02 October 2017

Dear MSc Control Systems Students

Welcome to the Control & Power Group’s MSc Programme on Control Systems

The information presented with this letter in the Control MSc Welcome Pack should give you a better understanding of our course and environment. We shall be distributing more information by email as the course progresses.

Apart from the lectures, the main mode of communication between staff and students is email. It is very important that you activate your email accounts immediately and check your email at least once a day – otherwise you will, sooner or later, miss something important. It might be a lecture, a piece of coursework that has to be done or (at the other extreme) a party.

If you need help with an aspect of a lecture or problem sheet and you do not speak to the lecturer concerned at the end of the lecture, please email your question to the lecturer who will then either provide help by email or arrange to meet you to discuss the problem. If you have academic problems that cannot be handled in this way, or have problems of a personal nature, then please contact your personal tutor first. The list of personal tutors will be emailed to you a few days after the first day of term. If more help is needed, Section 9 should be useful. Please feel free to contact the MSc Course Director at any time.

For all administrative queries, please contact Michelle Hennessy-Hammond (Room 1110, E&EE Building, m.hammond@imperial.ac.uk).

We hope you will enjoy the ‘C & P experience’ and being a member of the postgraduate community in the Department and College; and that you will be very successful in your studies, exams and projects.

David Angeli
Control MSc Programme Director
Room 1111, E&EE Building
d.angeli@imperial.ac.uk
The MSc Control Systems Programme

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1 The MSc Control Systems Programme

This Handbook is designed to provide you with most of the information that you need to know about the Control Systems MSc Programme and the assessment process.

Important information about the overall MSc Programme is contained in the [A – Z for current students](#).

2 Provisional Schedule for the Academic Year

Term dates

<table>
<thead>
<tr>
<th>Term Dates</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autumn Term</td>
<td>30 September 2017 – 15 December 2017</td>
</tr>
<tr>
<td>Christmas Closure</td>
<td>23 December 2017 – 01 January 2018</td>
</tr>
<tr>
<td>Spring Term</td>
<td>06 January 2018 – 23 March 2018</td>
</tr>
<tr>
<td>Easter Closure</td>
<td>29 March 2018 – 03 April 2018</td>
</tr>
<tr>
<td>Summer Term</td>
<td>28 April 2018 – 28 September 2018 (last day of the MSc course)</td>
</tr>
</tbody>
</table>

Register the 8 or 9 modules in which you have chosen to be examined. Students taking Autumn term modules examined in December must be confirmed by end of week 3 of Autumn Term ([20th October 17](#)). All Autumn and all Spring Term modules must be confirmed by [1st February 2018](#). Registration should be made via the [EEE Department options registration site](#).

Completion of the mandatory Masters Online Plagiarism Awareness Course: 31 October 2017

Examinations: w/c 04 December 2017 and 01 May 2018 – 25 May 2018

Main work on Individual Research Project: 26 May 2018 – 07 September 2018 with the following submission deadlines:

- Initial Project Report: 16 March 2018 at 4:00 pm
- Electronic version of Poster: 31 August 2018 at 4:00 pm
- Electronic version of Final Project Report: 07 September 2018 at 4:00 pm
- Hard-bound version x 2 of Final Project Report: 07 September 2018 at 4:00 pm
- Poster Presentation: 10 September 2018 from 2:00 pm
- Last official day of the MSc course 2017/2018: 28 September 2018
Eric Yeatman, Head of Department
EEE Room 610

Andrew Holmes, Director of Postgraduate Studies
EEE Room 701
Andrew has overall administrative responsibility for the Department's postgraduate affairs including monitoring the progress of every postgraduate student towards MPhil/PhD transfer and submission. He is responsible for ensuring that all College regulations are applied appropriately in the Department.

