in receiving such e-mail, or the sending or forwarding of e-mail which is intended to encourage the propagation of copies of itself;

(9) the creation or transmission of or access to material in such a way as to infringe a copyright, moral right, trade mark, or other intellectual property right;

(10) private profit, except to the extent authorised under the user's conditions of employment or other agreement with the University or a college; or commercial purposes (including advertising commercial services) without specific authorisation;

(11) gaining or attempting to gain unauthorised access to any facility or service within or outside the University, or making any attempt to disrupt or impair such a service;

(12) the deliberate or reckless undertaking of activities such as may result in any of the following:

(a) the waste of staff effort or network resources, including time on any system accessible via the university network;

(b) the corruption or disruption of other users' data;

(c) the unauthorised access, transmission or negligent loss of data;

(d) the violation of the privacy of other users;

(e) the disruption of the work of other users;

(f) the introduction or transmission of a virus or other malicious software into the network;

(13) activities not directly connected with employment, study, or research in the University or the colleges (excluding reasonable and limited use for social and recreational purposes where not in breach of these regulations or otherwise forbidden) without proper authorisation.

8. Software and computer-readable datasets made available on the university network may be used only subject to the relevant licensing conditions.

9. Users shall treat as confidential any information which may become available to them through the use of such facilities and which is not clearly intended for unrestricted dissemination; such information shall not be copied, modified, disseminated, or used either in whole or in part without the permission of the individual or body entitled to give it.

9. No user may redirect email automatically and indiscriminately from a University email account (@ox.ac.uk) to an external email account. An exception to this rule may only be granted in exceptional circumstances and by application to the Chief Information Officer.

11. (1) No user may use IT facilities to hold or process data relating to a living individual save in accordance with the provisions of current data protection legislation (which in most cases will require the prior consent of the individual or individuals whose data are to be processed).

(2) Any individual wishing to use IT facilities for such processing is required to inform the University Data Protection Officer in advance and to comply with any guidance given concerning the manner in which the processing may be carried out.

12. Any individual responsible for the administration of any university or college computer or network system, or otherwise having access to data on such a system, shall comply with the provisions of the Information Security Policy and Data Protection Policy.

13. Users shall at all times endeavour to comply with policies and guidance issued from time to time by IT Services to assist with the management and efficient use of the University's IT facilities.

14. Connection of any computer, whether college, departmental, or privately owned, to the university network is subject to the following additional conditions:

(1) (a) Computers connected to the university network may use only network identifiers which follow the University's naming convention, and are registered with IT Services.

(b) The University's Trade Mark and Domain Name Policy specifies, *inter alia*, that all university activities (other than those within OUP's remit) should be presented within the ox.ac.uk domain. Any exception to this requires authorisation as defined in that Policy.

(2) (a) Owners and administrators of computers connected to the university network are responsible for ensuring their security in adherence with the University's Information Security Policy.

(b) The University may temporarily bar access to any computer or sub-network that appears to pose a danger to the security or integrity of any system or network, either within or outside Oxford, or which, through a security breach, may bring disrepute to the University.

(c) The University may conduct automated security scans targeting any device connected to the University network without notification.

(3) (a) Providers of any service must take all reasonable steps to ensure that that service does not cause an excessive amount of traffic on the University's internal network or its external network links.

(b) The University may bar access at any time to computers which appear to cause unreasonable consumption of network resources.

(4) (a) Hosting Web pages or other network-accessible media on computers connected to the university network is permitted subject to the knowledge and consent of the department or college responsible for the local resources, but providers of any such Web pages or other media must endeavour to comply with guidelines published by IT Services or other relevant authorities.

(b) It is not permitted to offer commercial services through systems connected to the university network, or to provide other IT facilities for any commercial organisation, except with the permission of the Chief Information Officer (IT Services); this permission may require the payment of a licence fee.

(5) Use of file-sharing technology and participation in distributed file-sharing networks may be subject to additional regulation and restriction in order to prevent excessive use of university network resources, or the use of those resources for purposes unconnected with the University. If a user has any reason to suppose that an application employs

peer-to-peer (p2p) or other file-sharing technology, they should seek the advice of the IT officer responsible for the college or departmental network on which they propose to use the software.

(6) (a) No computer connected to the university network may be used to give any individual who is not a member or employee of the University or its colleges access to any network services outside the department or college where that computer is situated.

(b) Certain exceptions may be made, for example, for members of other UK universities, official visitors to a department or college, or those paying a licence fee.

(c) Areas of doubt should be discussed with the Chief Information Officer.

(7) Providing external access to University network resources for use as part of any shared activity or project is permitted only if authorised by the IT Committee (ITC), and will be subject to any conditions that it may specify.

(8) If any computer connected to the network or a sub-network does not comply with the requirements of this section, it may be disconnected immediately by the Network Administrator or any other member of staff duly authorised by the head of the college, section or department concerned.

15. (1) If a user is thought to be in breach of any of the University's statutes or regulations, including these regulations, he or she shall be reported to the appropriate officer who may recommend to the appropriate university or college authority that proceedings be instituted under either or both of university and college disciplinary procedures.

(2) Access to facilities may be withdrawn under section 48 or 49 of Statute XI pending a determination, or may be made subject to such conditions as the Proctors or the Registrar or other decision maker (as the case may be) shall think proper in the circumstances.

Examining Users' Data

16. All staff of an IT facility who are given privileged access to information available through that facility must respect the privacy and security of any information, not clearly intended for unrestricted dissemination, that becomes known to them by any means, deliberate or accidental.

17. (1) System Administrators (i.e. those responsible for the management, operation, or maintenance of computer systems) have the right to access users' files and examine network traffic, but only if necessary in pursuit of their role as System Administrators.

(2) They must endeavour to avoid specifically examining the contents of users' files without proper authorisation.

18. (1) If it is necessary for a System Administrator to inspect the contents of a user's files, the procedure set out in paragraphs (2)-(5) below must be followed.

(2) Normally, the user's permission should be sought.

(3) Should such access be necessary without seeking the user's permission, it should, wherever possible, be approved by an appropriate authority prior to inspection.

(4) If it has not been possible to obtain prior permission, any access should be reported to the user or to an appropriate authority as soon as possible.

(5) For the purposes of these regulations 'appropriate authority' is defined as follows:

(a) in the case of any university-owned system, whether central or departmental: if the files belong to a student member, the Proctors; if the files belong to any member of the University other than a student member, the Registrar or his or her nominee; or, if the files belong to an employee who is not a member of the University, or a visitor to the University, the head of the department, college, or other unit to which the employee or visitor is responsible, or the head's delegated representative;

(b) in the case of a departmental system, either those named in (a) above, or, in all circumstances, the head of department or his or her delegated representative;

(c) in the case of a college system, the head of the college or his or her delegated representative.

Appendix O Examination Conventions: Materials Science 2022-23

1. INTRODUCTION

Examination conventions are the formal record of the specific assessment standards for the course or courses to which they apply. They set out how examined work will be marked and how the resulting marks will be used to arrive at a final result, a progression decision and/or classification of an award.

