Imperial College London

Faculty of Natural Sciences Department of Physics

MRes Soft Electronic Materials

Student Handbook



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Welcome to the College

Congratulations on joining Imperial College London, the only university in the UK to focus exclusively on science, medicine, engineering and business.

From Fleming's discovery of Penicillin to Gabor's invention of holography, Imperial has been changing the world for well over 100 years.

You're now very much a part of this community of discovery and we hope you will take this opportunity to make your own unique contribution. At Imperial, we expect all members of our community, whether students or staff, to share and demonstrate our values of respect, integrity, collaboration, innovation and excellence in all we do and strive to achieve.

The College provides a dedicated support network and a range of specialist support services to make sure you have access to the appropriate help, whether that's further training in an academic skill like note taking or simply baying someone



like note taking or simply having someone to talk to.

You'll have access to an innovative range of professional development courses within our Graduate School throughout your time here, as well as opportunities to meet students from across the College at academic and social events – see page 6 for more information.

We actively encourage you to seek out help when you need it and try to maintain a healthy work-life balance. Our choice of over 360 clubs, societies and projects is one of the largest of any UK university, making it easy to do something different with your downtime. Access to the gym and other sporting facilities will be dependent on government guidance. We are working to ensure that you have access to a variety of resources online to support your health and wellbeing if there are restrictions.

As one of the best universities in the world, we are committed to inspiring the next generation of scientists, engineers, clinicians and business leaders by continuing to share the wonder of what we do through public engagement events. Postgraduate students, alongside our academics and undergraduate students, make a significant contribution to events such as our annual Imperial Festival and our term-time Imperial Fringe events – if you're interested in getting involved then there will be opportunities for you to do so.



Our principles

In 2012 the College and Imperial College Union agreed 'Our Principles'. This series of commitments was developed by academic and support staff in partnership with undergraduate and postgraduate students and Imperial college Union.

Imperial will provide through its staff:

- A world class education embedded in a research environment
- Advice, guidance and support
- The opportunity for students to contribute to the evaluation and development of programmes and services

Imperial will provide students with:

- Clear programme information and assessment criteria
- Clear and fair academic regulations, policies and procedures
- Details of full programme costs and financial support
- An appropriate and inclusive framework for study, learning and research

Imperial students should:

- Take responsibility for managing their own learning
- Engage with the College to review and enhance provision
- Respect, and contribute to, the Imperial community

The Imperial College Students' Union will:

Support all students through the provision of independent academic and welfare assistance

- Encourage student participation in all aspects of the College
- Provide a range of clubs, societies, student-led projects and social activities throughout the year
- · Represent the interests of students at local, national and international level

www.imperial.ac.uk/students/our-principles

Welcome from the Graduate School



Welcome to Imperial College London and the Graduate School!

The Graduate School is responsible for the postgraduate experience at the College and we work closely with Imperial College Union to ensure that when decisions are being made, which affect your time at Imperial, your voice is heard.

Another important aspect of our role is to offer you a free and exciting range of professional development opportunities which you can access wherever you are in the world.

Our team of tutors have a variety of research and other career experiences. We understand the importance of developing professional skills and our programmes will help you to progress in your academic studies and research and will prepare you for your future career. Whether you wish to pursue a career in academia, industry or something completely different, professional development training will improve your personal impact. You will also get to meet students from other Departments when attending our courses.

The Graduate School runs exciting competitions throughout the year which are an opportunity to broaden your knowledge as well as to meet other students and have fun.

Our primary way to communicate with you will be through our monthly e-newsletter and our weekly professional skills email bulletins. However, do check our website, blog and social media platforms to keep up to date with all the latest activities available to you.

Finally, Imperial College is an extremely exciting, stimulating and diverse environment in which to work, to study and to research. Do make the most of all that the College and your programme has to offer.

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The Graduate School

You automatically become a member of the Graduate School when you register as a postgraduate student at Imperial.

The Graduate School has been set up to support all postgraduate students at the College through:

- Training and development courses and retreats
- Networking activities, social and academic events to encourage crossdisciplinary interactions
- Forums to represent the views of postgraduate students throughout the College

'Masterclass' professional skills courses

You can see the full range of free professional skills courses for postgraduate students on the Graduate School website: All courses can be booked online.

Contact us

- Level 3, Sherfield Building, South Kensington Campus
- 020 7594 1383
- graduate.school@imperial.ac.uk
- www.imperial.ac.uk/students/academic-support/graduate-school/





Introduction to the department

Welcome from the programme director



1.

The purpose of this handbook is to provide current students and staff with an outline of the MRes in Soft Electronic Materials course, including assessment and feedback mechanisms (where appropriate).

This edition of the course information handbook applies to the academic year 2022-23.

The MRes course usually has a relatively small number of students (in comparison to many undergraduate courses), and have extensive access to the academic and support staff of Imperial's Centre of Excellence in Processable Electronics (CPE). Students should therefore not hesitate to approach the Course Director or any member of staff for advice or assistance.

This handbook describes the framework of the course and its assessment but the Course Director and/or Course Committee may make changes to detailed procedures if the circumstances indicate this is desirable. Similarly, the Board of Examiners has absolute discretion to modify criteria described in this handbook, although in practice this would only occur in exceptional circumstances. Students will be notified of any changes prior to their introduction.

Aims and objectives of the MRes in Soft Electronics Materials

The formal aim of the MRes in Soft Electronic Materials is:

"to teach the core physical concepts and the research skills of Soft Electronic Materials necessary for post-graduate study in the field or for a technical career outside academia."

This aim is fulfilled via the following formal objectives. The MRes in SEM will:

- attract well-qualified Bachelor level students and provide an intellectually challenging multi-disciplinary degree programme;
- provide high quality advanced education in the relevant scientific disciplines, including physics, chemistry, materials and engineering science beyond Bachelor level within an environment with considerable teaching and research experience in the field;
- give students the experience of undertaking an important individual project and reporting the results in a full scientific thesis and presentation;
- give students training in appropriate research methods;
- develop students' skills of communication, both written and oral, to specialised and non-specialised audiences;
- equip students for further academic study at doctoral level in soft electronic materials and related subjects, such as soft electronics, renewable energy and solar power, optoelectronics, sensors and more.



The key elements of the course that support these objectives are:

- around 60 hours of core lectures in the autumn term, assessed by written examination;
- experimental courses, workshops in practical techniques and themed research seminars;
- courses and lectures offered by the <u>Graduate School</u> and the <u>CPE</u> to enhance professional skills;
- a research project, assessed by an academic presentation and written report;
- advanced research lectures and seminars by world leading researchers.

Academic and administrative staff



	Prof Ji-Seon Kim	Q	909 Blackett Laboratory, Physics Dept
	MRes Course Director	Q	0207 594 7597
		\	ji-seon.kim@imperial.ac.uk
Le la	Dr Piers Barnes	Q	1002 Huxley Building, <i>Physics Dept</i>
	MRes Course Advisor and Mentor	Q	020 7594 7609
and the second		\	piers.barnes@imperial.ac.uk
	Dr Lisa Bushby	Q	903a Huxley Building, Physics Dept
	MRes Science Coordinator	Q	020 7594 7235
		Ţ	l.bushby@imperial.ac.uk

Academic teaching staff



Dr Artem Bakulin

Lecturer: Materials Characterisation



Dr Piers Barnes
Lecturer:
Device Physics

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- a.bakulin@imperial.ac.uk

1002 Huxley Building, *Physics Dept*



piers.barnes@imperial.ac.uk



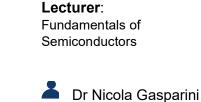












Lecturer: Solar Fuels

Lecturer:

materials



Prof James Durrant

Dr Julie Euvrard

Emerging semiconductor

Dr Jarvist Frost

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G22C, Molecular Sciences Research Hub

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- U 1004 Blackett Building, Physics Dept
- 020 7594 1167
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Materials Synthesis

Prof Martin Heeney



Lecturer: Fundamentals of Semiconductors

Lecturer:



Dr Martyn McLachlan

Lecturer: Materials Characterisation

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- ji-seon.kim@imperial.ac.uk
 - MSRH, Materials Dept, White City
- 020 7594 969 ()
- martyn.mclachlan@imperial.ac.uk





Prof Jenny Nelson Å

Lecturer: Fundamentals of Semiconductors



Lecturer: Materials Processing



- 020 7594 7581
- jenny.nelson@imperial.ac.uk



j.panidi@imperial.ac.uk



Dr Felice Torrisi

Lecturer: Flexible and Wearable Devices

401A, Molecular Sciences Research Hub

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- 020 7594 5818
- f.torrisi@imperial.ac.uk

English language requirement

If you are not a native English speaker you must meet the College's English language requirements.

See the Admissions website for details:

www.imperial.ac.uk/study/pg/apply/requirements/english

For information on English language support available while you're here, see page 36.

Attendance and absence

You must inform your Senior Postgraduate Tutor if you are absent from College for more than three days during term. If the absence is due to illness you must produce a medical certificate after seven consecutive days. If you miss an examination or the deadline for any other assessment (including lab work, in class tests, coursework or presentations) due to illness or other unforeseeable and unavoidable circumstance you must follow the College's Mitigating Circumstances Policy and Procedure. Please note that all claims for mitigation must be submitted within 10 working days of the examination or assessment deadline. If you are unable to provide evidence at the time you must submit the claim and indicate what evidence will follow and when it can be provided. Claims without evidence will normally be rejected. Please see the section on mitigation below.