Imad Jaimoukha, Postgraduate Tutor
EEE Room 617
i.jaimoukha@imperial.ac.uk
Imad is responsible for the welfare and training of research students. Every new student will be invited to meet with the Postgraduate Tutor in his or her first Term. Imad is available to discuss welfare or postgraduate affairs on Mondays between 1.00 pm and 2.00 pm. If you need to meet with Imad to discuss any difficulties with your studies or if you have personal circumstances which are hindering your progress e-mail him to arrange an appointment.

Calum MacLeod, Postgraduate Manager
EEE Room 607
c.acleod@imperial.ac.uk
Calum is always available to give advice on postgraduate matters and provide the required forms for Transfer, Exam Entry, Interruption of Studies etc.
4  MSc Control Systems Administration

David Angeli, MSc Control Systems Course Director
EEE Room 1111
d.angeli@imperial.ac.uk

David is glad to give advice on all matters relating to the Control Systems MSc course. If you wish to discuss an issue with him, please email him about it, preferably with a description of the issue; he will then either provide an emailed resolution or arrange a time to meet to discuss it.

Michelle Hennessy-Hammond
MSc Control Systems Administrator
EEE Room 1110
m.hammond@imperial.ac.uk

Michelle is available to give advice on all general MSc Control System matters and administration.

5  Attendance Monitoring

As part of our on-going programme to ensure the wellbeing of our students, we have been asked by the Registry to improve the attendance monitoring of all of our MSc students. To enable us to do this, an attendance scanner has been configured and installed in the MSc Study Room on level 4. It is to the left of the entrance door as you walk in, on the inside of the room (not the scanner on the outside of the door which you use to enter the room).

So from the beginning of the Autumn Term onwards, you must tap your ID card onto the scanner to register your attendance. You must ensure that you scan at least twice a week, on different days.

The card reader has been programmed to bleep 3 times to warn students if their card
has not been recorded properly. If this happens to your card, please don't ignore it. You should go and see Danny Harvey in Room 113 (level 1, EEE) so that he can enter your details manually into the monitoring system.

We will be able to see the number of scans per student and we will contact students who do not attend regularly to ensure that everything is OK.

### 6 Reporting Absences from College

Please refer to the [A – Z for current students](http://www.imperial.ac.uk/electrical-engineering/study/current-students-course-handbook/attendance-and-absence/)

Please note that the MSc in Control Systems course is a full-time 12 month course. The only days you are not expected to attend are official College closure dates (Easter, Christmas and Bank Holiday closure dates). If it is necessary for you to take time off during the course, the period of absence must be approved by the Course Director (Dr David Angeli d.angeli@imperial.ac.uk) and your project supervisor, in writing, prior to you making travel arrangements.

You should produce a medical certificate after 7 days if absence is due to illness.

### 7 Assessment

**Modules**

A module refers to a lecture course and associated activity.

You need to choose 8 or 9 modules (i.e. subjects) on which to be examined from the available examinable options.

To help you make informed choices we recommend that you review the module information provided on the following web page which lists the 2017/18 curriculum.


Further information including module course notes (maybe some from previous years) and Panopto recordings are also available on Blackboard. You will need to enrol on Blackboard to view this information.
Register your examination options at:

http://www.imperial.ac.uk/electrical-engineering/internal/current-students-course-handbook/options-registration/

If they wish to enrol on courses in the Department of Computing you will also need to register on the DoC options registration website as an external student.

https://cate.doc.ic.ac.uk/.

NB all options whether assessed by exam or coursework in any department should be confirmed on the EEE options registration site. The only constraint on your choice is that at least 4 modules chosen for examination must be selected from the 7 modules labelled as CORE modules. You cannot change your choice after the registration deadline. The pass/fail decision and degree classification are based only on the best 8 module marks among all possible choices that include at least 4 core modules. In other words, if the 9 modules selected exactly include 4 core modules only, then the mark discarded will be the lowest of the non-core modules being taken. The 8 modules that are selected according to this rule are called the **Counted Examinations**. The overall mark for the 8 individual modules that are counted is called the **Examination Aggregate Mark (%)** and is the equally-weighted average of all 8 exam results.
Laboratory work
The assessed laboratory work involves experimental work, and associated theory, provided by Professor Astolfi. The overall mark for this component of assessment is called the **Laboratory Aggregate Mark (%)** which is a weighted sum of the marks for the various items of laboratory work that you are asked to do. The amount of work involved will be approximately the equivalent of two examinable courses (i.e. two modules).