These conventions apply to the Final Honours School in Materials Science for the academic year 2022-23. The Department of Materials' Academic (Undergraduate) Committee (DMAC) is responsible for approving the Conventions and considers these annually, in consultation with the examiners. The formal procedures determining the conduct of examinations are established and enforced by the University Proctors. These Conventions are a guide to the examiners and candidates but the regulations set out in the Examination Regulations have precedence. Normally the relevant Regulations and MS FHS Handbook are the editions published in the year in which the candidate embarked on the FHS programme. The Examination Regulations may be found at: https://examregs.admin.ox.ac.uk/.

The paragraphs below indicate the conventions to which the examiners usually adhere, subject to the guidance of the appointed external examiners, and other bodies such as the Academic Committee in the Department, the Mathematical, Physical and Life Sciences Division, the Education Committee of the University and the Proctors who may offer advice or make recommendations to examiners.

The examiners are nominated by the Nominating Committee† of the Department and those nominations are submitted for approval by the Vice-Chancellor and the Proctors. Formally, examiners act on behalf of the University and in this role are independent of the Department, the colleges and of those who teach the MS M.Eng. programme. However, for written papers on Materials Science in Part I examiners are expected to consult with course lecturers in the process of setting questions.

2. RUBRICS AND STRUCTURE FOR INDIVIDUAL PAPERS

All papers are set by the examiners in consultation with course lecturers. The responsibility for the setting of each examination is assigned to an examiner, and a second examiner is assigned as a checker.

The examiners, in consultation with lecturers, produce suggested exemplar answer and marking schemes for every question set, including a clear allocation of marks for each part or sub-part of every question. These are annotated to indicate what is considered 'book-work', what is considered to be 'new material' requiring candidates to extend ideas from what has been covered explicitly in the course, and what is considered to be somewhere in between.

† for the 2022-23 examinations the Nominating Committee comprised Prof Assender, Prof Marrow & Prof. Speller.

This enables the examiners to identify how much of the question is accessible to less strong candidates and the extent to which the question has the potential to differentiate among the very best candidates. The marking scheme for each question aims to ensure that weaker candidates can gain marks by answering some parts of the question, and stronger candidates can show the depth of their understanding in answering other parts. The wording and content of all examination questions set, and the suggested exemplar answer and marking schemes, are scrutinised by all examiners, including the external examiners. The marking schemes are approved by the examining board alongside the papers.

Examiners check that questions are of a consistent difficulty within each paper and between papers.

Examiners proofread the final 'camera-ready' pdf version of each examination paper. Great care is taken to minimise the occurrence of errors or ambiguities. Despite this care, on occasion an error does remain in a paper presented to candidates: if a candidate thinks there is an error or mistake in the paper, then they must state what they believe the error to be and if necessary, state their understanding of the question.

All General Papers comprise eight questions from which candidates attempt five. Each question is worth 20 marks. The maximum number of marks available on each general paper is 100. There is no strict rule about how many questions are set on each lecture course in the General Papers. As a result, (i) it should not be assumed that a question will be set on every lecture course and (ii) some questions may require knowledge from across the core courses from Years 1 and 2.

Materials Option papers comprise one section for each twelve-hour Options lecture course, each section containing two questions worth 25 marks: candidates are required to answer one question from each of any three sections and a fourth question drawn from any one of the same three sections. The maximum number of marks available on each option paper is 100, and all questions carry equal marks. Questions are often divided into parts, with the marks for each part indicated on the question paper.

The only types of calculators that may be used in examinations are from the following series:

CASIO fx-83
CASIO fx-85
SHARP EL-531

Candidates are required to clear any user-entered data or programmes from memories immediately before the exam begins. The invigilators may inspect any calculator during the course of an exam.

3. MARKING CONVENTIONS

3.1 University scale for standardised expression of agreed final marks

Agreed final marks for individual papers will be expressed using the following scale: 0-100.

3.2 Qualitative criteria for different types of assessment

Qualitative descriptors, based on those used across the Mathematical, Physical and Life Sciences Division, are detailed below:

70-100	The candidate shows excellent problem-solving skills and excellent knowledge of the material over a wide range of topics, and is able to use that knowledge innovatively and/or in unfamiliar contexts. The higher the mark in this band the greater will be the extent to which these criteria will be fulfilled; for marks in the 90-100 range there will be no more than a very small fraction, circa 5-10%, of the piece of work being examined that does not fully meet all of the criteria that are applicable to the type of work under consideration. The 'piece of work' might be, for example, an individual practical report, a question on a written paper, or a whole written paper.
60-69	The candidate shows good or very good problem-solving skills, and good or very good knowledge of much of the material over a wide range of topics.
50-59	The candidate shows basic problem-solving skills and adequate knowledge of most of the material.
40-49	The candidate shows reasonable understanding of at least part of the basic material and some problem solving skills. Although there may be a few good answers, the majority of answers will contain errors in calculations and/or show incomplete understanding of the topics.
30-39	The candidate shows some limited grasp of basic material over a restricted range of topics, but with large gaps in understanding. There need not be any good quality answers, but there will be indications of some competence.
0-29	The candidate shows inadequate grasp of the basic material. The work is likely to show major misunderstanding and confusion, and/or inaccurate calculations; the answers to most of the questions attempted are likely to be fragmentary.

3.3 Verification and reconciliation of marks

Part I Written Papers

During the marking process the scripts of all written papers remain anonymous to the markers. The markers are guided by the suggested exemplar answer and marking schemes.

All papers are marked by course lecturers acting as assessors and an examiner. All scripts are double marked, blind, by the markers each awarding an integer mark for each question. After individual marking the two markers meet to agree marks question by question. If the differences in marks are small (~10% of the maximum available for the question, 2-3 marks for most questions), the two marks are averaged, with no rounding applied.

Otherwise the markers identify the discrepancy and read the answer again, either in whole or in part, to reconcile the differences. If after this process the markers still cannot agree, they seek the help of the Chair, or another examiner as appropriate, to adjudicate. An integer total mark for each paper is awarded, where necessary rounding up to achieve this.

In the event that a possible error in the paper has been identified, the examiners will consider the validity of the error and assess the impact of the error on candidates' choice of questions and on the answers written by those who attempted a question that contained an error, and will take this impact into account when marking the paper and prior to agreeing a final mark for all candidates.

The external examiners provide an independent check on the whole process of setting and marking.

Part I Coursework

In some of the descriptions of marking for individual elements of *coursework* the term 'double marked, blind,' is used; this refers to the fact that the second marker does not see the marks awarded by the first marker until they have recorded their own assessment, and does not indicate that the candidate is anonymous to the markers.

(1) Second Year Practicals

Second year practicals are assessed continually by senior demonstrators in the teaching laboratory and in total are allocated a maximum of 60 marks. Part I examiners have the authority to set a practical examination.

(2) *Industrial Visits and Talks*

Reports on Industrial Visits and Industrial Talks are assessed by the Industrial Visits Academic Organiser on a satisfactory / non-satisfactory basis, and in total are allocated a maximum of 10 marks. Guidance on the requirements for the reports is provided at the annual 'Introduction to Industrial Visits' talk. Formative feedback is provided on the first of the Industrial Visit reports.