The Registry will be informed of all student non-attendances as the College is obliged to report the non-attendance of students on Tier 4/Student Route visas to the Home Office.

Attendance will be monitored by registers at lectures and practicals, by submission of coursework (assessed and non-assessed) and by registers at all examinations. Meetings with staff (for example, project supervisors, personal tutors) may also be used.

Any holiday taken will be at the discretion of the Course Director Prof Ji-Seon Kim and Course Coordinator, Lisa Bushby, but should under no circumstances be taken during examination periods. You must inform your supervisor and Lisa Bushby if you are absent from College for more than three days during term. If the absence is due to illness you must produce a medical certificate after seven days. If you miss an examination through illness you must contact Prof Ji-Seon Kim and Lisa Bushby on the day and provide a medical certificate within five working days. If you are going to miss a lecture or scheduled course due to illness then you must let Lisa Bushby know as soon as possible.

Students are reminded that the MRes course is a full-time postgraduate course and as such does not observe the traditional holidays of an undergraduate course. No formal lectures or courses will be scheduled outside of College term times; however, students will be expected to continue working on their research projects at this time except for days when College is officially closed. There is no term-free time in this course.

If you do not engage satisfactorily with your studies, the College will consider what action is necessary to support your continued study under the Unsatisfactory Engagement Policy:

www.imperial.ac.uk/media/imperial-college/administration-and-support-

services/registry/academic-governance/public/regulations/2022x2f23/Unsatisfactory-Engagement-Policy-and-Procedure.pdf

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Key dates 2023–24

Term dates

Autumn term:	30 September 2023 – 15 December 2023
Spring term:	6 January 2024 – 22 March 2024
Summer term:	27 April 2024 – 28 June 2024
Closure dates	
Christmas/New year:	23 December 2023 - 1 January 2024 (College reopens on 2 January 2024)
Easter Holiday:	28 March 2024 – 2 April 2024 (College reopens on 3 April 2024)
Early May Bank Holiday:	6 May 2024
Spring Bank Holiday:	27 May 2024
Summer Bank Holiday:	26 August 2024
Key events	
Great Exhibition Road Festival:	15 June 2024 – 16 June 2024
Key programme dates:	
Course induction:	3 October 2023
Project list distribution:	week commencing 2 October 2023
Welcome dinner:	6 October 2023
Discussion with potential superv	visors: from 4 October 2023
Introduction to Safety at Imperia	online course to be completed by 6

Fire Safety Awareness

Core lecture courses begin: Journal Club: Plagiarism Awareness

Month One Safety Training Risk Assessment Foundation Training Safe Lab Practice

Preparing for your Literature Review Submit project preferences/justification: Computational Workshops:

3 October 2023 week commencing 2 October 2023 6 October 2023 from 4 October 2023 online course to be completed by 6 Oct 2023 online course to be completed by 6 Oct 2023 week commencing 9 October 2023 week commencing 9 October 2023 online course to be completed by 13 October 2023 31 October 2023 31 October 2023 31 November 2023 3 November 2023 17 November 2023 16.00 27 October 2023 1 & 8 November *Material Structure and Dynamics*

15 November Molecular Modelling



	22 November Optical and Electronic Properties of Materials		
	29 November Device Physics		
Project preferences deadline:	27 October 2023		
Project allocation decision:	3 November 2022		
Project begins:	After project allocation		
Literature review/project plan development:	November-December 2023		
Science, Research and Integrity Graduate School Course: 24 November 2023			
Core lecture courses end:	30 November 2023		
Presentation Skills Graduate School Course: 12 December 2023			
Literature review deadline:	15 December 2023		
Advanced Practical Skills courses:	15-26 January 2024		
MRes exam 1:	5 February 2024		
MRes exam 2:	9 February 2024		
Preparing a PhD Proposal:	6 March 2024		
MRes mid-term review project presentations: TBC			
SEM-MRes/CPE Summer School:	ТВС		
CPE Annual Symposium:	June/July 2024		
MRes project presentation:	30 August 2024		
MRes thesis deadline:	5 September 2024		
MRes Exam Board:	Late September 2023		
	You do not need to attend the meeting, but all		
	students will be expected to be in College		
	during the external examiners meeting		

Deadlines are strictly enforced and attendance to the events is compulsory for all MRes students

* send certificate of completion to Lisa Bushby. libushby@imperial.ac.uk

Programme information 2.

Imperial Mobile app

Don't forget to download the free Imperial Mobile app for access to College information and services anytime, anywhere, including your programme timetable, College emails and a library catalogue search tool.



www.imperial.ac.uk/imperialmobile

Welcome to Imperial app

The College has a Welcome to Imperial app which contains important information about campus operations, aspects of student life, a schedule of welcome activities and information about life in halls. All new students should download this guide to ensure they have the most up to date information and event schedule for the start of term.

You can download the App from the Apple or Google App Stores.

Imperial Success Guide

The Imperial Success Guide is an online resource with advice and tips on the transition to Master's level study. More than just a study guide, it is packed with advice created especially for Imperial Master's students, including information on support, health and well-being and ideas to help you make the most of London.

www.imperial.ac.uk/success-guide

The MRes in Soft Electronic Materials is administered on a day-to-day basis by the Course Director, Prof Ji-Seon Kim and the Course Coordinator, Lisa Bushby, together with the Course Advisor, Dr Piers Barnes and all teaching staff. The MRes management team oversees the course and makes changes to the course content and organisation as appropriate. It meets bi-monthly. The permanent members of this committee are:

- Ji-Seon Kim (MRes Course Director)
- Piers Barnes (MRes Course Advisor)
- Lisa Bushby (MRes Science Coordinator) •

Student representatives are invited to join the management meeting on a regular basis (usually once per term) and can bring up any issues on behalf of their cohort.







Timetable and working day

Course duration and information

This course is a full-time one-year Masters in Research, consisting of a multidisciplinary research project, taught courses in the physics, chemistry, materials, and engineering science of soft electronic materials, practical training courses, specialist lectures in transferable skills and group discussion sessions.

The structure of the course will be as follows:

Oct-Dec 2023:	Project allocation
	Core course lectures
	Computational APS courses
14 Dec 2023:	Submission of literature review
Jan 2024:	OPV Device Fabrication APS course
	OLED Device Fabrication APS course
	Exams
Nov 2023-Sept 2024:	Research project
Summer 2024:	Residential School
August 2024:	Oral presentation on research project and feedback
September 2024:	Submission of research project thesis

Timetables are prepared in time for the start of term and are distributed to the students. These contain details of all the compulsory components of the course.

The course follows the College standard working day, starting at 09.00 each day. In the autumn term, there are eight timetabled hours in a week on average. In the spring term, the will be practical courses and workshops.

Taught component of the course

The course begins in the autumn term (October – December) with a fixed lecture programme of core courses, including some computational workshops, which will be followed up in the spring term (January – March) with additional practical advanced courses. Each core module is compulsory and the material covered will be examined. The core and advanced courses are outlined in the appendices and they address the demand for the breadth of knowledge that we aim to cover in the course.

The curriculum

There are four modules on the Soft Electronic Materials MRes course.

Module 1 Fundamentals of Organic and Inorganic

Semiconductors and Materials Synthesis and Processing

Core Course

Module 2 Device Physics and Applications and Material Characterisation Core Course Module 3 Literature review



Module 4 Project presentation and thesis

Core lecture courses

There are two compulsory lecture modules in the autumn term comprising 60 hours of lecture in total:

- Fundamentals of Organic and Inorganic Semiconductors and Materials Synthesis and Processing
- Device Physics and Applications and Material Characterisation

Advanced workshops and lectures

A distinctive feature of the MRes is the practical workshops and will include:

- Computational workshops
- OLED device fabrication
- Characterisation course

Additional courses may be confirmed during the year.

Transferrable skills

A series of transferable skills courses are already included in the MRes programme. These include:

• Journal Club:

This is a transferable skills course, which aims to develop presentation skills, whilst encouraging scientific debate, and providing the opportunity to broaden scientific knowledge. At each meeting students will discuss a seminal high impact paper that is circulated prior to the meeting. The session is chaired by research group representatives from across the CPE.

Plagiarism Awareness

This course aims to equip students with a working knowledge of the concept of plagiarism and how to avoid it. This enables students to use and share information ethically, with academic integrity.

On completion of this online workshop you will be able to:

- 1. Explain what plagiarism is
- 2. Identify incorrect referencing and possible potential cases of plagiarism
- 3. Apply techniques to avoid the different types of plagiarism
- 4. Reference properly someone else's work as well as your own work
- 5. Evaluate and relate the impact of academic integrity to your own work as researcher and in your career

You will be automatically enrolled on the course, so please check your Blackboard link from 3 October 2024.

https://www.imperial.ac.uk/study/pg/graduate-school/students/masters/professionaldevelopment/plagiarism-online/



Students are automatically enrolled onto the course site via Blackboard, if you are not able to access the course, please get in touch with Lisa Bushby. You will be required to achieve a minimum level of understanding and present the certificate as proof of completion to Lisa Bushby by 13 October 2023).

