Imperial College London
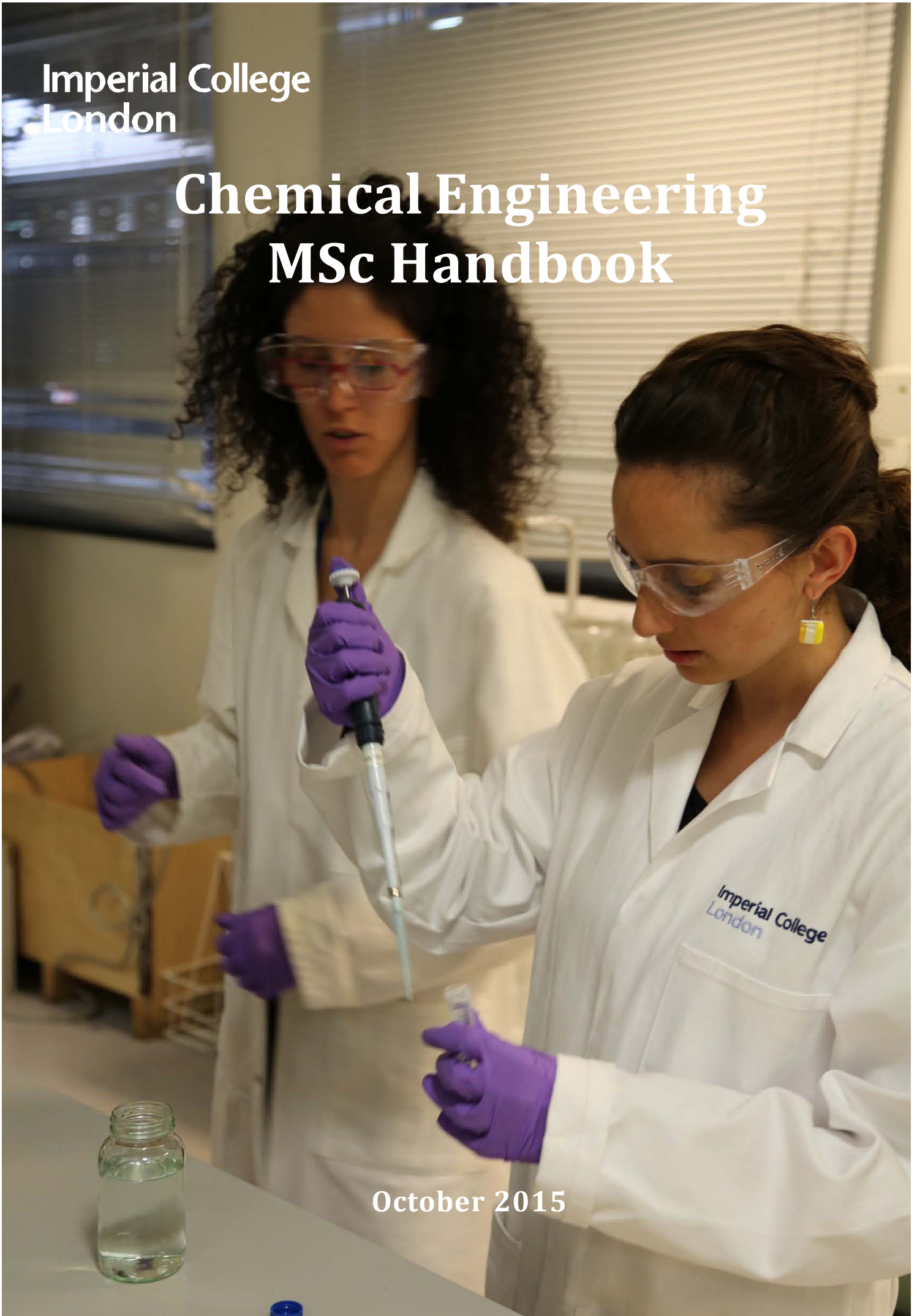
Chemical Engineering MSc Handbook

October 2015

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About this handbook

Welcome to the Department of Chemical Engineering! You have started a one year journey towards an MSc in Advanced Chemical Engineering, and we hope that you will have a productive and enjoyable time during your studies.

The aim of this handbook is to give you an overview of how the **MScs** in **Advanced Chemical Engineering, Advanced Chemical Engineering with Biotechnology, Advanced Chemical Engineering with Structured Product Engineering,** and **Advanced Chemical Engineering with Process Systems Engineering** work. It will also provide you with the essential information that you will need to know about other key aspects such as safety, careers guidance, and English Language support.

Head of Department's Welcome

It is my particular pleasure to welcome you to the Department of Chemical Engineering at Imperial College, the highest rated chemical engineering department for research - and one of the highest rated for teaching - in the country. The MSc course you are about to embark upon combines an exciting array of advanced courses in chemical and process engineering with a unique opportunity to be involved in state-of-the-art research. The departmental staff are committed to helping you learn and develop new skills during your stay here. I encourage you to make the most of your time as an MSc student by interacting with the staff in the department, other MSc students and also with the PhD students and postdoctoral assistants in your research group.