(3) *Entrepreneurship*

The business plan for the Entrepreneurship module is double marked, blind, by two assessors appointed by the Faculty of Materials. The written business plan is allocated a maximum of 20 marks. Guidance on the requirements for the written business plan and an outline marking scheme are published in the FHS Course Handbook. Further guidance is provided throughout the course, the slides from which are published on Canvas.

If the Foreign Language Option or a Supplementary Subject has been offered instead of the Business Plan, the reported % mark, which is arrived at in accordance with the CVCP degree class boundary descriptors, is divided by five to give a mark out of 20.

(4) *Team Design Project*

The team design project is double marked, blind, by two of the Part I Examiners. They then compare marks and analyse any significant disagreement between these marks before arriving at a final agreed mark for each project and each team member. Supervisors of the projects submit a written report to the examiners on the work carried out by their teams and these are taken into consideration when the examiners decide the final agreed marks. Industrial representatives may be asked to contribute to the assessment process. The project is allocated a maximum of 50 marks, of which 25 are for the written report and 25 for the oral presentation. The same two examiners assess both the reports and the presentations. Guidance on the requirements for the report and an outline marking scheme are provided in the 'Team Design Projects Briefing Note' published on Canvas.

(5) *Introduction to Modelling in Materials*

The reports for this module are double marked, blind, by the module assessors. Normally, at least one of the two assessors for each report will be a module organiser. The assessors then compare marks and analyse any significant disagreement between these marks before arriving at a final agreed mark for each report. The lead organiser for the Introduction to Modelling in Materials Module submits to the Assessors and Examiners of the module a short report which provides (i) a summary of the availability of the software & hardware required for each mini-project and (ii) any other pertinent information. The reports for the Introduction to Modelling in Materials module are allocated a maximum of 30 marks (each of two reports allocated a maximum of 15 marks). Guidance on the requirements for the reports and an outline marking scheme are published on Canvas.

(6) *Advanced Characterisation of Materials and Atomistic Modelling Modules*

The reports for these modules are double marked, blind, by the module assessors. Normally, at least one of the two assessors for each report will be a module organiser. The assessors then compare marks and analyse any significant disagreement between these marks before arriving at a final agreed mark for each report. One of the Examiners oversees this process, sampling reports to ensure consistency between the different pairs of assessors and the two modules. The lead organiser for the Characterisation Module submits to the Assessors and Examiners of the module a short report which provides, by sample set only, (i) a summary of the availability of appropriate characterization instruments and/or data during the two-week module and (ii) any other pertinent information. An analogous report is provided by the lead organiser for the Atomistic Modelling Module in respect of the software & hardware required for the project. The report for the Characterisation Module is allocated a maximum of 30 marks and the report for the Atomistic Modelling Module is also allocated a maximum of 30 marks. For each module, guidance on the requirements for the reports and an outline marking scheme are published on Canvas.

Part II Coursework

The Part II project is assessed by means of a thesis which is submitted online to the Examiners, who will also take into account a written report from the candidate's supervisor. The marking criteria are published in the Part II Course Handbook.

The Supervisor's report is divided into Parts A & B: Part A provides simple factual information that is of significance to the examiners, such as availability of equipment, and is seen by the two markers before they read and assess the thesis. Part A does **not** include personal mitigating circumstances which, subject to guidance from the Proctors, normally are considered only in discussion with **all** Part II examiners thus ensuring equitable treatment of all candidates with mitigating circumstances. Part B of the supervisor's report provides their opinion of the candidate's engagement with the project and covers matters such as initiative and independence; it is not seen by the examiners until the discussion held after the viva.

The project is allocated a maximum of 400 marks, which is one third of the maximum available marks for Parts I and II combined. Two Part II examiners read the thesis (including the final chapter with the reflective accounts of project management, health, safety & risk assessment processes, and ethical and sustainability considerations), together with Part A of the supervisor's report, and each of them independently allocates a provisional mark based on the guidelines***** published in the course handbook. In addition, normally the thesis will be seen by one of the two external examiners.

A *viva voce* examination is held: the purpose of the viva is to clarify any points the readers believe should be explored, and to ascertain the extent to which the work reported is the candidate's. Any examiners who have supervised the candidate's Part II project or are their college tutor will not be present at the viva or the subsequent discussion. Normally four individuals will have specified examining roles: Two examiners, or one examiner and an assessor, who have read the thesis entirely; the external examiner to whom the thesis was assigned; and an examiner acting as the session Chair who will complete any necessary documentation for that viva. Other examiners beyond these four individuals will be present to the extent possible given the existence of parallel sessions. A discussion involving all examiners present is held after the viva, during which Part B of the supervisor's report is taken into account. The outcome of the discussion is an agreed mark for the project. In arriving at the agreed mark the Examiners will take into account all of the following, (i) the comments and provisional marks of the original markers, (ii) the candidate's understanding of their work as demonstrated during the viva and (iii) the opinion of the external examiner who has seen the thesis.

If the two provisional marks allocated in advance of the viva differ significantly (that is, normally by more than 10% of the maximum available for a Part II project) this will be addressed explicitly during the discussion after the viva. In the majority of other cases the viva has only a small influence on the agreed mark awarded to a Part II thesis.

*****These guidelines may change and candidates are notified of any such changes before the end of Hilary Term of their 4th year.

3.4 Scaling

Part I Written Papers

As the total number of candidates is small, it is not unusual for mean marks to vary from paper to paper, or year to year. It is not therefore normal practice to adjust marks to fit any particular distribution. However, where marks for papers are unusually high or low, the examiners may, having reviewed the difficulty of the paper set or other circumstances, decide with the agreement of the external examiners to adjust all marks for those papers.

Such adjustment is referred to as 'scaling' and the normal procedure will be as follows:

a. Papers with a *mean taken over all candidates* of less than 55% or more than 75% are normally adjusted to bring the *mean* respectively up to 55% or down to 75%. Normally this is achieved by adding/subtracting the same fixed number of marks to/from each candidate's score for the paper.

b. For papers with a mean in the ranges either of 55-60% or 70-75%, including those scaled under (a) above, the questions and typical answers are compared in order to ascertain, with the help of the external examiners, whether the marks are a fair reflection of the performance of the candidates as measured against the class descriptors. If not, the marks are adjusted. Normally this is achieved by adding/subtracting the same fixed number of marks to/from each candidate's score for the question or for the paper.

c. The mean mark and the distribution of marks, both taken over all written papers, are considered, again with the help of the external examiners, in order to ascertain whether these overall marks are a fair reflection of the performance of the candidates as measured against the class descriptors. If not, the overall marks are adjusted. Normally this is achieved by adding/subtracting the same fixed number of marks to/from each candidate's overall score.

Part I Coursework

Adjustment to marks, known as scaling, normally is not necessary for coursework.