- Science, Research and Integrity (*in-person course, details to follow,* 24 November 2023)
 This is a 3-hour discussion based workshop that will help you 1) clearly define what
 counts as scientific fraud in its various forms, 2) critically evaluate the relationship
 between the demands of professional research and the motivation to commit fraud, 3)
 describe the moral structure of the world of scientific research, in terms of the web of
 obligations within which researchers have to work, 4) evaluate the moral structure of
 specific dilemmas you may encounter during your research career, 5) recognise some
 basic distinctions between differing approaches and theories of ethics, such as
 consequentialist, duty-based, virtue based or care ethics.
- Preparing your Literature Review (online course, to be completed by 18 November 2022)

This online course will help you 1) define your literature review from your research question, 2) identify the boundaries of your literature review with reference to your research question, 3) assess the usefulness of different sources of literature, 4) employ effective reading strategies, 5) structure a literature review based on a research question.

The course can be accessed via the following link: <u>https://www.imperial.ac.uk/study/pg/graduate-school/students/masters/professional-</u> <u>development/preparing-your-literature-review-online-course/</u>

You will be required to achieve a minimum level of understanding at the end of the course and present the certificate as proof of completion to Lisa Bushby by <u>17</u> November 2023).

- Preparing a PhD Proposal[§] (blended course with pre-course activities to complete in your own time and course activities during the live course, 6 March 2024)
 This blended course will help you to 1) identify the key contents required to write a research proposal, 2) recognise the importance of having a clear structure, 3) analyse a written PhD research proposal and 4) write a draft version of the research proposal.
- Presentation Skills Workshop (in-person course, details to follow, **12 December 2023**) This course will include two sessions: an introduction to presentations and a practical session where you will have the opportunity to present. This course aims to help you 1) identify the importance of knowing your audience and your objective, 2) recognise the importance of having a clear structure and relevant content, 3) employ various tools and techniques to communicate your message clearly and respond to questions, 4) assess the quality of presentations and provide constructive feedback.

Recommended courses, these are not compulsory but we strongly advise our students to take these courses:

• Presenting your Research by Poster *(Webinar)* This is a 1-hour workshop that will help you 1) identify the criteria/standards, audience, and the purpose before creating your poster, 2) evaluate the strengths and weaknesses



of posters to engage with an audience, 3) identify the most appropriate layout, fonts, colours and relevant content to apply on your poster, 4) recognise how to present the key points of your poster.

Presenting your Research by Poster | Imperial students | Imperial College London

Preparing your Dissertation (Webinar)
 This 2.5 hour workshop will help you 1) create a structure for your dissertation, 2) employ
 planning strategies to become a more effective writer, 3) use writing strategies to
 become a more effective writer, 4) assess your dissertation.

 Preparing your Dissertation (Online Course) | Imperial students | Imperial College
 London

Students wishing to undertake further courses offered by the Graduate School may do so. We strongly advise that you discuss your choices of Graduate School courses with your supervisors prior to attending and make sure that these do not clash with any of the required MRes courses. A full list of the courses available can be found here: <u>http://www.imperial.ac.uk/study/pg/graduate-school/students/masters/professionaldevelopment/</u>

Research Project

The major component of the course is the multidisciplinary research project. A literature report on the research topic will be presented in December and a final thesis and presentation on the research early September.

All projects have at least two supervisors with complimentary expertise and will be carried out at Imperial College.

During your project you will develop your research skills, as well as working towards contributing new knowledge. Some projects will lead to new publishable results, while some may not work out with clear results. Research is about exploring the unknown, and it is not expected that everyone will achieve exactly what they set out to. However, with a careful scientific approach (remember your control experiments!) we can learn, even from unsuccessful experiments, and this approach will be considered in your assessment.

Most research projects are never truly completed, as there are almost always more questions to answer. However, it will be important for you leave sufficient time for you prepare your research presentation and thesis prior to the deadlines.

- Literature review and project proposal (submission deadline: <u>16.00 15 December 2023</u>) The literature review and proposal is to be written in the first term. It is expected to be an in-depth critical review of the subject matter chosen for a research project, a maximum of 7000 words, excluding references. The report should include:
 - o abstract
 - o bibliography
 - o literature survey
 - o proposal for the work to be carried out during the research project.

The purpose of the project proposal is to plan independent new work/research based on an area you have identified in the literature review. The written style, standard of presentation, completeness of the literature survey and analysis of the literature are assessed. The rational for the proposed research will also be marked, to ensure an understanding of the aims and objectives of the proposed research.



Below are some general comments which are applicable to all MRes reports (including the Literature Review):

- o all reports should be word processed
- \circ $\:$ use 25-30mm margins all round and print single-sided
- o number all pages
- use 1.5 spacing, except perhaps for the "contents" page and references where you may wish to use single spacing
- use a normal font such as 12 point Times (serif) or 11 point Arial (sans-serif). Do
 not use fonts smaller than these as this impacts the standard of presentation and
 makes them more difficult to read
- ensure diagrams, figures and graphs are clearly laid out with clear labels and captions.

Both the literature review and the thesis will be marked by both main supervisors as well as an independent marker. Please note that the submission deadlines are strictly enforced.

Points worth considering when preparing a great literature review:

- Keep it concise and focussed (7000 words excluding references should be considered an upper limit).
- Don't waste too much space and effort on generic background literature keep the general introduction short and then concentrate on the issues and literature most relevant to your project. (Your markers will have read generic introductions many times before.)
- Unless you are working on a very niche topic you won't be able to cover every possible reference in your review try and find the most important/significant developments relevant to your planned work.
- Can you identify trends, themes or new insight from the literature? Are there non-obvious holes in current knowledge or capabilities? Often if something hasn't been done there is a reason what is it?
- Put your project proposal in the context of the existing literature try to clearly identify what you hope to add to what has already been achieved or understood.

Thesis (submission deadline: 09.00 5 September 2024)

The research project will be written up in the form of a thesis and should be typically around 60-75 pages long (a maximum of 30,000 words is suggested). It should include:

- o abstract
- \circ introduction
- o updated literature review
- o bibliography
- \circ results
- \circ conclusions
- \circ further work.

See general comments above, which are applicable to all MRes reports.

Both the literature review and the thesis will be marked by both main supervisors as well as an independent assessor. Keep in mind that your independent assessor may not be an expert in the subject of your project. Therefore, it is very important that your thesis should be aimed at a scientist who may be familiar with the general area of soft electronics, but not



necessarily with the details of your research. Ensure that you avoid jargon and clearly define new terms and abbreviations. Aim to make your report clear and concise.

Please note that the submission deadlines are strictly enforced.

Students must submit electronic copies of each report to Lisa Bushby.

Project Presentation (<u>30 August 2024</u>)

Students give a final presentation in early September in front of their peers, supervisors and management team. Each academic member will be able to assess the student's work according to the following criteria: learning outcomes, scientific context, structure and delivery of the presentation. A template of the assessment form is given in the appendices. Feedback will be given after the presentations.

Research seminars and colloquia

Regular research seminars given by leaders in particular fields are organised throughout the year. Details will be sent via emails.

Attendance is compulsory; however, the lectures are not examinable.

Reading list

We receive a lot of inquiries regarding relevant reading material, either before the course starts, or during the academic year. While not compulsory, please see the following available at Imperial library:

https://imperial.alma.exlibrisgroup.com/leganto/readinglist/lists/42488177060001591?institut e=44IMP_INST&auth=SAML

- Electronic Processes in Organic Crystals by M. Pope & C.E. Swenberg
- Modern Molecular Photochemistry by N. J. Torro
- Molecular Quantum Mechanics by Atkins
- Introduction to Molecular Electronics by M. C. Petty, M. R. Bryce & D. Bloor
- Electronic Structure and Chemistry of Solids by P. A. Cox
- Semiconducting and Metallic Polymers by A.J. Heeger, N.S. Sariciftci, & E.B. Namdas
- Electronic and Optical Properties of Conjugated Polymers by W. Barford
- Principles of Fluorescence Spectroscopy by J.R. Lakowicz
- Solid State Physics by J. R. Hook and H. E. Hall
- Solid State Chemistry and its Applications by A. West
- The Oxford Solid State Basics by S. H. Simon
- Electronic Processes in Organic Semiconductors: An Introduction, by A. Kohler & H. Bassler
- Organic Electronics by S. Forrest

3. Assessment

Within your programme of study you will have different types of assessment which may include, coursework, examinations, timed remote assessment, presentations, labs or other forms of practical assessment.

The College has policies and procedures to the support the setting, sitting, marking and moderation of all assessment. These can be found within the Regulations and College Policies at:

www.imperial.ac.uk/about/governance/academic-governance/regulations/

www.imperial.ac.uk/about/governance/academic-governance/academic-policy/examsand-assessment/

Instruction to candidates for examinations

Students who are candidates for examinations are asked to note that all examinations are conducted in accordance with the College Regulations. The relevant set of regulations will depend on your programme and year of entry, please see our Regulations webpage to determine which apply to you:

www.imperial.ac.uk/about/governance/academic-governance/regulations/

Instructions for exam candidates can be found here:

www.imperial.ac.uk/media/imperial-college/administration-and-supportservices/registry/academic-governance/public/academic-policy/exam-arrangementsand-re-sits/Instructions-to-candidates-for-examinations.pdf

Academic integrity and academic misconduct

As your programme of study continues, you will be taught the concept of academic integrity and how you can ensure that any work that you complete now, or in the future, conforms to these principles. This means that your work acknowledges the ideas and results of others, that it is conducted in an ethical way and that it is free from plagiarism. Academic integrity is fundamental to learning, teaching and research and it is important to understand what it means you and the international community of research that you are joining.