Professor Andrew Livingston
Head of Department

MSc Course Co-ordinator's Welcome

The Master of Science Courses in Advanced Chemical Engineering are designed so that every student taking it will:

- Acquire a knowledge and command of the fundamental concepts in their chosen area of work (advanced chemical engineering, biotechnology, process systems engineering, structured product engineering).
- Develop an awareness and understanding of important research issues and their industrial context.
- Familiarise themselves with state-of-the-art techniques and software.
- Develop their ability to study a body of literature critically and to conduct a research project leading to new results in the field.
- Develop communication skills through oral presentations and the production of a dissertation.
- Enhance their time-management skills through completion of the courses, associated coursework and research project.

The course instructors, as active researchers and practitioners in the Department of Chemical Engineering, provide an up-to-date view of relevant issues in the field. The working environment offers numerous opportunities for students to enhance their learning through exchanges with Ph.D. students, postdoctoral research assistants, industrial collaborators, and attendance at seminars. The MSc course provides a solid grounding for studies at the Ph.D. level, and for challenging work in a number of industries.

Professor Kang Li
MSc Course Co-ordinator

Key Dates for 2015/16

Saturday 3rd October 2015	• Start of Autumn term
Monday 5th October 2015	• **Departmental registration** – 09:30 – 12:00 (PG Office, ACEX 311). • **Provost's Welcome to Postgraduate Taught students** – 14:00 – 14:40*, Great Hall, Level 2 Sherfield Building. *Please ensure that you leave promptly. • **Postgraduate Welcome Talk** with Professor Andrew Livingston (Head of Department), Professor Amparo Galindo (Director of Postgraduate Studies) and Professor Paul Luckham (Postgraduate Tutor) – 14:45 – 15:30 (LT2, ACEX). • **MSc Welcome Talk** with Professor Kang Li (MSc Course Co-ordinator) – 15:30 – 15:45 (LT2, ACEX). Departmental Student Representative introduction at the end of Prof. Li's talk. • **Graduate School Induction** - 15:45 – 16:15 (LT2, ACEX).
Tuesday 6th October 2015	• **Research Project Presentations** – 09:30 – 13:30 (please check the <u>timetable that will be sent separately</u>, and refer to the research projects booklet for outlines of the projects that will be on offer for the current academic year), various academics – LT3, 333 Roderic Hill Building [RODH]). • Imperial College Union Freshers' Fair – 11:00 – 16:00 (South Kensington Campus). • **General Safety Induction** with Dr Severine Toson – 15:00 – 16:30 (LT1, ACEX). Please note that this session is <u>compulsory</u> for all new postgraduate students. • **Postgraduate Welcome Reception** hosted by the Postgraduate Tutor. A welcome reception for all new postgraduate students, with free food and drink – 16:30 – 19:00 (Design Rooms, 306–312 ACEX).
Wednesday 7th October 2015	• **Research Project Presentations** – 09:30 – 13:30 (please check the <u>timetable that will be sent separately</u>, and refer to the research projects booklet for outlines of the projects that will be on offer for the current academic year), various academics – LT3, 333 Roderic Hill Building [RODH]). • **Learning Technologies Induction** with Katie Stripe. This session is <u>compulsory</u> for all MSc students in the Department of Chemical Engineering. 15:00 – 15:30, LT3, 333 RODH.

	• Sports Trials – 09:00 – 18:00 (South Kensington Campus).
Thursday 8th October 2015	• **Module registration opens** – you will be sent information about this separately. <u>Please check this information and the timetable carefully before signing up to modules</u> – there is no need to rush!
Friday 9th October 2015	• **Library Induction** with Mano Jacob (Imperial College London Library). This session is <u>compulsory</u> **(Group 1 only)**. 11:00 – 12:00, LT3, 333 RODH. • **Library Induction** with Mano Jacob (Imperial College London Library). This session is <u>compulsory</u> **(Group 2 only).** 12:00 – 13:00, LT3, 333 RODH. • **Careers workshop** – **15:00 – 17:00 (LT3, RODH).** 'Careers Strategy for Success – **CVs & Applications**' with Mark Allen (Careers Advisory Service). This session is <u>compulsory</u> for all MSc students in the Department of Chemical Engineering.
Saturday 10th October 2015	• **Postgraduate Mingle** – 19:00 – 02:00 (Beit Quad).
Sunday 11th October 2015	• **Deadline (23:55) for submitting top 7 research project choices on Blackboard – instructions for this will be emailed to you in the first week of term.**
Monday 12th October 2015	• Autumn term teaching commences.
Thursday 15th October 2015	• **Information Retrieval workshop (i)** with Mano Jacob (Imperial College London Library) – 10:30-13:00 (Training Room 1 , Central Library). Students must attend one of the Information Retrieval workshops, and will be emailed to inform them as to which this will be after the start of term.
Thursday 22nd October 2015	• **Information Retrieval workshop (ii)** with Mano Jacob (Imperial College London Library) – 10:30-13:00 (Training Room 1 , Central Library). Students must attend one of the Information Retrieval workshops, and will be emailed to inform them as to which this will be after the start of term.
Friday 23rd October 2015	• **Deadline (23:55) for final module selection on DSS.**
Thursday 29th October 2015	• **Information Retrieval workshop (iii)** with Mano Jacob (Imperial College London Library) – 10:30-13:00 (Training Room 1 , Central