The Practical Courses Organiser reviews the marks for the practicals before they are considered by the examiners, drawing to their attention (i) any anomalously low or high average marks for particular practicals and (ii) any factors that impacted on the practical course, such as breakdown of a critical piece of equipment. The examiners review the practical marks.

Part II Coursework

Adjustment to marks, known as scaling, normally is not necessary for the Part II theses.

3.5 Short-weight convention and departure from rubric

Part I Written Papers

The rubric on each paper indicates a prescribed number of answers required (e.g. "candidates are required to submit answers to no more than five questions"). Candidates will be asked to indicate on their cover sheet which questions, up to the prescribed number, they are submitting for marking. If this information is not provided then the examiners will mark the questions in numerical order by question number. If the candidate lists more than the prescribed number of questions then questions will be marked in the order listed until the prescribed number has been reached. The examiners will NOT mark questions in excess of the prescribed number. If fewer questions than the prescribed number are attempted, (i) each missing attempt will be assigned a mark of zero, (ii) for those questions that are attempted **no** marks beyond the maximum per question indicated under section 2 above will be awarded and (iii) the mark for the paper will still be calculated out of 100. In addition, for the Materials Options Papers, as per the rubric, the examiners will mark questions from only three sections. Should a candidate attempt questions from more than three sections the examiners will mark those questions from the first three sections in the order listed by the candidate on the covering page. If this information is not provided then the examiners will mark the sections in alphabetical order by section delineator (section A, section B, etc.).

Part I Coursework

It is a requirement for candidates to submit an element of coursework for each of the following: Practical Classes; Industrial Visits and Talks; Entrepreneurship Coursework (or substitution); Team Design Project; Introduction to Modelling in Materials, Advanced Characterisation of Materials or Atomistic Modelling. For the Practical Classes and Industrial Visits & Talks, the element of coursework comprises a set of reports: reports submitted on four Industrial Visits and two Industrial Talks and reports submitted on ten Practical Classes as specified in the Course Handbook. In these cases, a candidate must submit a report for each visit and talk/practical in order to satisfy the examiners. Failure to complete satisfactorily one or more elements of Materials Coursework normally will constitute failure of Part I of the Second Public Examination. Further details about this are provided in the Course Handbook.

3.6 Late- or non-submission of elements of coursework

Including action to be taken if submission has been or will be affected by illness or other urgent cause, and circumstances in which academic penalties may be applied.

The Examination Regulations prescribe specific dates and times for submission of the required elements of coursework to the Examiners (1. One piece of Entrepreneurship Coursework; 2. A set of reports of practical work as specified in the Course Handbook (normally each individual report within the set has been marked already as the laboratory course progresses - penalties for late submission of an individual practical report are prescribed in the Course Handbook and are applied prior to any additional penalties incurred under the provision of the present Conventions.); 3. A Team Design Project Report and associated oral presentation; 4. A set of reports on Industrial Visits and Talks as specified in the course handbook; 5. A report on the work carried out in the Introduction to Modelling in Materials module; 6. A report on the work carried out in either the Characterisation of Materials module or the Atomistic Modelling module; and 7. A Part II Thesis). Rules governing late submission of these seven elements of coursework and any consequent penalties are set out in the 'Late submission and non-submission of a thesis or other written exercise' clause of the 'Regulations for the Conduct of University Examinations' section of the Examination Regulations (Part 14, 'Late Submission, Non-submission, Non-appearance and Withdrawal from Examinations' in the 2022/23 Regulations). A candidate who fails to submit an element of coursework by a prescribed date and time will be notified of this by means of an email sent on behalf of the Chair of Examiners.

Under the provisions permitted by the regulation, late submission of an element of coursework, as defined above, for Materials Science examinations will normally result in one of the following:

(a) Under paras 14.3 to 14.6. In a case where illness or other urgent cause has prevented or will prevent a candidate from submitting an element of coursework at the prescribed date, time and place the candidate may, **through their college**, request the Proctors to accept an application to this effect. In such circumstances the candidate is **strongly** advised to (i) carefully read paras 14.3 to 14.6 of the aforesaid Part 14, where the mandatory contents of such an application to the Proctors are outlined and the several possible actions open to the Proctors are set out, and (ii) both seek the guidance of their college Senior Tutor and inform at least one of their college Materials Tutorial Fellows. Some, but not all, of the actions open to the Proctors may result in the work being assessed as though it had been submitted on time (and hence with no late submission penalty applied).

(b) Under para 14.7. In the case of submission on or after the prescribed date for the submission and within 14 calendar days of notification of non-submission and without prior permission from the Proctors: subject to leave from the Proctors to impose an academic penalty, for the first day or part of the first day that the work is late a penalty of a reduction in the mark for the coursework in question of up to 10% of the maximum mark available for the piece of work and for each subsequent day or part of a day that the work is late a further penalty of up to 5% of the maximum mark available for the piece of work; the exact

penalty to be set by the Examiners with due consideration given to the circumstances as advised by the Proctors. The reduction may not take the mark below 40%.

(c) Under Para 14.3(5). In the case of failure to submit within 14 calendar days of the notification of non-submission and without prior permission from the Proctors: a mark of zero shall be recorded for the element of coursework and normally the candidate will have failed Part I or II as appropriate of the Examination as a whole.

If a candidate is unable to submit by the required date and time for any reason other than for acute illness their college may make an application to the Proctors for permission for late submission. An extended deadline may be approved, or late submission excused where there are grounds of 'illness or other urgent cause'. Applications may be made in advance of a deadline, or up to 14 days from when the candidate is notified that they have not submitted. In all cases, the applications will be considered on the basis of the evidence provided to support the additional time sought.

It should be noted that the maximum extension that the examiners can normally accommodate for a Part II thesis to be examined in the 2022/23 session is 7 days. Any extension awarded for longer may mean the assessment will either be considered by an extraordinary examination board or the scheduled examination board in the next academic year.

Elements of coursework comprising more than one individual piece of assessed coursework

Penalties for late submission of individual practical reports are set out in the 2021/22 MS FHS Handbook and are **separate** to the provisions described above.

The consequences of failure to submit individual practical reports or failure to submit/deliver other individual pieces of assessed coursework that contribute to one of the *elements* of coursework scheduled in the Special Regulations for the Honour School of Materials Science are set out in the MS FHS Handbook (sections 7 and 10.7 of the 2021/22 version) and are **separate** to the provisions described above. In short normally this will be deemed to be a failure to complete satisfactorily the relevant element of Materials Coursework and will therefore constitute failure of Part I of the Second Public Examination.

Where an individual practical report or other individual piece of assessed coursework that contributes to one of the *elements* of coursework scheduled in the Special Regulations for the Honour School of Materials Science is not submitted or is proffered so late that it would be impractical to accept it for assessment the Proctors may, exceptionally, under their general authority, and after (i) making due enquiries into the circumstances and (ii) consultation with the Chair of the Examiners, permit the candidate to remain in the examination. In this case *for the individual piece of coursework in question* (i) the Examiners will award a mark of zero and (ii) dispensation will be granted from the Regulation that requires submission/delivery of every individual piece of assessed coursework if the candidate is not to fail the examination as a whole.