Academic misconduct is the attempt to gain an academic advantage, whether intentionally or unintentionally, in any piece of assessment submitted to the College. This includes plagiarism, self-plagiarism, collusion, exam offences or dishonest practice. Full details of the policy can be found at:

www.imperial.ac.uk/student-records-and-data/for-current-students/undergraduateand-taught-postgraduate/exams-assessments-and-regulations/plagiarism-academicintegrity--exam-offences/

Definitions of the main forms of academic misconduct can be found below:

Plagiarism

Plagiarism is the presentation of another person's thoughts, words, images, research or diagrams as though they were your own. Another form of plagiarism is self-plagiarism, which involves using your own prior work without acknowledging its reuse. Plagiarism may be



intentional, by deliberately trying to use another person's work by disguising it or not citing the source, or unintentional where citation and/or referencing is incorrect.

Plagiarism must be avoided, with particular care on coursework, essays, reports and projects written in your own time but also in open and closed book written examinations. You can support your understanding of proper referencing and citation by using the resources available from the College such as the Library learning support webpages at:

www.imperial.ac.uk/admin-services/library/learning-support/plagiarism-awareness/

For group work, all members have responsibility for the integrity of the work submitted. Therefore, if plagiarism (or another form of academic misconduct) is proven, all group members may be liable for any penalty imposed.

The College requires you to complete mandatory training on plagiarism awareness. You can access this training online via the Graduate School's website.

www.imperial.ac.uk/students/academic-support/graduateschool/students/masters/professional-development/plagiarism-online/

TurnitinUK is an online text matching service which assists staff in detecting possible plagiarism. The system enables institutions and staff to compare students' work with a vast database of electronic sources. Your programme team will explain how it is used in your programme

www.imperial.ac.uk/admin-services/ict/self-service/teaching-learning/turnitin/

Collusion

This is the term used for work that has been conducted by more than one individual, in contravention of the assessment brief. Where it is alleged that there has been collusion, all parties will be investigated initially under the Academic Misconduct procedure.

You should note that whilst the College encourages students to support each other in their studies you should be careful to ensure that you do not exceed any assessment brief with regards to individual work, always acknowledge the contributions of others in your work, and do not leave yourself open to allegations that you have supplied answers to enable another student to commit academic misconduct.

Exam offences

Exam offences fall into two categories. These are offences that may be disruptive in the exam venue or those that are considered an attempt to cheat. Examples of disruptive behaviour includes causing a disturbance in the exam room, having an electronic device that has not been fully turned off or talking in the exam room. Behaviour that may considered an attempt to cheat includes bringing unauthorised material into an exam (such as notes, unauthorised books or other material), attempting to communicate with others apart from the invigilator, or trying to remove examination material without permission. You must ensure that you follow all reasonable instructions of the invigilators.

Dishonest practice

This is the most serious category under the procedure. Examples of dishonest practice include bribery, contact cheating (buying work from an essay mill (which is illegal in the UK) or other individual to submit as your own), taking an exam for someone else or getting someone else to take an exam for you, attempting to access exam papers before the exam, making a false claim for mitigating circumstances or providing fraudulent evidence, falsifying



documentation or signatures in relation to assessment or a claim for mitigating circumstances.

Overall assessment

The MRes in Soft Electronic Materials consists of two parts:

- Lecture courses (1/3 of the total course mark), consisting of the components:
 - core courses (2 modules)
 - advanced and practical skills courses (workshops and themed seminars),
- Project (2/3 of the total course mark), consisting of the **components**:
 - literature review
 - MRes thesis
 - project presentation.

To pass the MRes, candidates must achieve a mark of 50% or higher in each module of the course.

The examiners nevertheless reserve the right to make adjustments to the procedures given in this section in exceptional circumstances.

Formal feedback to the students in each element is by way of a letter grade indicating the percentage band of their attainment.

The examination marks are reviewed by meetings of the internal assessors (all teaching staff involved in the MRes course) who may suggest that the examiners take into account any special factors or who may provide advice on individual students.

The marks are then forwarded to the external examiner for information. The board of examiners meets in late September to review all the marks and make final recommendations to the College.

Please note that all students will be expected to be in College during the external examiners meeting.

It is traditional to send a copy of the project thesis to the external examiner in advance of this meeting to provide additional information that might assist the decision process. The external examiner for the course will be confirmed later on in the year.

Deadlines are absolute. The Board of Assessors reserve the right not to mark reports submitted late. Computer difficulties will not be accepted as excuses for late submission. Any extenuating circumstances (e.g. illness) should be discussed with the Course Director immediately.

Lecture courses

The examination of the core and advanced courses is by two written papers, each 15/90 marks, so 30/90 total. Each will contain both compulsory short questions intended to test the full spectrum of topics taught, and more advanced optional questions.

Draft examination papers are prepared by the lecturer, moderated by a second member of staff and sent in advance to the external examiner who reviews them and suggests changes. After discussion with the course lecturers, these changes are usually incorporated into the final papers.





The exams will be scheduled after all core courses have been completed. The proposed exam dates are:

 MRes Exam 1:
 14.00-17.00 5 February 2024

 MRes Exam 2:
 14.00-17.00 9 February 2024

The total mark for each paper is converted to a percentage, with each representing 16.5% of the overall final mark.

Project

The project is assessed as follows:

- the literature review and project plan, which will be submitted at the end of the autumn term (10/90 of total mark).
- a final presentation and a written thesis, both in September (50/90 of total mark).

The project thesis and literature review are marked by both main supervisors who complete the report mark sheet in the appendices. In addition, the supervisors are asked to add notes on the technical aspects of the project, conduct in the laboratory, the level of supervision required and any other factors that they feel should be made available to the examiners. An independent member of staff marks the reports as well. The reports technical marks are calculated as the average of the two supervisors' marks and are moderated by the independent assessor's mark.

Requirements for passing the MRes and calculating the final mark

The above sections have indicated how percentage marks are assigned for the course modules. The following table indicates their respective percentage weightings, used in calculating the provisional final mark:

Module 1 Written Examination	M 1
Module 2 Written Examination	M ₂
Module 3 Literature review	M ₃
Module 4 Project presentation and thesis	M4

The final mark, M_f is based on the weighting of ECTS, and is therefore computed as:

$M_{\rm f} = 15/90M_1 + 15/90M_2 + 10/90M_2 + 50/90M_2$

The student should pass each individual four modules with 50% or above.

1. Distinction:

a. The student has achieved an overall weighted average of 70.00% or above across the programme.



b. The student must achieve a distinction (70.00%) mark in the Research Project to be awarded a distinction.

2. Merit:

a. The student has achieved an overall weighted average of above 60.00% but less than 70.00%.

b. The student must achieve a minimum of a merit (60.00%) mark in the Research Project to be awarded a merit

3. Pass:

The student has achieved an overall weighted average of 50.00% but less than 60.00%. Exit degree:

Award of a Postgraduate Certificate (PG Cert)

To qualify for the award of a Postgraduate Certificate a student must have a minimum of 30 ECTS.

The Examiners reserve the right to change these thresholds in exceptional circumstances.

Marks are collated by the Course Director and reviewed internally before being sent to the external examiner for external inspection. An examiners' meeting is held in September at which the final marks are agreed. The final marks are then sent to the College administration.



4. Board of Examiners

Board of Examiners

- Prof Ji-Seon Kim, MRes Course Director
- Dr Piers Barnes, MRes Course Advisor
- all lecturers on SEM-MRes Course

External Examiners

Professor Neil Robertson, University of Edinburgh

An External Examiner is normally an experienced member of academic staff from another Higher Education Institution who acts as a critical friend to your programme of study. For some programmes, one of the External Examiners could be an industry expert to provide the professional expertise needed to support the programme. External examining is an essential part of the College's quality assurance and enhancement process, ensuring that academic standards are maintained. The knowledgeable and independent views of external examiners are invaluable in certifying that the College's awards are appropriate and comparable as well as highlighting good practice and potential areas of enhancement.

During your programme you may be invited to meet your external examiners to discuss how you have found the. It is not appropriate however, for you to seek to submit complaints or representations directly to external examiners or to seek to influence them other than by giving feedback in a meeting. Inappropriate communication towards an examiner would make you liable for disciplinary action. If there is a specific issue that needs to be resolved, please see the Student Complaints Policy and Procedure.



5. Location and facilities

Imperial has a number of campuses in London and the south east. All have excellent travel links and are easily accessible via public transport.

Your main locations of study will be:

- South Kensington and White City Campuses
 - South Kensington Campus (5 hot desks 701, Huxley Building)

Imperial College is located at two sites: South Kensington Campus and White City Campus. South Kensington Campus is south of the Albert Hall in South Kensington. The nearest tube stations are South Kensington and Gloucester Road on the District/Circle Line and High Street Kensington on the Circle Line. South Kensington and Gloucester Road are also on the Piccadilly Line which goes directly to Heathrow airport.

White City Campus is located on Wood Lane at White City. The nearest tube stations are White City on the Central Line. Wood Lane Station is also close by and is also on the Hammersmith and City line.

Facilities

Computer access and printing is available at Blackett level 3 computer lab and the Central Library on level 2. The Department's postgraduate office is located at Blackett Laboratory 3^{rd} floor and open Monday – Friday 09:30 – 16:30.