Wednesday 18th November 2015	• **Careers Workshop** – 14:00 – 16:00 (LT2, ACEX). **Interviews** with Mark Allen (Careers Advisory Service). This session is <u>compulsory</u> for all MSc students in the Department of Chemical Engineering.
Friday 18th December 2015	• Autumn term ends.
January 2016	• **Spring exams (Business School modules only).**
Saturday 9th January 2016	• Start of Spring term.
Wednesday 20th January 2016	• **Careers Workshop** – 14:00 – 16:00 (LT2, ACEX). **Assessment Centres** with Mark Allen (Careers Advisory Service). Sign up details will be circulated prior to the event.
Friday 12th February 2016	• **Deadline (16:00) for submission of Literature Review.**
March/ April 2016	• Summer exam timetable issued • Feedback on Literature Review.
Wednesday 23rd March 2016	• Spring term ends.
Saturday 23rd April 2016	• Start of Summer term • Research project should be well under way.
May – June 2016	• Summer exam season.
Friday 24th June 2016	• Summer term ends.
Mid-July 2016	• Provisional exam classifications released.
August – September 2016	• Resit (SQT) exam season.
Monday 12th September 2016	• **Poster presentations.**
16th September 2016	• **Deadline (16:00) for submission of research project thesis**. Course ends.

Safety training

One of the most important things is for everyone to work in a safe environment. Therefore, everyone in the Department must be appropriately trained before they do any work. Everything you need to know about training requirements, as well as a very comprehensive safety handbook, can be found on the Chemical Engineering Health and Safety website:

https://share.imperial.ac.uk/foe/ChemicalEngineering/ChemEng-Safety/SitePages/Home.aspx

The safety handbook includes all kinds of very useful information, for example how to report defects and what to do if you have an accident. It is compulsory for all members of the Department to read it and pass the safety handbook test within a month of their start date. You do not need to learn the handbook off by heart, but you should know it well enough to refer back to it, if needed. The test will help you focus on the essential information.

Moreover, please ensure that you attend the compulsory **'General Safety Induction'** talk with the Departmental Safety Officer, Dr Severine Toson, during Induction Week (see 'Key Dates' for details).

Module Selection and Assessment

Comprehensive guidance and instructions on module enrolment will be sent to you during the first week of term, along with detailed descriptions of the modules that will be offered.

The following modules will be on offer for **2015-16**:

General Modules (ACE)

Carbon Capture & Clean Fossil Fuels*	Nuclear Chemical Engineering	Particle Engineering
Environmental Engineering **(double module)****	Fluid Mechanics	Process Heat Transfer*
Reaction Engineering II **(double module)****	Introduction to Nuclear Energy (Mechanical Engineering)	Molecular Modelling of Fluids
Dynamical Systems in Chemical Engineering (**ACE and PSE only**)***	Strategy of Process Design*	

Biotechnology Modules

Biochemical Engineering	Transport Processes in Biological Systems
Membrane Science & Membrane Separation Processes	Pharmaceutical Process Development

Process Systems Engineering Modules

Advanced Process Optimisation I	Advanced Process Operations
Dynamic Behaviour of Process Systems	Dynamical Systems in Chemical Engineering (**ACE and PSE only**)***

Structured Product Engineering Modules

Colloid and Interface Science	Pharmaceutical Process Development
Membrane Science & Membrane Separation Processes	Product Characterisation

Business Modules (a maximum of two modules can be selected)*

Entrepreneurship (Monday/ Tuesday)*	Managing Innovation*
Strategic Management*	Project Management*
Finance and Financial Management (Tuesday/ Friday)*	

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*IMPORTANT: Please note that limitations to the number of students able to take Clean Fossil Fuels, Process Heat Transfer, Strategy of Process Design and all Business School modules do apply, and consequently these modules will be subject to a separate sign up procedure. We endeavor to offer as many students as possible the modules of their choice; however, we are constrained by various factors (such as limited space in lecture theatres and staff availability), so please do pay close attention to the regulations set out by the Department. Many thanks.

** Environmental Engineering and Reaction Engineering are double modules, and so count as 2 modules. You will therefore only need to select a further 3 single modules for the relevant term if you choose to take one of these, or 1 single module if you are taking both of these within the same term. Please check the timetable and these rules carefully when you are making your module selections, thank you.