3.7 Penalties for over-length work and departure from approved titles or subject-matter

For elements of coursework with a defined word limit: if a candidate exceeds this word limit without permission normally the examiners will apply a penalty of 10% of the maximum mark available for the piece of work. [It is only possible to apply for permission to exceed a word limit if the Examination Regulations for the specific element of coursework concerned state explicitly that such an application is permitted, excepting that the Proctors may, exceptionally, under their general authority grant such permission.]

3.8 Penalties for poor academic practice

Substantial guidance is available to candidates on what constitutes plagiarism and how to avoid committing plagiarism (see Appendix B of the 21/22 FHS Course Handbook and https://www.ox.ac.uk/students/academic/guidance/skills/plagiarism?wssl=1)

If plagiarism is suspected, the evidence will be considered by the Chair of the Examiners (or a deputy). They will make one of three decisions (https://academic.admin.ox.ac.uk/examiners):

(a) No evidence, or insufficient evidence, of plagiarism – no case to answer.

(b) Evidence suggestive of more than a limited amount of low-level plagiarism – referred to the Proctors for investigation and possible disciplinary action.

(c) Evidence proving beyond reasonable doubt that a limited amount of low-level plagiarism has taken place – in this case the Board of Examiners will consider the case and if they endorse the Chair's judgement that a limited amount of low-level plagiarism has taken place will select one of two actions:

(i) Impose a penalty of 10% of the maximum mark available for the piece of work in question and a warning letter to be issued to the candidate explaining the offence and that the present incident will be taken into account should there be a further incidence of plagiarism. For a student who remains on course in addition there will be a requirement to demonstrate to their college Materials Tutorial Fellow that in the period between the present offence and the next submission of work for summative assessment they have followed to completion the University's on-line course on plagiarism (https://www.ox.ac.uk/students/academic/guidance/skills/plagiarism?wssl=1)

(ii) No penalty, but a warning letter to be issued to the candidate explaining the offence, indicating that on this occasion it has been treated as a formative learning experience, and that the present incident will be taken into account should there be a further incidence of plagiarism. For a student who remains on course in addition there will be a requirement to demonstrate to their college Materials Tutorial Fellow that in the period between the present offence and the next submission of work for summative assessment they have followed to completion the University's on-line course on plagiarism (https://www.ox.ac.uk/students/academic/guidance/skills/plagiarism?wssl=1)

3.9 Penalties for non-attendance

Unless the Proctors have accepted a submission requesting absence from an examination, as detailed in Section 14 of the Regulations, failure to attend a written examination in Part I or the *viva voce* examination in Part II will result in the failure of the whole Part.

4. PROGRESSION RULES AND CLASSIFICATION CONVENTIONS

4.1 Qualitative descriptors of classes (FHS)

The following boundaries (CVCP) and descriptors (MPLSD) are used as guidelines:

Class I Honours 70 – 100	The candidate shows excellent problem-solving skills and excellent knowledge of the material over a wide range of topics, and is able to use that knowledge innovatively and/or in unfamiliar contexts.
Class II(i) Honours 60 – 69	The candidate shows good or very good problem-solving skills, and good or very good knowledge of much of the material over a wide range of topics.
Class II(ii) Honours 50 – 59	The candidate shows basic problem-solving skills and adequate knowledge of most of the material.
Class III Honours 40 - 49	The candidate shows reasonable understanding of at least part of the basic material and some problem solving skills. Although there may be a few good answers, the majority of answers will contain errors in calculations and/or show incomplete understanding of the topics.
Pass 30 - 39	The candidate shows some limited grasp of basic material over a restricted range of topics, but with large gaps in understanding. There need not be any good quality answers, but there will be indications of some competence.
Fail 0 - 29	The candidate shows inadequate grasp of the basic material. The work is likely to show major misunderstanding and confusion, and/or inaccurate calculations; the answers to most of the questions attempted are likely to be fragmentary only.

In reaching their decisions the examiners are not permitted to refer to a candidate's outcome in, or profile across the assessments in, the First Public Examination ('Prelims').

In borderline cases the examiners use their discretion and consider the quality of the work the candidate has presented for examination over the whole profile of FHS assessments; thus for Part I outcomes the Part I assessments, and for overall degree outcomes the assessments for both Parts I and II. The external examiners often play a key role in such cases.

4.2 Classification rules (FHS)

Part I:

The examiners are required to classify each candidate according to their overall average mark in Part I as (a) worthy of Honours, (b) Pass or (c) Fail. The examiners do not divide the categories further but tutors and students may infer how well they have done from their marks.

Unclassified Honours –A candidate is allowed to proceed to Part II only if they have been adjudged worthy of honours by the examiners in Part I and normally obtained a minimum mark of 50% averaged over all elements of assessment for the Part I Examination.

Candidates adjudged worthy of honours and obtaining a minimum mark of 50% averaged over all elements of assessment for the Part I Examination normally proceed to Part II but they may, if they wish and subject to approval from the relevant bodies, leave after Part I in which case an Unclassified Honours B.A. degree will be awarded.

Candidates adjudged worthy of honours who do not obtain a minimum mark of 50% averaged over all elements of assessment for the Part I Examination may, if they wish and subject to approval from the relevant bodies, leave after Part I in which case an Unclassified Honours B.A. degree will be awarded or may retake Part I the following year (subject to college approval).

Pass – The examiners consider that the candidate is not worthy of honours and therefore will not be allowed to proceed to Part II. The candidate may leave with a B.A. (without honours) or may retake Part I the following year (subject to college approval).

Fail – The examiners consider that the candidate is not worthy of a B.A. The candidate either leaves without a degree or may retake Part I the following year (subject to college approval).

Part II:

Classified Honours – Once marking is completed for both Parts I and II an overall percentage mark is computed for each candidate and classification then takes place. Subject to the requirement that Part II be adjudged worthy of honours (see below), classification is based solely on the overall percentage mark; the candidate's profile of marks from each element of assessment is only taken into account in borderline cases. However, a candidate cannot be awarded an M.Eng. degree unless their performance in Part II is adjudged worthy of honours i.e. a candidate must be adjudged worthy of honours both in Part I and in Part II to be awarded the M.Eng. degree. Failure to achieve honours in Part II will result in the candidate leaving with an unclassified B.A. (Hons) irrespective of the aggregate mark.

Pass – Notwithstanding the award of unclassified honours in Part I, the examiners consider that the candidate's overall performance is not worthy of an M.Eng. The candidate is listed as a Pass on the class list and is awarded an unclassified B.A. (Hons) on the basis of Part I performance.

Fail – The examiners consider that the candidate's overall performance is not worthy of an M.Eng. and that the performance in Part II is not worthy of a Pass. The candidate is excluded from the class list but is nevertheless awarded an unclassified B.A. (Hons) on the basis of Part I performance.