Library Services

The Central Library at South Kensington is open 24 hours for study space, and further space is available to all students in GoStudy on levels 4 and 5 of the Chemistry Building.

Make sure you find out who your subject librarian is as they'll be able to help you find books and online resources for your assignments. Also, don't forget to check out the library's range of training workshops and our other campus libraries for access to specialist medicine and life sciences resources. You can borrow up to 40 books and, whether you're working on or off site, you'll be able to access e-books, e-journals and databases from our collection of almost 400,000 titles. If we don't have what you need, we can get it for you, simply ask us to buy it or request a copy through our free Document Delivery service.

For any questions our staff will be happy to help, simply chat with us online or contact us via email, phone or social media, just check our website for details:

www.imperial.ac.uk/library

Shuttle bus

A free shuttle bus runs between our South Kensington, White City and Hammersmith Campuses on weekdays. Seats are available on a first-come, first-served basis. You need to show your College ID card to board. You can download the timetable and check the latest service updates at:

www.imperial.ac.uk/estates-facilities/travel/shuttle-bus



Maps

Campus maps and travel directions are available at:

www.imperial.ac.uk/visit/campuses

Accessibility

Information about the accessibility of our South Kensington Campus is available online through the AccessAble access guides:

www.accessable.co.uk/organisations/imperial-college-london

Smoke-free policy

All Imperial campuses and properties are smoke-free. This means that smoking by staff, students or visitors is not permitted on or within 20 metres of College land. The policy covers all College properties, including student accommodation and sports grounds.

www.imperial.ac.uk/smoke-free

SafeZone

SafeZone is a College app through which you can quickly and directly contact the Security team whenever you need them. Whether you're in an emergency situation, in need of First Aid or want to report an incident on campus, SafeZone allows you to be immediately put in touch with a member of our Security team and, at the touch of a button, can share your location and personal profile so that they can respond quickly and effectively to your specific needs. It also allows the entire College community to stay informed in the event of a major incident in London or wherever you may be in the world. Safezone also provides information on other services, such as real-time updates on the College shuttle bus.



SafeZone is optional to register for and is now available to download on the Apple and Android App stores. Visit <u>www.imperial.ac.uk/estates-facilities/security/safezone/</u> for more details about SafeZone.

All existing phone numbers for the Security team are still operational. In the event of an emergency, you can still call 4444 from any internal College phone. In the event of a wider incident in London, you can now also call 0300 131 4444, Imperial's Emergency Recorded Message Line, which will point you in the direction of up-to-date information and advice.

Changes due to Coronavirus (COVID-19)

The College will keep you informed about any further changes that may affect you due to the impact of coronavirus (COVID-19). The COVID-19 FAQs on the website are a repository of helpful information and the latest guidance can be found at:

www.imperial.ac.uk/about/covid-19/



6. Working while studying

If you are studying full time, the College recommends that you do not work part-time during term time. If this is unavoidable we advise you to work no more than 10–15 hours per week, which should be principally at weekends and not within normal College working hours.

Working in excess of these hours could impact adversely on your studies or health.

If you are here on a Tier 4/Student Route visa you can work no more than 20 hours a week during term time. Some sponsors may not permit you to take up work outside your studies and others may specify a limit.

If you are considering part-time work during term time you are strongly advised to discuss this with your supervisor or Personal/Senior Personal Postgraduate Tutor. If you are on a Tier 4/Student Route visa you should also seek advice from the International Student Support team regarding visa limitations on employment.

The College's examination boards will not normally consider as mitigating circumstances any negative impact that part-time work during term-time may have had on your performance in examinations or in other assessed work. Examinations or vivas cannot be rescheduled to accommodate your part-time working arrangements.



7. Health and safety

Keeping you safe is a top priority for us. Since 1 April 2022, the UK Government removed all restrictions on public areas, including Universities and education settings. Imperial College London still encourages students to wear face coverings in crowded areas, to get fully vaccinated, to cover your coughs and sneezes, and to respect others' personal space. All staff and students are advised to stay at home if you are feeling ill or have any symptoms of respiratory disease.

The latest Imperial College guidance to students can be seen at: www.imperial.ac.uk/about/covid-19/

The College's Health and Safety Policy can be found at:

www.imperial.ac.uk/safety/safety-by-topic/safety-management/health-and-safety-policystatement/

Your Departmental safety contact is:

- Lefan Hoyle
- Room 900, Blackett Laboratory
- 07872 850018
- fonssafety@imperial.ac.uk

You are required to complete inductions and attend training sessions to safely complete this course. These include:

Introduction to Safety at Imperial	online course to be completed by 6 Oct 2023
Fire Safety Awareness	online course to be completed by 6 Oct 2023
Month One Safety Training	31 October 2023
Risk Assessment Foundation Training	3 November 2023
Safe Lab Practice	3 November 2023

There is also a wide range of <u>eLearning micro-learning modules</u> focused on specialised topics and designed to raise awareness of hazards and control measures for working safely in hazardous areas (i.e., laboratories and workshops) across the College.

The College Safety Department

The <u>Safety Department</u> offers a range of <u>specialist advice</u> on all aspects of safety. This includes anything which you feel might affect you directly, or which may be associated with teaching, research or support service activities.

The College's activities range from the use of hazardous materials (<u>biological agents</u>, <u>chemicals</u>, <u>cryogens</u>, <u>gases</u> and <u>ionising/non-ionising radiation</u>) to field work, heavy or awkward lifting, driving, and working alone or late.

All of the College's activities are covered by general health and safety regulations, but higher risk activities will have additional requirements.



The Safety Department helps departments and individuals ensure effective safety management systems are in place throughout the College to comply with specific legal requirements.

Sometimes the management systems fail, and an accident or a near-miss incident arises; it is important that we learn lessons from such situations to prevent recurrence and the Safety Department can support such investigations. All accidents and incidents should be reported online at:

www.imperial.ac.uk/safety/safety-by-topic/accidents--incidents/

To report concerns or to ask for advice you should contact your programme director, academic supervisor or departmental safety officer in the first instance. You may also contact the <u>Safety Department</u> directly.

Occupational health requirements

The College Occupational Health Service provides services to:

- protect health at work
- assess and advise on fitness for work
- ensure that health issues are effectively managed

The Service promotes and supports a culture where the physical and psychological health of staff, students and others involved in the College is respected, protected and improved whilst at work.

www.imperial.ac.uk/occupational-health



8. College policies and procedures

Student academic regulations

All registered students of the College are subject to the College Regulations. The relevant set of regulations will depend on your programme and year of entry, please see our Regulations webpage to determine which apply to you:

www.imperial.ac.uk/about/governance/academic-governance/regulations

www.imperial.ac.uk/students/terms-and-conditions

Academic feedback policy

We are committed in providing you with timely and appropriate feedback on your academic progress and achievement, enabling you to reflect on your academic progress. During your study you will receive different methods of feedback according to assessment type, discipline, level of study and your individual need. Further guidance on the Policy of Academic Feedback can be found on the Academic Governance website:

www.imperial.ac.uk/media/imperial-college/administration-and-supportservices/registry/academic-governance/public/academic-policy/academicfeedback/Academic-feedback-policy-for-taught-programmes.pdf

Please note that your examination scripts once completed belong to the College under the GDPR legislation. Please see the College GDPR webpages for further information at:

www.imperial.ac.uk/admin-services/secretariat/information-governance/dataprotection/guidance/guide-2---exam-records/

Provisional marks guidance

Provisional marks are agreed marks that have yet to be ratified by the Board of Examiners. These results are provisional and are subject to change by the Board of Examiners. The release of provisional marks is permitted except in certain circumstances. Further information can be found in the Guidelines for Issuing Provisional Marks to Students on Taught Programmes:

www.imperial.ac.uk/media/imperial-college/administration-and-supportservices/registry/academic-governance/public/academic-policy/marking-andmoderation/Guidelines-for-issuing-provisional-marks-to-students-on-taughtprogrammes.pdf

Late submission policy

You are responsible for ensuring that you submit your coursework assessments (including time remote assessments) in the correct format and by the published deadline (date and time). Any piece of assessed work which is submitted beyond the published deadline (date and time) would be classed as a late submission and will incur a penalty (a cap at the pass mark, or it is classed as a fail). Further guidance on Late Submission of Assessments can be found on the Academic Governance website:

www.imperial.ac.uk/media/imperial-college/administration-and-supportservices/registry/academic-governance/public/academic-policy/marking-andmoderation/Late-submission-Policy.pdf

If you submit late due to mitigating circumstances, you may be able to make a claim that means that the cap on your mark is lifted. Please see below.



Mitigating circumstances

During your studies you may be affected by sudden or unforeseen circumstances. You should always contact your personal tutor for advice and support. If this happens at the time of, or immediately preceding, your assessments you may be able to make a claim for mitigating circumstances. If successful this claim enables the Board of Examiners when reviewing your marks at the end of the year to have greater discretion with regards to offering repeat attempts (either capped or uncapped), a repeat year, or with your progression or final classification. Please note, the Board are not permitted to amend the marks that you were awarded, only to take your claim into account making decisions.