*** Dynamical Systems in Chemical Engineering is only open to students taking the ACE or PSE specialisms. BIO and SPE students may not take this

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More information about **the course and the modules** offered, as well as **programme specifications,** can be found on our Departmental website:

www.imperial.ac.uk/chemicalengineering/teaching/postgraduate/msc

Taught Modules - Marking Criteria

Taught modules are assessed in line with the criteria detailed below:

%	Criteria
70 and above	**Distinction** – Excellent. The answer is a well presented exposition of the subject, demonstrating a command of the relevant concepts and facts, a high critical and/ or analytical ability, and, where appropriate, originality and evidence of outside reading.
60-69	**Merit** – Good. The answer shows a clear grasp of the relevant concepts and facts, gives an accurate account of the relevant taught material, and shows evidence of some outside reading or of critical or analytical ability.
55-59	**Pass** – Adequate. The answer shows a grasp of the basic concepts and facts, and gives a mainly accurate account of at least half of the relevant taught material. It does not go beyond this, however, or goes beyond that but is then marred by significant errors.
50-54	**Low Pass** – Poor. A pass as above, but the answer shows only a basic grasp of the fundamental concepts and facts, and is marred by major errors or brevity. However, by presenting accurately at least a third of the relevant taught material, the answer demonstrates just sufficient relevant knowledge to reach degree level.
49 and below	**Fail** – Unsatisfactory. The answer demonstrates a confused understanding of the question, shows only a weak grasp of the basic concepts and facts, and is marred by major errors or brevity. It presents less than a third of the relevant taught material, and therefore does not show sufficient relevant knowledge to reach degree level.

Project Selection

Shortly after the start of term, comprehensive guidance and instructions on research project selection will be circulated, along with a list of the research projects that are on offer for the current academic year. If you are taking the **MSc Advanced Chemical Engineering with Biotechnology, MSc Advanced Chemical Engineering with Structured Product Engineering** or **MSc Advanced Chemical Engineering with Process Systems Engineering**, you must choose a project which is within your specialisation area. If you are taking the **MSc Advanced Chemical Engineering**, you can choose from any of the projects that are on offer; however, you should be aware that if you choose a project from a specialisation, priority will be given to students studying that pathway.

During Induction Week, academic staff will be giving **presentations** on the projects that they will be offering (please see the 'Key Dates' section of this booklet and relevant emails for more information). Students are strongly encouraged to attend the presentations of **all** projects that they may be interested in, since this will give them the opportunity to find out more about what the projects will involve, and to ask questions. It will also allow you to familiarise yourself with potential supervisors and their research areas.

Don't be afraid to work on something new; there is a lot of exciting research going on in the Department, but it may be on topics that you have not studied before. Your supervisor and their research group will help you to understand the area! You can find information about the Department's research here: www.imperial.ac.uk/engineering/departments/chemicalengineering/research/

Please note that all 7 project selections must be submitted on Blackboard by the deadline of 23:55 on Sunday 11th of October. Students who do not meet this deadline will simply be allocated a project that is free after all other allocations have been made.

Project Assessment

There are three elements to the project assessment:

- **Literature Review and Project Plan** (max 6000 words) – 10%
- **Poster Presentations** – 10%
- **Final written thesis** – 80%

Electronic versions of the Literature Review and thesis will also need to be uploaded via Blackboard, so that we can run plagiarism checks using 'Turn-It-In' software.

Literature Review and Project Plan

The Literature Review will form one chapter of your final dissertation. It is worth **10%** of your research mark, which in itself is worth 45% of the overall mark for your degree.

A review of the literature relating to your project area defines and sets the framework for your research, and enables you to build a working knowledge of your field. It may reflect results of your preliminary research and will identify areas to be explored. It is important to clarify the relationship of previous research to the rationale of your project, even if you write it before data collection. This will enable you to direct your literature search and reading.

A literature review helps you to:

- Define and limit your study area to form a research question
- Increase your knowledge of the subject area and methodology
- Give background, context and perspective to your work and thesis
- Avoid reinventing the wheel (saves time, avoids the mistakes of others)
- Evaluate possible research methods
- Build on existing knowledge, to suggest further research
- Identify people working in your field

It shows the reader that you can:

- Organise information and relate it to the research question

- Compare and contrast authors' views noting areas of disagreement
- Criticise aspects of methodology
- Identify: seminal and exemplary work; gaps and areas of controversy
- Synthesise results into a summary of what is and is not known
- Formulate questions that need further research

You can find more guidance about literature reviews on the Graduate School website: www.imperial.ac.uk/graduateschool/currentstudents/helpsheets/reviewingthe literaturemasters

Along with the Literature Review you will need to submit a **plan** detailing how you intend to conduct your research. This is to demonstrate that you are aware of the steps that need to be completed as part of your project, and that you can work to the final deadline.

The **Graduate School** offer a fantastic course entitled **'Preparing and Writing a Literature Review'** as part of their MasterClass programme, and this provides excellent preparation for the literature review assessment. The course is designed to give students a grounding in the ways in which a literature review should be prepared and structured.

The MasterClass workshops are offered throughout the academic year, and are specifically tailored to MSc students. You can find further information and book via this page of the Graduate School website: www.imperial.ac.uk/study/pg/graduate-school/professional-skills/professional-skills-masters/literature-review/

Additionally, the Graduate School have produced a highly informative help sheet about literature reviews. You can find this here: www.imperial.ac.uk/study/pg/graduate-school/professional-skills/help-sheets/

Poster Presentations

At the end of your research, just before you submit your thesis, you will need to produce an A1 sized **poster** that presents your findings. You will be required to accompany this with a short, **five minute presentation** on your research to your supervisor and the examiner, and then answer **questions** for a further five minutes. The poster presentation is worth **10%** of your research mark, which in

itself is worth 45% of the overall mark for your degree. You will be sent further guidance about the requirements for your poster presentation nearer the time.