- The examiners cannot award unclassified honours on the basis of Part II performance unless permitted to do so by the Proctors.
- Nevertheless, candidates awarded a Pass or a Fail by the Part II examiners leave with an unclassified B.A. (Hons) because they were judged worthy of that in Part I (i.e. their degree is the same as if they had left immediately after Part I).
- In terms of the degree awarded, there is no difference between a Pass and a Fail in Part II. The only difference is whether or not the name appears on the class list.
- Candidates cannot normally retake Part II because the Examination Regulations require that they must pass Part II within one year of passing Part I. This rule can be waived only in exceptional circumstances, with permission from the Education Committee.

4.3 Progression rules

The attention of candidates for Part I of the Examination is drawn to key phrases in clauses 8 and 11 of Section A and clause 3 under Part I of Section B of the Special Regulations for the Honour School of Materials Science:

> Section A. 8. No candidate for the degree of Master of Engineering in Materials Science may present themselves for examination in Part II unless they have (a) been adjudged worthy of Honours by the Examiners in Part I and (b) normally obtained a minimum mark of 50% averaged over all elements of assessment for the Part I Examination.
>
> Section A. 11. To achieve Honours at Part I normally a candidate must fulfil all of the requirements under (a), (b) & (c) of this clause. (a) Obtain a minimum mark of 40% averaged over all elements of assessment for the Part I Examination, (b) obtain a minimum mark of 40% in each of at least four of the six written papers sat in Trinity Term of the year of Part I of the Second Public Examination, and (c) satisfy the coursework requirements set out in Section B, Part I [of the Regulations].
>
> Section B. Part I. 3. In the assessment of the Materials coursework, the Examiners shall take into consideration the requirement for a candidate to complete satisfactorily the coursework to a level prescribed from time to time by the Faculty of Materials and published in the Course Handbook. Normally, failure to complete satisfactorily all six elements of Materials Coursework will constitute failure of Part I of the Second Public Examination.

4.4 Use of vivas

There are no vivas in the Part I examination.

In Part II, a *viva voce* examination is held for all candidates.

The purpose of the viva is to clarify any points the readers believe should be explored, and to ascertain the extent to which the work reported is the candidate's.

It is stressed that it is the scientific content of the project and the candidate's understanding of their work that is being considered in the viva.

5. RESITS

In the event that a candidate obtains a mark of less than 50% averaged over all elements of assessment of Part I, or if a candidate fails to satisfy the examiners, a resit is permitted. Such a candidate may re-enter for the whole of the Part I examination on one occasion only, normally in the examining session in Trinity Term 2024, following the examiners' original decision. The examination will cover the same material as the original examination and will follow the same rubric. If such a candidate is adjudged worthy of honours and achieves a mark of 50% or more averaged over all elements of assessment in Part I, the candidate may progress to Part II but will carry forward only a capped mark of 50% for Part I.

Part II may be entered on one occasion only.

6. MITIGATING CIRCUMSTANCES NOTICES TO EXAMINERS (MCE)

[For **late- or non-submission** of elements of coursework, including cases due to illness or other urgent cause, see section 3.6 of the present Conventions.]

A candidate's final outcome will first be considered using the classification rules/final outcome rules as described above in section 4. Cohort-wide adjustments will then be considered, e.g. any scaling. The exam board will then consider any further information they have on individual circumstances.

There are two applicable sections of the University's *Examination Regulations*.

• **Part 13 Mitigating Circumstances: Notices to Examiners** relates to unforeseen circumstances which may have an impact on a candidate's performance.
• **Part 12 Candidates with Special Examination Needs** relates to students with some form of disability.

Whether under Part 12 or Part 13, a mitigating circumstances notice to examiners should be submitted by the candidate through student self-service/eVision, or by the college on behalf of the candidate as soon as circumstances come to light. Candidates with alternative arrangements under Part 12 will not be considered under this mitigating circumstances process if they do not submit a separate mitigating circumstances notice.

Where a candidate or candidates have made a submission, under Part 12 or Part 13, that unforeseen circumstances may have had an impact on their performance in an examination, a subset of the internal

examiners will meet to discuss the individual applications and band the seriousness of each application on a scale of 1-3 with 1 indicating minor impact, 2 indicating moderate impact, and 3 indicating very serious impact.

For Part I, normally, this MCE meeting will take place before Part A of the meeting of the internal examiners at which the examination results are reviewed. When reaching these Part I decisions on MCE impact level, a subset of internal examiners will take into consideration, on the basis of the information received, the severity and relevance of the circumstances, and the strength of the evidence provided in support. This subset of examiners will also note whether all or a subset of written papers and/or elements of coursework were affected, being aware that it is possible for circumstances to have different levels of impact on different written papers and elements of coursework. The banding information is used at Part B of the meeting of the Part I internal examiners at which the examination results are reviewed: in Part B a candidate's results are discussed in the light of the impact of each MCE and recommendations to the Finals Board formulated regarding any action(s) to be taken in respect of each MCE.

For Part II, a subset of internal examiners will meet to band the seriousness of each notice in advance of the Part II vivas and prior to sight of any preliminary marks awarded by the internal examiners. When reaching these decisions on MCE impact level, the subset of examiners will take into consideration, on the basis of the information received, the severity and relevance of the circumstances, and the strength of the evidence. The banding information will be used at Part B of the meeting of Part II internal examiners, which is held after the vivas, at which the marks agreed following the discussion after the viva are reviewed and recommendations to the Finals Board formulated regarding any action(s) to be taken in respect of each MCE.

Further information on the procedure is provided in the *Examination and Assessment Framework, Annex E* and information for students is provided at https://www.ox.ac.uk/students/academic/exams/problems-completing-your-assessment. It is very important that a candidate's MCE submission is adequately evidenced and, where appropriate, verified by their college; the University forbids the Board of Examiners from seeking any additional information or evidence.

Candidates who have indicated they wish to be considered for DDH/DDM‡ will first be considered for a classified degree, taking into account any individual MCE. If that is not possible and they meet the DDH/DDM eligibility criteria, they will be awarded DDH/DDM.

7. DETAILS OF EXAMINERS AND RULES ON COMMUNICATING WITH EXAMINERS

The Materials Science Examiners in Trinity 2023 are: Prof. Jan Czernuszka, Prof. Nicole Grobert, Prof. Sergio Lozano-Perez, Prof. Pete Nellist (Chair), Prof. Jason Smith and Prof. Andrew Watt. The external examiners are Prof. Geraint Williams, Swansea University, and Prof. Paul Midgeley, University of Cambridge.

It must be stressed that to preserve the independence of the examiners, candidates are not allowed to make contact directly about matters relating to the content or marking of papers. Any communication must be via the candidate's college, who will, if the matter is deemed of importance, contact the Proctors. The Proctors in turn communicate with the Chair of Examiners.

Candidates should not under any circumstances seek to make contact with individual internal or external examiners.