All claims must be supported by independent evidence and submitted within 10 working days of the assessment deadline. Any claim made after this deadline is likely to be rejected unless there is a good reason (such as you were still unwell) until the point of submitting the claim. Details of the College's Mitigating Circumstances procedure can be found under the Mitigating Circumstances tab on the page below:

www.imperial.ac.uk/about/governance/academic-governance/academic-policy/examsand-assessment/

Through the procedure you may also be able to request an extension deadline to some forms of assessment. Wherever possible it is expected that this is used as it will enable to you complete your studies within the same College year (rather than over the summer holiday or in the next year).

Students are required to email a completed mitigating circumstances form to the <u>Physics</u> <u>departmental administrator</u> setting out their circumstances so they can be considered by the Physics Mitigating Circumstances Committee who will make a decision.

Support for ongoing or long-term conditions, or for registered disabilities would not normally fall under the remit of mitigating circumstances and students should be supported through their studies with additional examination arrangements. More details can be found at:

www.imperial.ac.uk/disability-advisory-service/current-students/supportavailable/adjustments-and-support/

Academic misconduct policy and procedures

As has been highlighted under the Academic Integrity section, it is important that you learn how to properly attribute and acknowledge the work, data and ideas of others. Any proven form of academic misconduct is subject to penalties as outlined in the College's Misconduct Policy and Procedures.

www.imperial.ac.uk/about/governance/academic-governance/academic-policy/examsand-assessment/

Unsatisfactory engagement

Unfortunately, for a variety of reasons, sometimes students struggle to meet the College's expectations with regards to their engagement with their studies. The College has a process to identify and support students by reaffirming these expectations with an action plan. If a student does not engage satisfactorily engage with these supportive measures, they can be withdrawn from their studies. The full details of this process, and the appeals procedure relating to it can be found at:

www.imperial.ac.uk/about/governance/academic-governance/academic-policy/complaints-appeals-and-discipline



Mutual expectations

The mutual expectations document provides a suggested starter list of expectations that master's students and their project supervisors might expect from each other. It is designed to facilitate conversations to establish effective partnerships and it is recommended that the document is discussed at the first meeting between a main project supervisor and a new student. It should be noted that this is not exhaustive and that Departments may have variations in roles and responsibilities; supervisors should be aware of any such variations and will feed this into their discussions with students. Further, it is recognised that supervisors may not always be best placed to meet all the expectations laid out in the document, but should be aware of who, in their department, can. Students and project supervisors are encouraged to discuss, tailor and personalise the document further to suit. It is also recommended that students and their project supervisors re-visit the document throughout the duration of the project.

The Mutual Expectations document is available here:

www.bb.imperial.ac.uk/bbcswebdav/xid-12494962 1

Academic appeals procedure

We have rigorous regulations in place to ensure assessments are conducted with fairness and consistency, claims for mitigating circumstances have been considered reasonably and in line with the regulations of the College, and that the decisions of the Boards of Examiners maintain the integrity of our academic awards. Should you believe that you have grounds to appeal these decisions, we have laid out clear and consistent procedures through which appeals can be investigated and considered:

www.imperial.ac.uk/about/governance/academic-governance/academicpolicy/complaints-appeals-and-discipline

Arithmetic marks check

If you consider that there may have been an error in the adding up of your marks, you may request an arithmetic mark check. Please note that this must be requested within 10 working days of the official notification of your results from the Results team in Registry. You may not request a marks check for a previous year of study. Please note that a marks check is not a remark of your work, but an administrative check that the marks have been accurately recorded.

Student complaints

The College strives to ensure that all students are well supported in their studies and receive a good experience of their programme and the wider College activities. If you feel that your experience has not lived up to these expectations the College has an agreed Student Complaints process through which your concern can be investigated and considered.

If you have any concerns about your experience at the College and have been unable to address these informally, you should contact Student Complaints who can provide advice about what is the appropriate way to seek to resolve this at:

student.complaints@imperial.ac.uk

www.imperial.ac.uk/about/governance/academic-governance/academicpolicy/complaints-appeals-and-discipline



Student disciplinary procedure

The College has the right to investigate any allegation of misconduct against a student and may take disciplinary action where it decides, on the balance of probabilities, that a breach of discipline has been committed. The general principles of the Student Disciplinary Procedure are available on the College website:



Intellectual property rights policy

For further guidance on the College's Intellectual Property Rights Policy is available on the College website:

www.imperial.ac.uk/research-and-innovation/research-office/researchpolicies/research-related-policies/ip-policy/

Further information about the Imperial Enterprise Lab can be found at:

www.imperial.ac.uk/students/enterprising-students

www.imperialenterpriselab.com/support/experts-in-residence

Use of IT facilities

View the Conditions of Use of IT Facilities:

www.imperial.ac.uk/admin-services/ict/self-service/computers-printing/conditions-ofuse-of-it-resources/

General Data Protection Regulation (GDPR)

All staff and students who work with personal data are responsible for complying with GDPR. The College will provide support and guidance but you do have a personal responsibility to comply.

In line with the above please see the College's privacy notice for students which form part of the terms and conditions of registration with the College.



www.imperial.ac.uk/media/imperial-college/administration-and-supportservices/registry/academic-governance/public/academic-policy/admissions/Privacy-Notice-for-Students-and-Prospective-Students.pdf



9. Wellbeing, Support and Advice

In your department

Your department has a system of academic and pastoral care in place to make sure you have access to the appropriate support throughout your time at Imperial.

Your Personal Tutor

Your Personal Tutor is your first point of contact for pastoral support and advice. You can arrange to have a meeting with them at any time during your studies (although most Personal Tutors will have set office hours or may require you to make an appointment).

If necessary, they will direct you to an appropriate source of support.

- Dr Piers Barnes (MRes Course Cohort Mentor: *academic*)
- 1002 Huxley Building
- piers.barnes@imperial.ac.uk
- Dr Lisa Bushby (MRes Course Cohort Mentor: *non-academic*)
- 903a Huxley Building
- <u>l.bushby@imperial.ac.uk</u>

Departmental Disability Officers

Departmental Disability Officers are the first point of contact in your department for issues around disability. They can apply for additional exam arrangements on your behalf and will facilitate support within your department.

Your Departmental Disability Officer is: Mery Fajardo

Email: m.fajardo@imperial.ac.uk

Telephone: 020 7594 7513

More information on Departmental Disability Officers is available at:

www.imperial.ac.uk/disability-advisory-service/about-us/departmental-disability-officers/

More information about how to request additional arrangements for exams if you have a disability is available at:

www.imperial.ac.uk/student-records-and-data/for-current-students/undergraduate-and-taught-postgraduate/exams-assessments-and-regulations/additional-exam-arrangements-in-respect-of-disability

Postgraduate coaching

As well as professional development opportunities, the Graduate School has a dedicated coaching programme designed to help you through challenging times. The **Postgraduate student coaching programme** has been established to provide an opportunity to talk, independently from your academic department, about challenges you may be experiencing during the course of your studies. The programme primarily focuses on building effective working relationships and there may be other self-development issues that you can explore with a trained coach.



www.imperial.ac.uk/students/academic-support/graduate-school/communitysupport/coaching/

Attributes and Aspiration Short Course

Attributes and Aspirations (AA) is an online short course that supports you to develop career planning and transferable skills. AA is flexible, has no assessments and can be accessed whenever you need it allowing you to proactively plan for your future. You can also use AA to develop key skills such as critical thinking, problem solving and time management. These will help you be a better student and are essential for your future - whether you choose to move to further study or to a job in industry.

AA is designed specifically for Imperial master's students. The Postgraduate Education Team worked with the Careers Service to design AA so that it works for you. We researched and talked to organisations that hire master's students, PhD course coordinators and alumni to make sure the skills and techniques taught in AA are those that you really need for your professional future. For further information, please see the <u>AA web pages</u>.

www.imperial.ac.uk/students/attributes-and-aspirations

Your Union

All Imperial students automatically become members of Imperial College Union when they register at the College. The Union provides a range of independent support.

Imperial College Union Advice Service

The ICU Advice Service delivers free, confidential, and impartial advice covering academic issues, complaints and disciplinaries, College accommodation, and internal and external signposting. Contact advice@imperial.ac.uk and complete the registration form to speak with a member of the team.

www.imperialcollegeunion.org/advice

Student representatives

Imperial College Union operates two Representation Networks of over 600 elected student representatives – the Academic Representation Network and the Wellbeing Representation Network. Reps represent the voice of students and can direct you to internal and external support services. The Union's Liberation Officers also work to make sure that the views of under-represented and interest groups are heard at the College.

If you have any feedback about issues in your department relating to academic or wellbeing issues, you can speak to one of your student representatives.

www.imperialcollegeunion.org/your-union/your-representatives/a-to-z

Student Hub

At the Student Hub, you can access advice about accommodation, admissions and financial support and get help with international student enquiries, questions about student records, and exams.

www.imperial.ac.uk/student-hub



Student Support Zone

If you have moved home to take up your place at Imperial you will need to register with a new doctor (also known as a General Practitioner or GP) so that you can access NHS healthcare. It's important that you register with a doctor soon after you arrive – don't wait until you are sick, as this could delay your access to treatment.