The **Graduate School** offer a fantastic course entitled **'Informational Poster Layout and Design'** as part of their MasterClass programme, and this provides excellent preparation for the poster presentation assessment. The course gives a brief introduction to academic posters, before turning to practical aspects of layout and design. After learning the basic principles and a number of easy to follow guidelines, students are then able to practice their newly acquired skills on a selection of academic posters.

As mentioned above, the MasterClass workshops are offered throughout the academic year, and are specifically tailored to MSc students. You can find further information and book via this page of the Graduate School website: www.imperial.ac.uk/study/pg/graduate-school/professional-skills/professional-skills-masters/informational-posters/

Additionally, the Graduate School have produced a highly informative help sheet about poster presentations. You can find this here: www.imperial.ac.uk/study/pg/graduate-school/professional-skills/help-sheets/

Thesis Preparation

At the very end of your course, you will submit your thesis. The thesis is worth **80%** of your research mark, which in itself is worth 45% of the overall mark for your degree.

Each student's thesis will take a different form; however, general requirements for the format and construction are as follows:

- The thesis should be produced in single side format and should be easy to read (use about 1.5 line spacing with a font size of, for example, 11 point for Arial).
- Pages must be numbered.
- All figures and tables should include a title. It may be beneficial to include a list of figures and tables included in the thesis at the beginning of the work.

- All symbols used (e.g in equations) must be defined in the thesis. As with figures and tables, it may be useful to include a comprehensive list of symbols and their significance at the beginning of the work, and perhaps a reference to the first equation where the symbol is adopted.
- A short abstract (maximum one page in length) should be included.
- A list of contents stating the chapters and sections must be included.
- An introduction must, at least in part, explain in clear and straightforward terms the contents of the thesis.
- The main body of the report should contain a review of precedents, where the project is put into the context of previous work.
- The conclusion must draw together the findings of the study, and assert these clear and succinctly.
- A list of references must be included (please see the next section, 'Referencing and Plagiarism', for further guidance on this).

As a general guide, reports should be between 50 and 80 pages in length, excluding appendices. Students are advised to discuss the length of the report, and the construction of it, with their supervisors at an early stage.

The **Graduate School** offer a great course entitled **'Academic Writing'** as part of their MasterClass programme, and this provides excellent preparation for the writing your thesis. The two hour workshop is tailored to the particular requirements of the Master's thesis, and covers the four cornerstones of high-quality academic writing: planning, structure, style and the writing process itself.

As mentioned above, the MasterClass workshops are offered throughout the academic year, and are specifically tailored to MSc students. You can find further information and book via this page of the Graduate School website:www.imperial.ac.uk/study/pg/graduate-school/professional-skills/professional-skills-masters/masterclass-academic-writing/

Plagiarism

College and Departmental regulations on **plagiarism** are very strict.

The **Graduate School**, in conjunction with the Library, has developed a **compulsory online course for postgraduate students entitled Plagiarism Awareness**. The course is designed to provide students with guidance and information about proper citation and attribution in writing. After completing the course, you should be able to explain what plagiarism is, be familiar with the concept of academic integrity, be able to explain how to avoid plagiarism, and understand what the College's policy concerning plagiarism is. Please note that this course must be completed by the end of your MSc degree (we recommend that it is taken as early as possible in the academic year). You can access the course here:
www.imperial.ac.uk/study/pg/graduate-school/professional-skills/plagiarism-awareness-course/

Additionally, the **Library** runs **compulsory 'Information Retrieval' workshops** at the start of the academic year. These are designed to instruct MSc students in correct referencing techniques, and help them to recognise forms of plagiarism, and thereby avoid them in their work. The dates of these are listed in the 'Key Dates' section of this booklet, so please do check this closely.

For reference, plagiarism is defined by Imperial College as follows:

*The presentation of another person's words, ideas, judgement, figures, diagrams, software or work as though they are your own - is a form of cheating and is not permitted under any circumstances. The use of the work of another student, past or present, with or without the student's consent constitutes plagiarism. Full and proper references in the **'Harvard Style'** must be given to all material other than your own including published or unpublished work of others from the internet, or any other source. Failure to do so is a College offence and will result in a reduced mark (or, in serious cases, zero marks) being awarded for your coursework or exam. All cases of plagiarism will be reported to the College; major offences can lead to additional disciplinary action being taken, including exclusion.*

By submitting your coursework electronically via Blackboard, which uses 'TurnItIn' software to scan submissions, you are implicitly confirming that you have not committed plagiarism, and you are certifying that the work is original. This is true even if you are submitting an item of coursework on behalf of a group of students. Please note that any work with a TurnItIn similarity index of 30% or higher (excluding references) will be **investigated by the MSc Course Co-ordinator, and offenders will be dealt with accordingly**.

For more information about plagiarism and College regulations, please see this page of the Library website:

www.imperial.ac.uk/library/subjectsandsupport/plagiarism

Referencing

All students must use the **'Harvard Style'** of **referencing**.