‡ DDH/DDM – Declared to have Deserved Honours / Declared to have Deserved Masters

ANNEX

Summary of maximum marks available to be awarded for different components of the MS Final Examination in 2023 (For Part I and Part II students who embarked on the FHS respectively in 2021/22 and 2020/21)

	Component	Mark
Part I	General Paper 1	100
	General Paper 2	100
	General Paper 3	100
	General Paper 4	100
	Materials Options Paper 1	100
	Materials Options Paper 2	100
	Practicals	60
	Industrial visits	10
	Entrepreneurship Coursework	20
	Team Design Project	50
	Introduction to Modelling in Materials	30
	Characterisation or Atomistic Modelling module	30
Part I Total		*800*
Part II	Thesis	400
Overall Total		*1200*

8. APPENDIX – B.A. IN MATERIALS SCIENCE (EXIT AWARD ONLY)

In their 3rd year, a candidate may opt to transfer out of the M.Eng. programme and seek to exit with a classified B.A. award, via one of the following routes:

- Route 1 – Transfer to the B.A. at the start of the 3rd year
- Route 2 – Transfer to the B.A. at the end of the 3rd year

Route 1

Such a candidate will have studied a reduced subset of Options courses and undertaken an additional element of coursework, comprising a literature-based research module. In this case, the candidate will sit the same Option papers as all other Part I candidates but for each paper will answer only two questions in a reduced timeframe of 1.5 hours. The maximum number of marks available on each option paper is 50, and questions carry equal marks. The literature-based research module will be assessed by means of an extended essay of up to 4,000 words which is submitted to the examiners, who will also take into account a written report from the candidate's academic advisor for this research module. The essay is double marked, blind, by two examiners and allocated a maximum of 50 marks.

Route 2

Such a candidate will have completed the same elements of assessment as for Part I of the M.Eng. and in addition will be required to undertake a literature-based research module during the Long Vacation following the written papers. Consideration of all the results will be made by the examiners in the Trinity term of the year following the written papers. The literature-based research module will be assessed by means of an extended essay of up to 4,000 words which is submitted to the examiners, who will also take into account a written report from the candidate's academic advisor for this research module. The essay is double marked, blind, by two examiners and allocated a maximum of 50 marks.

The examiners will apply to the extended essay the conventions detailed above in relation to:

- *Short-weight and departure from rubric*
- *Late or non-submission*
- *Over-length work and departure from approved titles or subject-matter*

The examiners will apply the conventions that relate to the M.Eng. as detailed above to all other elements of assessment for the B.A.

The qualitative descriptors of classes given in Section 4.1 also apply to the B.A.

Once marking is completed an overall percentage mark is computed for each candidate and classification then takes place. Subject to being adjudged worthy of honours, classification is based solely on the overall percentage mark; the candidate's profile of marks from each element of assessment is taken into account only in borderline cases.

Classified Honours – To be adjudged worthy of Honours normally a candidate must obtain a minimum mark of 40% averaged over all elements of assessment, obtain a minimum mark of 40% in each of at least four of the six written papers, and satisfy the coursework requirements.

Pass – The examiners consider that the candidate's overall performance has reached an adequate standard but is not worthy of Honours. The candidate is listed as a Pass on the class list and is awarded a B.A. (without honours).

Fail – The examiners consider that the candidate's overall performance is not worthy of a B.A.

In the event that a candidate obtains a mark of less than 40% averaged over all elements of assessment, or if a candidate fails to satisfy the examiners, a **resit** is permitted. Such a candidate may re-enter for the whole of the examination on one occasion only, normally in the year following the examiners' original decision. The examination will cover the same material as the original examination and will follow the same rubric. If such a candidate is adjudged worthy of honours, as defined under 'Classified Honours' above, the examiners may award a 3rd class Honours classification. The Examiners shall be entitled to award a Pass to a candidate who has reached a standard considered adequate but who has not been adjudged worthy of Honours on the occasion of this resit.

ANNEX

Summary of maximum marks available to be awarded for different components of the MS Final Examination in the B.A. (Hons) exit award in 2023

Route 1

	Component	Mark
Part I	General Paper 1	100
	General Paper 2	100
	General Paper 3	100
	General Paper 4	100
	Materials Options Paper 1	50
	Materials Options Paper 2	50
	Practicals	60
	Industrial visits and talks	10
	Entrepreneurship coursework	20
	Team Design Project	50
	Introduction to Modelling in Materials	30
	Characterisation or Atomistic Modelling module	30
	Literature-based research module	50
Overall Total		**750**

Route 2

	Component	Mark
Part I	General Paper 1	100
	General Paper 2	100
	General Paper 3	100
	General Paper 4	100
	Materials Options Paper 1	100
	Materials Options Paper 2	100
	Practicals	60
	Industrial visits and talks	10
	Entrepreneurship coursework	10
	Team Design Project	50
	Introduction to Modelling in Materials	30
	Characterisation or Atomistic Modelling module	30
	Literature-based research module	50
Overall Total		**850**

Appendix P University Policy on Intellectual Policy Rights

Intellectual property (IP) is intangible property that is the result of creativity and innovation and which can be owned in a similar way to physical property. Examples of intellectual property rights (IPRs) include copyright, patents, and trademarks. In the University context, IP can be viewed as the results and outcomes of research. As with other property, there may be commercial value in IP, which may be realised via various routes including licensing or selling intellectual property rights. Oxford University Innovation, the University's technology transfer company, are responsible for assisting Oxford University researchers to protect and commercialise their IP. Oxford was one of the first UK universities to develop an intellectual property policy to govern the ownership and exploitation of IP generated by students and employees in the course of their employment or studies.

Oxford's IP policy is governed by the University's Statutes and Regulations. For ease of reference, an extract from the Statutes and Regulations is reproduced below. The Statutes and Regulations, as they relate to the University's IP policy, together with regulations for the administration of the IP policy, may be found in full on the University website (https://researchsupport.admin.ox.ac.uk/innovation/ip).

Essential ingredients of the University's approach are a generous revenue-sharing policy, which brings significant personal benefits to researchers (employees or students), and a hugely successful and well-resourced technology transfer operation, Oxford University Innovation, which has earned national and international recognition. since 1997 has been responsible for creating spinout companies based on academic research generated within and owned by the University of Oxford, and has spun out a new company every two months on average and files, again on average, one new patent a week.. Oxford University Innovation works closely with Research Services, a part of the University's central administration. Research Services' remit includes the management of research grants and contracts to the University, and the assignment of University intellectual property to Oxford University Innovation for exploitation.

University intellectual property policy

(Extract from Statute XVI – Part B)

5. (1) The University claims ownership of all intellectual property specified in section 6 of this statute which is devised, made, or created:

(a) by persons employed by the University in the course of their employment;

(b) by student members in the course of or incidentally to their studies;

(c) by other persons engaged in study or research in the University who, as a condition of their being granted access to the University's premises or facilities, have agreed in writing that this Part shall apply to them; and

(d) by persons engaged by the University under contracts for services during the course of or incidentally to that engagement.

(2) The University's rights under sub-section (1) above in relation to any particular piece of intellectual property may be waived or modified by agreement in writing with the person concerned.