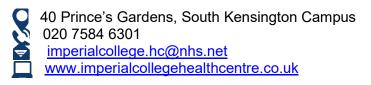
Student Support Zone has lots of information about the resources available at Imperial and beyond to help you to stay healthy and happy. It's a great place to start when you're looking for some support – it covers advice about housing and money, health, wellbeing and maintaining a good work-life balance, and provides the details of who you can contact if you need some extra support.

www.imperial.ac.uk/student-support-zone

Useful support contacts

Health and wellbeing

Imperial College Health Centre



Imperial College Dental Centre

Prince's Gardens, South Kensington Campus 020 7589 6623 www.imperialcollegedental.co.uk

Student Counselling and Mental Health Advice Service

020 7594 9637
 <u>counselling@imperial.ac.uk</u>
 <u>www.imperial.ac.uk/counselling</u>

Multi-Faith Chaplaincy Service

15 Prince's Gardens, South Kensington Campus
 <u>chaplaincy@imperial.ac.uk</u>
 <u>www.imperial.ac.uk/chaplaincy</u>

Disability Advisory Service

Room 566, Level 5, Sherfield Building, South Kensington Campus
 020 7594 9755
 <u>disabilities@imperial.ac.uk</u>
 www.imperial.ac.uk/disability-advisory-service

Centre for Academic English

The goal of the Centre for Academic English is to ensure you develop both the ability and the confidence to excel as a communicator on your degree programme as well as in the



workplace. From the very beginning of your degree and all the way through, we're here to help you realise your potential.

To achieve this, we've designed a flexible academic STEMM communication programme enabling you to create your own personalised learning pathway. As you build your pathway, you'll have the freedom to select the language resources you need wherever you need them. These resources are the result of close collaborations with departments and so will meet your communication needs for Imperial written and spoken course assignments.

To find out more about what is available for you, visit the Centre for Academic English website. Centre for Academic English

Level 3, Sherfield Building, South Kensington Campus english@imperial.ac.uk www.imperial.ac.uk/academic-english

International Student Support team

020 7594 8040 www.imperial.ac.uk/students/international-students/

Careers

Careers Service

- Level 5, Sherfield Building, South Kensington Campus
- 020 7594 8024
- careers@imperial.ac.uk
- www.imperial.ac.uk/careers

ICT and software

ICT Service Desk

- Central Library, South Kensington Campus
- 020 7594 9000
- www.imperial.ac.uk/ict/service-desk

Software shop

www.imperial.ac.uk/admin-services/ict/self-service/computers-printing/devices-andsoftware/



10. Student administration

The Student Administration Team are responsible for the administration and maintenance of the student records for all students studying at the College. This includes enrolments, programme transfers, interruption of studies, withdrawals and processing of examination entry for research degree students. The team also use this information to fulfil reporting duties to the Student Loans Company and Transport for London, as well as other external bodies.

The Team is responsible for the processing of student results and awards on the student record system as well as the production and distribution of academic transcripts and certificates of award.

The 'My Documents' online portal allows you to access your documents, including proof of enrolment and award documentation. You can then digitally share these documents with third parties such as an employer or university.

Each document has a unique QR code with the official University watermark, making it easier for employers and others to verify your credentials. This online document sharing is a legitimate service, introduced and authorised by Imperial College London.

We would like to encourage you to use this online service in place of paper-based documentation. You can access the 'My Documents' portal here: <u>https://student-edocuments.imperial.ac.uk/Account/LoginViaAzure</u>

Student Records

+44 (0)20 7594 7268
 <u>student.records@imperial.ac.uk</u>

Degree certificates



11. Work-life balance

The pace and intensity of study at Imperial can be demanding so it's important to find time for outside interests.

Imperial College Union

The Union's range of 360+ student-led clubs, societies and projects is one of the largest of any UK university, opening up lots of ways for you to enjoy your downtime.

www.imperialcollegeunion.org/about-us

Move Imperial

Imperial College has a wide range of sports and activities on offer that cater for all experience levels and abilities. We have a recreational activity offer, competitive sports teams and an elite sport programme. We are dedicated to ensuring we have a diverse, inclusive and exciting offer for all.

More information about Imperial student memberships and updates to our services can be found at:

www.imperial.ac.uk/ethos/memberships/students

With an annual fee of £55 you will get use of the gym and swimming facilities on our campuses.

www.imperial.ac.uk/sport

We have a huge collection of online resources, home workout videos, healthy recipes and playlists available to all as part of our MoveMore campaign, more information can be found at:

www.imperial.ac.uk/sport/move-more/

12. Student feedback and representation

Feedback from students

The College and Union is committed to continually improving your education and wider experience and a key part of this is your feedback. Feedback is thoroughly discussed by your student representatives and staff.

Student representation

Student Representatives are recruited from every department to gather feedback from students to discuss with staff. More information about the role, and instructions on how to become an academic representative, are available on the Imperial College Union website.

www.imperialcollegeunion.org/your-union/your-representatives/academicrepresentatives/overview

Staff-Student Committee

Staff-Student Committees are designed to strengthen understanding and improve the flow of communication between staff and students and, through open dialogue, promote high standards of education and training, in a co-operative and constructive atmosphere. College good practice guidelines for staff-student committees are available here:

www.imperial.ac.uk/about/governance/academic-governance/academic-policy/studentfeedback

Postgraduate Masters Committee (PMC)

The membership of the PMC consists of the Programme Organisers, the student representatives for each masters programme and the Directors of Postgraduate Studies and of Undergraduate Studies. The PMC typically meets twice a year. Each Masters programme must elected a student representative early in the autumn term to serve on the PMC. Their role is to inform the PMC of the concerns of the students and to assist in implementing any changes proposed.

As well as the formal monitoring system, students are encouraged to raise any concerns with the Programme Organiser as they arise.



13. Student surveys

Your feedback is important to your department, the College and Imperial College Union. Whilst there are a variety of ways to give your feedback on your College experience, the following surveys give you regular opportunities to make your voice heard:

• Module Evaluation Questionnaire (MEQ)

The MEQ is your chance to tell us about the modules you have attended. The questionnaire is open to students across all years of study and runs at the end of the autumn, spring and summer terms.

• Postgraduate Taught Experience Survey (PTES)

The PTES is a national survey which asks you to rate a range of elements related to your student experience such as teaching, assessment, support and resources. Results of this national survey are made publicly available.

The Union's "You Said, We Did" campaign shows you some of the changes made as a result of survey feedback:

www.imperialcollegeunion.org/you-said-we-did

The Union's response to surveys can be found here:

www.imperialcollegeunion.org/your-union/your-representatives/responses

If you would like to know more about any of these surveys or see the results from previous surveys, please visit:

www.imperial.ac.uk/students/academic-support/student-surveys/pg-student-surveys



14. And finally

Alumni services

When you graduate you will be part of a lifelong community of over 190,000 alumni, with access to a range of alumni benefits including:

- discounts on further study at the College and at Imperial College Business School
- alumni email service
- networking events
- access to the Library and online resources
- access to the full range of careers support offered to current students for up to three years after you graduate
- access to our Alumni Visitor Centre at the South Kensington Campus, with free Wi-Fi, complimentary drinks, newspapers and magazines, and daytime left luggage facility

Visit the Alumni website to find out more about your new community, including case studies of other alumni and a directory of local alumni groups in countries across the world.

www.imperial.ac.uk/alumni

Opportunities for further study

Please see the following links for possible opportunities once you have completed the MRes in Soft Electronic Materials:

Imperial's Centre of Excellence in Processable Electronics: <u>https://www.imperial.ac.uk/processable-electronics/</u>



15. Appendices

The following brief descriptions of the content of the course are indicative and changes may be made by the lecturer before each course starts. The descriptions given here may not always match the College Prospectus exactly, as the Prospectus is prepared up to 18 months before a course is given.

Core Lecture Courses

• Fundamentals of Organic and Inorganic Semiconductors and Materials Synthesis and Processing

The semiconductors part of the module will refresh the basic properties of semiconducting materials, highlighting the key similarities and differences between electronic behaviour in organic and inorganic materials. It will cover the physics of the electronic structure of piconjugated materials and their neutral, excited and charged states (excitons, polarons), their optical properties (absorption, emission), photophysical processes, photochemistry, charge and exciton transport. It will include an introduction to the techniques used to model the electrical and optical properties of molecular materials. Aspects of other material properties such as ferroelectricity, thermoelectricity and magnetism will also be introduced where relevant.

Course Lecturers: Ji-Seon Kim, Jenny Nelson and Jarvist Frost

The materials synthesis and processing part of the module will focus on the preparation and deposition of electroactive materials including the organic, inorganic and hybrid components used in soft electronic devices. Such electroactive materials will include small molecular charge transport materials, sensitising dyes used in solar cells, fluorescent and phosphorescent materials as well as electroactive polymers. The key concepts of conjugation, synthesis (e.g. by Suzuki or Yamamoto coupling, living polymerisations by McCullough route) and relevant characterisation (e.g. by spectroscopy, mass spectrometry, elemental analysis, GPC, cyclic voltametry) will underpin the organic components of the module which should enable students to select molecules for specific (opto)electronic applications and to suggest functionalisation (i.e. fluorination etc.) that will optimise their physical properties. Considering the "active layers" of devices we will focus on photovoltaic systems, organic, hybrid and perovskite and explore the numerous chemical and physical deposition systems utilised in the research, development and commercialisation of these systems before moving onto to interlayers and finally metallic electrode deposition. Throughout the course we will survey the properties of the materials being deposited and correlate their processing with considerations of compatibility, scale and cost.