Under this system, a brief citation to a source is given in parentheses within the text of an article, and full citations are collected in alphabetical order under a "References" heading at the end. The citation in the text is placed in parentheses after the sentence or part thereof, followed by the year of publication, as in (Simpson 2002), and a page number where appropriate (Simpson 2002, p. 88). Then in a 'References' section, a full citation is given, for example:

Simpson, John. (2002). *Dealing with References.* London: Imperial College Publishing

More information and help can be found here:

www.imperial.ac.uk/Library/pdf/citing_and_referencing_guide.pdf

Thesis Submission

Students must submit **two soft-bound copies** of their thesis (this can be either fabric covered or a clear cover with spiral-binding), and an **electronic** version via Blackboard. The soft-bound copies must be submitted to the MSc Administrator in the Postgraduate Office (ACEX 311), and the electronic version must be uploaded to Blackboard no later than **16:00 on the deadline day** (please see the 'Key Dates' section at the front of this booklet for the deadline date). We recommend using the College Service Point for printing (more information here: www.imperial.ac.uk/purchasing/recommendedsuppliers/print).

A template for the title page of your thesis can be found on the following page.

Full Title of Research Project

Full Name of Student

Date and Year

Supervised by: Title and Name of Supervisor

A thesis presented to Imperial College London in partial fulfilment of the requirements for the degree of *Master of Science in COURSE TITLE* and for the *Diploma of Imperial College*

Department of Chemical Engineering
Imperial College London

Research Project - Marking Criteria

Research project work is assessed in line with the criteria detailed below:

%	Criteria
70 and above	**Distinction –** The student has shown real flair. The report is an extremely well presented exposition of the problem tackled, the means used to attack it and the results achieved. It will include demonstration of a command of the field, as well as originality and critical and/or analytical ability. The report shows evidence of substantial background research of the literature and a thorough understanding of prior work.
60-69	**Merit –** The student has shown ability to do good independent work. The report is a well presented summary of the problem tackled, the means used to attack it and the results achieved. It will include evidence of mastery of the field as well as some originality and critical and/or analytical ability. The report shows evidence of a good background research of the literature.
55-59	**Pass –** The student has tackled the problem carefully and logically and produced sound conclusions. There is evidence of a clear grasp of the relevant concepts and of a sound understanding of the literature.
50-54	**Pass with minor corrections –** A pass as above, but with minor errors, which should be corrected within one month, before the thesis can be considered a pass.
49 and below	**Fail** - Unsatisfactory answer: shows only a weak grasp of the basic concepts and facts, and is marred by major errors or brevity.

Awards and Honours

In order to be awarded the degree of MSc, a candidate must have achieved a **Pass** (the pass mark being 50%) in **both** the taught and research components of the course. If you fail one of the components, you fail the MSc.

In order to be awarded the degree of **MSc with Merit**, a candidate must have achieved a merit (60% - 69%) in **both** the taught and research components of the course.

Similarly, in order to be awarded the degree of **MSc with Distinction**, a candidate must have achieved a distinction (70% or better) in **both** the taught and research components of the course.

If for example, you achieve Merit level in your exams and Distinction level in your research, then you would be awarded a Merit overall.

The only exception to this would be as follows:

If your average for one of your components (i.e taught/ research) was lower than the average for the other component, yet was within a 2.5% boundary of the higher classification, then the Exam Board may consider you for promotion to the higher classification overall (i.e if your higher average was also at the top end of the scale), or if there have been exceptional circumstances. This is entirely at their discretion, and they consider each decision on a case by case basis at the final board meeting in November (at which degrees are conferred). So, for example, if you were to achieve a high Merit in your research but a Pass in your exams, and if your Pass mark was >57.5%, then you may be considered for a promotion to an overall Merit.

The below is taken directly from the College's exam regulations document (available via the College Registry's webpages):

Candidates should only be considered for promotion to pass, merit or distinction if their aggregate mark is within 2.5% of the relevant borderline. Nevertheless, candidates whom the Board deems to have exceptional circumstances may be considered for promotion even if their aggregate mark is more than 2.5% from the borderline.

To discuss this further at the appropriate point in time (i.e after provisional classifications have been released), students are advised to contact either the MSc Course Co-ordinator, Professor Kang Li, or the Postgraduate Tutor, Professor Paul Luckham.

It is important to remember that the Department are <u>not</u> permitted to disclose any exam marks to students – all marks will be released to students by the College Registry after the Exam Board in November. Prior to the final Board, all marks and classifications remain <u>provisio</u>nal.

Re-sits

Students who fail part of the taught component and/or the dissertation may be allowed to re-enter the following year, at the discretion of the examiners. Following the preliminary exam board in July, students who have to re-sit one or two modules may be given the option to re-sit these modules in August/ September of the same year. Students with a large number of re-sits (usually three or above) will have to return to sit the exams the following year, during the normal summer exam period. Re-sit marks will be capped at the pass mark of 50%.

Students wishing to gain advice on this matter are advised to contact either the MSc Course Co-ordinator, Professor Kang Li, or the Postgraduate Tutor, Professor Paul Luckham. Additionally, it is well worth discussing any queries directly relating to a particular module with the academic module leader.