6. The intellectual property of which ownership is claimed under section 5 (1) of this statute comprises:

(1) works generated by computer hardware or software owned or operated by the University;

(2) films, videos, multimedia works, typographical arrangements, field and laboratory notebooks, and other works created with the aid of university facilities;

(3) patentable and non-patentable inventions;

(4) registered and unregistered designs, plant varieties, and topographies;

(5) university-commissioned works not within (1), (2), (3), or (4);

(6) databases, computer software, firmware, courseware, and related material not within (1), (2), (3), (4), or (5), but only if they may reasonably be considered to possess commercial potential; and

(7) know-how and information associated with the above.

7. Notwithstanding section 6 of this statute, the University will not assert any claim to the ownership of copyright in:

(1) artistic works, books, articles, plays, lyrics, scores, or lectures, apart from those specifically commissioned by the University;

(2) audio or visual aids to the giving of lectures; or

(3) computer-related works other than those specified in section 6 of this statute.

8. For the purpose of sections 6 and 7 of this statute, 'commissioned works' are works which the University has specifically employed or requested the person concerned to produce,

whether in return for special payment or not, but, save as may be separately agreed between the University Press and the person concerned, works commissioned by the University Press in the course of its publishing business shall not be regarded as 'works commissioned by the University'.

9. Council may make regulations:

(1) defining the classes of persons or naming individuals to whom section 5 (1) (c) of this statute shall apply;

(2) requiring student members and such other persons as may be specified in regulations to sign any documents necessary in order to give effect to the claim made by the University in this Part and to waive any rights in respect of the subject-matter of the claim which may be conferred on them by Chapter IV of Part 1 of the Copyright, Designs and Patents Act 1988; and

(3) generally for the purposes of this Part.

10. This Part shall apply to all intellectual property devised, made, or created on or after 1 October 2000 and is subject to the provisions of the Patents Act 1977.

Appendix Q Transfer to 3-year Bachelors degree – at start of Year3

To:	Director of Undergraduate Studies
Name:	
College:	

I wish to transfer to the classified B.A. (Hons) in Materials Science degree.

☐ I am aware that once transferred I will not be able to re-enter the MEng programme

☐ I understand that I will take a reduced number of Y3 Options courses, and sit shorter OP1 and OP2 exam papers, but will also complete a 4,000 word extended essay.

Signature of student: …… Date: ….....

I can confirm that the College is agreeable to the above:

Signature of Tutor: …… Date: ……..

This form must be returned to the Education Manager by the end of **week 3, Michaelmas Term**

Appendix R Transfer to 3-year Bachelors degree – at end of Year3

To:	Director of Undergraduate Studies
Name:	
College:	

I wish to transfer to the classified B.A. (Hons) in Materials Science degree.

☐ I am aware that once transferred I will not be able to re-enter the MEng programme

☐ I understand that I must complete a 4,000 extended essay over the Long Vacation following the Part I written papers.

☐ I understand that the examiners will not consider my results until next Trinity term and therefore I will not be eligible to graduate until after these have been released.

Signature of student: …… Date: …....

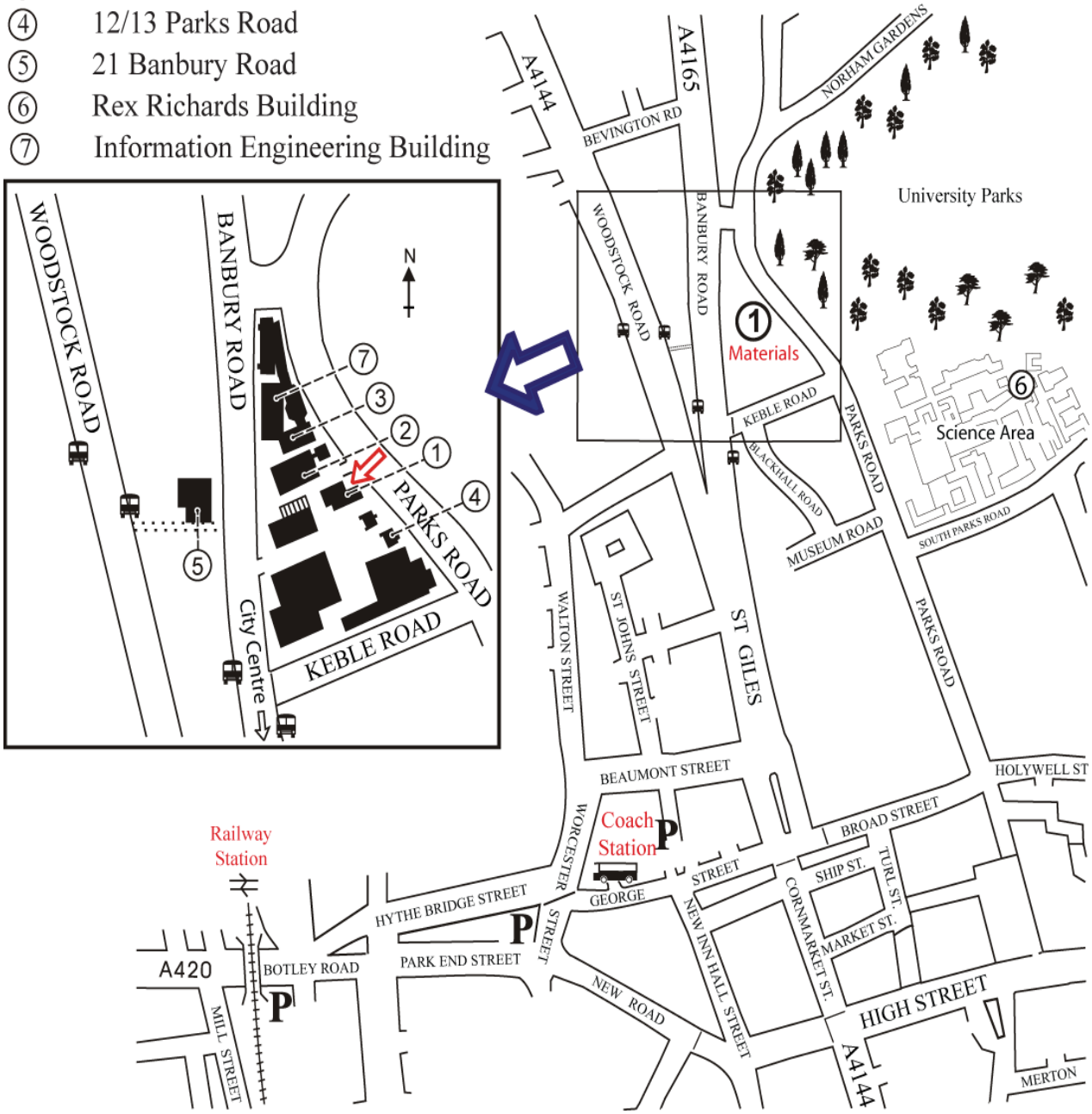
I can confirm that the College is agreeable to the above:

Signature of Tutor: …… Date: ……..

This form must be returned to the Education Manager by the end of **week 8, Trinity Term**

Department of Materials - Map of Central Site

⇨ Reception
① Hume-Rothery Building
② Holder Building
③ Engineering Technology Building
④ 12/13 Parks Road
⑤ 21 Banbury Road
⑥ Rex Richards Building
⑦ Information Engineering Building



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