Course Lecturers: Martin Heeney, Julianna Panidi and Felice Torrisi

• Device Physics and Applications and Materials Characterisation

The devices and applications part of the module will cover the basic principles of operation and design and molecular and hybrid light emitting devices, solar cells, photodiodes, thin film transistors, lighting, displays, solar fuels, organic sensors and wearable and flexible electronics using 2D materials. Emerging devices classes will also be introduced including spintronic and bioelectronics devices. The module will also introduce device fabrication and device engineering for maximum performance and lifetime. Methods to evaluate and assess device performance and bottlenecks will be covered (e.g. solar cell operating



efficiency, transistor transfer curves). This understanding will provide students with approaches to diagnose and rectify problems in their device designs.

The module will also introduce materials characterisation techniques relevant to assessing the microstructure and surface/interface properties of relevant electroactive materials including microscopy, X-ray diffraction, rheology and thermal analysis (including degradation). The module will also introduce steady-state and time-resolved spectroscopic techniques suitable for interrogating structural properties, excited states, and charge carriers in electroactive materials. Knowledge of these techniques should provide students with a platform to start tackling the practical problems they will encounter during their projects.

<u>Course Lecturers: Piers Barnes, Ji-Seon Kim, Nicola Gasparini, Artem Bakulin,</u> <u>Martyn McLachlan, Julie Euvrard, James Durrant</u>

Advanced and Practical Skills Courses

Practical capability will be developed through a series of targeted courses. The following initial courses are planned (venue in brackets); others are likely to evolve as the field and the Centre progress. Where the topic is of relevance to the MRes in Soft Electronics, other courses will also be offered to students.

Computational Workshops

The workshops will focus on four main areas:

- o Molecular modelling
- o Optical and electronic properties of materials
- Device physics
- o Material structure and dynamics

This computer-based workshop will introduce students to some of the range of computational packages available for the simulation of molecular materials, including the elements of quantum chemistry calculations using Gaussian and Turbomole, molecular dynamics packages such as GROMACS, and packages for the visualisation and rendering of molecular structures. Training will consist of short lectures followed by problem solving sessions with demonstrator help available.

• OPV Device fabrication (Imperial College WC Campus, Chemistry Clean Room), 2.5 days

This practical training course will cover all steps in the fabrication and testing of lab-scale light-emitting diodes, photodiodes and OFETs, including substrate preparation, spin coating of organic layers, contact evaporation and encapsulation, followed by opto-electrical measurement.

 Characterisation course (Imperial College SK Campus, Physics Glove Box), 1 halfday lecture and 1 half-day practical session
 This practical bands on training course will cover widely used above to be a training to the set of the second set of the second

This practical hands-on training course will cover widely-used characterisation techniques, such as film thickness measurements, UV-Vis absorption, transmission, JV characteristics of a device and EQE measurements.



Literature Review and MRes Thesis Guidelines

An electronic version should be submitted to Lisa Bushby by the deadline. Paper copies can be submitted to supervisors but only as requested.

Reports will be marked independently by the two supervisors and will be moderated by the independent marker.

The purpose of the literature review is largely to test the student's ability to investigate a discipline and plan work independently.

Literature Review Marking Scheme:

Written style/Presentation (25 marks)

- Is the project (Literature Review) well written and presented (typewritten, organisational figures, formatting etc) and clearly explained?
- The report should be concise and complete (thorough and informative)
- Are the references listed actually referred to or discussed in the text? Is the abstract an accurate description of the contents?
- Is the project the candidate's own work, written in their own words?
- Is the format up to publication standard?
- Conduct in the laboratory (supervisory team)

Literature survey (25 marks)

- Is the literature survey thorough and complete?
- Are important references missing?
- Are all relevant subjects sufficiently covered?
- A mechanical copy of existing material is not acceptable.

Analysis of literature (25 marks)

- The student should show ability to compare and contrast the relevant literature in all subject areas.
- The student should present a coherent "story" throughout the report.
- Has the student made a good selection of material where choices exist or where the sources are voluminous?
- For a first-class proposal, original input is expected

Rationale of proposal (25 marks)

- Is the proposed work's relationship to other work in the literature clear?
- Aims and objectives should be clearly justified.
- Is the choice of methodology clear and is it justified?

(100 marks total)

Any evidence of plagiarism will have serious consequences.



Project Thesis Marking Scheme Supervisory team

Background & Introduction (20 marks)
Understanding & Analysis (30 marks)
Quality & Originality of Results (30 marks)
Performance in the lab (20 marks)
Total (100 marks)

Independent marker

Background & Introduction (20 marks)				
Understanding & Analysis (30 marks)				
Quality & Originality of Results (30 marks)				
Presentation (20 marks)				
Total (100 marks)				



Criteria for Assessment of Literature Report & Research Thesis

The following criteria is taken into account: the nature of the work proposed, critical analysis of the relevant literature, the proposed work and what is reasonably achievable in the timescale of the proposal

Percentage Grade	Criteria					
85-100	Exceptional. Outstanding analysis of the relevant literature showing publishing standard in quality and quantity. Evidence of originality, high critical/analytical ability** Competent assessment of the limitations of the proposed research and the significance of research (putting the work in context).					
	** <i>Analytical</i> = assessing a hypothesis or statement by breaking it down into its elements and examining their inter-relationships and contribution to the whole; cf. <i>Critical</i> = judging a hypothesis or conclusion by examining the validity of the evidence adduced for it.					
70-84	Excellent. As for Exceptional, but not fully achieving one of them.					
60-69	Very Good. Complete and accurate presentation of the literature and research proposal showing a clear understanding of the background by. Demonstrates critical/analytical ability** including an assessment of the limitations of the proposed work and the significance of the research.					
55-59	Good. Accurate account and presentation of most of the background and proposed work. Demonstrates critical/analytical ability** including an assessment of the potential limitations of the proposed work and the significance of the research, but has significant errors of interpretation.					
50-54	Adequate. Basic account and presentation of the background, experimental procedures and proposed research. Demonstrates some critical/analytical ability** including an assessment of the significance of the research, but has major errors or omissions.					
35-49	Unsatisfactory. Confused and incomplete account and presentation of the background, limited understanding of the proposed work. Presence of errors of interpretation or factual mistakes.					
20-34	Vague and seriously inadequate account and presentation of the proposed work with substantial omissions and errors. Very poor review of literature.					
10-19	Mainly incorrect and incompetent literature survey and research proposal demonstrating only few relevant thoughts.					
1-9	Incorrect and incompetent literature survey and research proposal containing nothing of relevance.					
0	Work not handed in. Mark given where the work presented is discovered not to be that of the candidate (plagiarised). Further disciplinary action is usually taken in cases of plagiarism.					

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Project Presentation Assessment Form

Project Presentation Assessment Form MRes in Soft Electronic Materials

Name of Presenter	
Title of Project	
Name of Assessor	

	Please circle the marks you wish to give the presenter			
	Unsatisfactory	Satisfactory	Good	Excellent
Scientific Context (Students demonstrate knowledge of their broad research theme)	2 - 4 - 6	8 - 10	12 - 14	16 - 18 - 20
Comments:				
Scientific Content				
(Quality of masters project in terms of contribution to the science of their theme and demonstrate specific knowledge around their project)	4 - 8 - 12	16 - 20	24 - 28	32 - 36 - 40
Comments:		I	<u> </u>	
Structure of Presentation				
(Does the talk have a defined structure with clear opening and summary? Was the presentation delivered to time?)	2 - 4 - 6	8 - 10	12 - 14	16 - 18 - 20
Comments:		I	II	
Delivery of Dress station		1	1	
Delivery of Presentation (Were the important points clearly explained? Was the material presented at a reasonable pace? Were the viewgraphs clear and informative? Did the presenter cope well with questions?)	2 - 4 - 6	8 - 10	12 - 14	16 - 18 - 20
Comments:		1	1	
			Total (out of 100)	

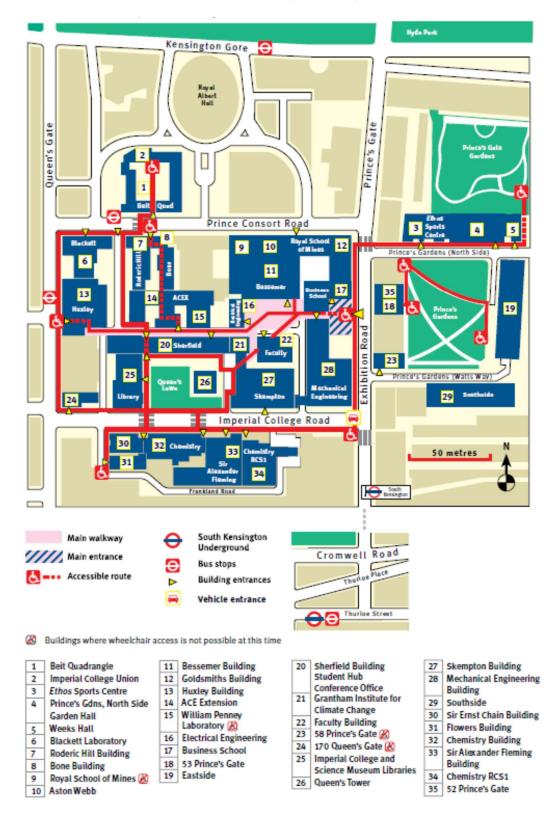
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South Kensington Campus map

Imperial College

London

South Kensington Campus



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White City Campus Map