Research Groups

When you undertake your research project you may be interested in participating in the meetings held by your supervisor's research group. This can be an invaluable way of finding out more about the current research that is being carried out in your area of study and within the Department. It is also an excellent opportunity for you to practice your presentation skills, and engage in dynamic discussion with academics, Post-Doctoral Researchers, and PhD students. For more information please speak to your supervisor.

Research in the Department is structured as shown in the figure below:
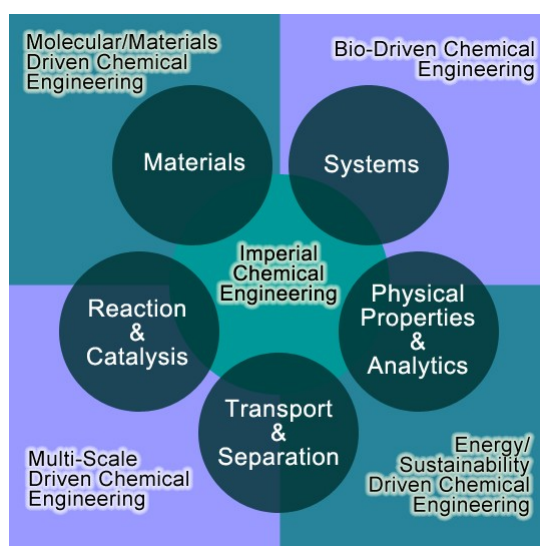
For further details please see this page of the Department website: www.imperial.ac.uk/chemicalengineering/research.

English Language

The Centre for Academic English aims to help international students participate effectively and confidently in their studies. The Centre offers workshops, consultations and other resources to develop your academic language and literacy, and to help you successfully complete your studies. Additionally, they offer classes focused on everyday English for different social contexts to enhance your communication skills and employability.

The support provided is free, and dedicated to international MSc students in engineering. A list of the workshops on offer, and information about how to sign up for these, is available here: www.imperial.ac.uk/academic-english/msc. You can find the Centre for Academic English on Level 3 of the Sherfield Building, and you can contact them on: english@imperial.ac.uk or +44 (0)20 7594 8748.

Careers Guidance

The Department encourages you to take early advantage of the careers education, information and guidance which is available from the College Careers Advisory Service (Level 5 Sherfield Building). Here you can book careers appointments, quick query sessions, employer-led skills workshops, mock interviews (with a Careers Adviser), mock interview sessions (with a graduate employer), practice aptitude test sessions and complete personality questionnaires. Please visit www.imperial.ac.uk/careers/ for more information on the full range of services available. It is recommended that you subscribe to "JobsLive" for job vacancies, via the College Careers Advisory Service webpage: www.imperial.ac.uk/careers/resources/jobslive.

For specific advice tailored to MSc students, also visit: www.imperial.ac.uk/careers/pg/taught.

The lobby outside the lifts on Level 3 of the ACEX building also has noticeboards displaying opportunities, as well as brochure shelves.

I hope these resources and advice enable you to capitalise further on your course of study to the benefit of your future career.

Dr. Andreas Kogelbauer
Departmental Careers Adviser (ACEX 206, Tel 020 7594 5572, a.kogelbauer@imperial.ac.uk)

Careers Workshops

The Department is running a number of **workshops** with the Careers Advisory Service (CAS) which are specifically tailored to Chemical Engineering Masters students. The first of these – **'Careers Strategy for Success – CVs & Applications'** – is **compulsory**, and will take place during induction week (please refer to the 'Key Dates' section of this booklet for details). The second workshop, which is designed to help students enhance their interview technique, is also compulsory, and will take place during the Autumn term (the MSc Administrator will email you with further details nearer the time). Two further workshops, one of which will tackle Assessment Centres, and the other of which will assist students in developing their presentation skills, will be on offer early in the

Spring term. As with the interviews workshop, you will be sent further information about this nearer the time.

More broadly, careers workshops are available throughout the academic year to help support you in a variety of areas, including CV guidance, interview techniques, job hunting and networking. These are offered by the Careers Advisory Service, and are often run together with top employers from many different industries (you can find more information and book a place via the CAS website, Jobs Live: www.imperial.ac.uk/careers/resources/jobslive).

The Careers Advisory Service also offers **one-to-one appointments** during which you can seek guidance from a specialist Careers Advisor on how to secure a job in your area of interest after you finish your studies. These are offered both in the Department and in the CAS's centre (this is located on Level 5 of the Sherfield Building). These appointments are highly recommended, and can be booked in the same way as the CAS workshops. For more information, please contact the Careers Advisory Service directly: careers@imperial.ac.uk or +44 (0)20 7594

8024.

Additionally, students are strongly encouraged to discuss their career plans with their research project supervisors, who will act as a Personal Tutor throughout the course.

Chemical Engineering Society

As well as being one of Imperial's most active departmental societies, with a number of popular social events held throughout the year, the Chemical Engineering Society places a strong emphasis on the career development of its students. Regular presentations are organised with top employers from a range of different industries (oil and gas, banking and finance, and process engineering, for example). This gives you the chance to find out a little more about what they do, and to network with industry representatives. The free lunch provided afterwards is also always a help to a student budget!

You can find more information and sign up to the Chemical Engineering Society (ChemEngSoc) at the Imperial College Union Freshers' Fair, and via the Union website: www.imperialcollegeunion.org/activities/a-to-z/602.

The Graduate School

The **Graduate School** is for all Masters and Doctoral students at Imperial College, and you automatically become a member when you register for a Postgraduate level qualification at Imperial. You will attend a **compulsory** induction into the Graduate School during Induction Week (please refer to the '**Key Dates**' section of this booklet for more information).

The Graduate School has several roles: to ensure the quality of provision of postgraduate education, to provide a forum for students from across the College to meet at lectures and social events, and to provide a professional development skills programme to help you develop those skills that will make you a more productive and successful researcher and also prepare you for your career, whether in or out of academia. You can read more about this here: www.imperial.ac.uk/graduateschool.

As mentioned above, the Graduate School offer a range of highly recommended **professional skills training courses** which are specifically tailored to Masters level students. These cover many areas of postgraduate study, including: academic writing, presentation and research skills, stress and time management, and interview techniques. Students are encouraged to take advantage of these fantastic workshops during their time at the College. More details, including how to book onto these MasterClasses, is available here:

www.imperial.ac.uk/study/pg/graduate-school/professional-skills/professional-skills-masters/. New courses for 2015-16 are listed below (additional courses are listed on the website).

The Graduate School **help sheets** on poster presentations and literature review preparation can be found here:

www.imperial.ac.uk/study/pg/graduate-school/professional-skills/help-sheets/

New Graduate School Course titles 2015-16

MASTERS
Mastering Presentations
Mastering Presentations 1: Presentation Skills
Mastering Presentations 2: Informational Posters – Layout and Design
Mastering Presentations 3: Public Speaking
Workshops Academic Effectiveness
Writing for Masters 1: Note Taking and Efficient Reading
Writing for Masters 2: Note Taking and Examination Skills
Writing for Masters 3: Literature Review
Writing for Masters 4: Dissertation and thesis
Writing for Masters 5: Advanced Dissertation and thesis
Writing for Masters 6: PhD Proposal (MRES)
Workshops Research Effectiveness
Research Effectiveness 1:Time Management
Research Effectiveness 2: Research Skills and Reference Management
Research Effectiveness 3:Creative Thinking
Research Effectiveness 4: Research Ethics
Research Effectiveness 5: Experimental Design* (MRES)
Research Effectiveness 6: Critical Thinking in Critiquing Research Articles (MRES)
Understanding yourself and others
Understanding yourself and others 1:Interpersonal Skills
Understanding yourself and others 2:Myers Briggs
Understanding yourself and others 3:Stress Management
Understanding yourself and others 4:Negotiation Skills
Understanding yourself and others 5:Leadership Skills
Career Development
Moving Forward 1: Job Search with a Difference
Moving Forward 2: Developing your Career Through Networking
Moving Forward 3: Interview Skills
Moving Forward 4: Stepping Up: Master's to PhD
Moving Forward 5: Managing your Personal and Professional Image
Moving Forward 6: Enterprise and Entrepreneurship*

Courses highlighted in yellow are not yet on offer to students, but will be coming soon

Chemical Engineering Distinguished Seminar Series

Every year, the Department invites a number of eminent speakers from all over the world to give seminars in the Department. The Distinguished Seminar Series starts with the Professor Roger W H Sargent Lecture, which normally takes place in early December, and ends with the opening lecture to the annual Chemical Engineering PhD Symposium, which normally takes place in late June or early July.

More information can be found here: www.imperial.ac.uk/chemicalengineering/news/seminarseries

Useful things around the College

Support staff and services

There are several support services available, both within and outside the Department. If you encounter any problems, you may want to ask the Postgraduate Tutor for help or advice (p.luckham01@imperial.ac.uk). There is also a very capable team of student counsellors who can help in difficult situations. You could also speak to one of the College chaplains who are always happy to lend a sympathetic ear.

The Student Union offers an advisory service, which can help with all kinds of problems, and there is also a team of College Tutors, in case you encounter any problems which cannot be resolved easily within the Department.

The College Health Centre can help with any medical issues and if you have a disability, the Disability Advisory Service are there to help.

Contacts:

The Health Centre: www.imperialcollegehealthcentre.co.uk/

The Student Counselling Service: www.imperial.ac.uk/counselling

The College Disability Advisory Service: www.imperial.ac.uk/disabilityadvisoryservice

The College Multi-faith Chaplaincy: www.imperial.ac.uk/chaplaincy

The Students' Union Advice Centre: www.imperialcollegeunion.org/welfare-and-advice

Things to do in your spare time

It is sometimes a good idea to get away from your studies and have some breathing space, so that you can tackle your work with a fresh mind. The Student Union has numerous societies to cover all possible and impossible areas of interest. As an MSc student you are entitled to join any student clubs and societies.

There is also a wide range of arts and musical activities within the College, including several student orchestras and choirs, a music centre with practice rooms, an arts gallery and a free concert series.

For more information please see the Imperial College London Students' Union website: www.imperialcollegeunion.org/your-union.