Individual research project
A list of projects proposed by staff will be published towards the end of the Autumn term. Project preferences will be required by the start of the third week of the Spring Term, delayed until then to allow students to acquire some understanding of modules given in the Spring Term before deciding to choose a project based on those modules. In addition, students might propose a project themselves or carry out a project as an intern with a company or at other universities provided the MSc Programme Director agrees that the Project is suitable. The project will be assessed based on the performance on the Project, the Project Report and a Poster Presentation in the last week of the academic year. The **Project Aggregate Mark** is a weighted sum of these. More detail on Projects is contained in Section 11.

8 Award of the MSc

You will be awarded the highest grade of MSc for which your marks satisfy the following conditions.

**MSc if**
1. each of your 8 counted examination marks ≥ 40%;
2. laboratory aggregate mark ≥ 50%;
3. project aggregate mark and examination aggregate mark ≥ 50%.

**MSc with Merit if:**
1. each of your 8 counted examinations marks ≥ 40%;
2. laboratory aggregate mark ≥ 50%;
3. project aggregate mark and examination aggregate mark ≥ 60%.

**MSc with Distinction if:**
1. each of your 8 counted examination marks ≥ 40%;
2. laboratory aggregate mark ≥ 50%;
3. project aggregate mark and examination aggregate mark ≥ 70%.
Overview
The lecture programme provides a broad coverage of material on control. The modules are listed below. We encourage students to attend lectures from each of the seven subject groups into which they are divided in that Section. You need to choose 8 or 9 modules on which to be examined, subject only to the condition that at least 4 of them are selected from the 7 CORE modules (specified in the second column of the list at the end of this section). Most lectures are held in the EEE Building. In addition to the lectures for modules, there is a programme of seminars by outside speakers, which we also encourage you to attend although many are aimed at researchers. These are generally held in the Seminar Room (level 11 EEE Building) or in the Centre for Process Systems Engineering (Roderic Hill Building, top level). The seminar list will be available on the Control and Power Group web-pages or on

http://talks.ee.ic.ac.uk/
<table>
<thead>
<tr>
<th>Module Code</th>
<th>Module Title</th>
<th>Lecturer</th>
<th>Term</th>
<th>Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE9-CS1-1</td>
<td>Control engineering</td>
<td>Astolfi</td>
<td>Autumn</td>
<td>r</td>
</tr>
<tr>
<td>EE9-CS1-2</td>
<td>Design of linear multivariable control systems</td>
<td>Jaimoukha</td>
<td>Spring</td>
<td>ec</td>
</tr>
<tr>
<td>EE9-CS1-3</td>
<td>Discrete-time systems and computer control</td>
<td>Scarciotti</td>
<td>Spring</td>
<td>ec</td>
</tr>
<tr>
<td>EE9-CS2-1</td>
<td>Stability and control of nonlinear systems</td>
<td>Angeli</td>
<td>Autumn</td>
<td>ec</td>
</tr>
<tr>
<td>EE9-CS2-2</td>
<td>Discrete-event systems</td>
<td>Angeli</td>
<td>Spring</td>
<td>e</td>
</tr>
<tr>
<td>EE9-CS3-1</td>
<td>Mathematics for signals and systems</td>
<td>Dragotti</td>
<td>Autumn</td>
<td>e</td>
</tr>
<tr>
<td>EE9-CS3-2</td>
<td>Optimization</td>
<td>Astolfi</td>
<td>Autumn</td>
<td>ec</td>
</tr>
<tr>
<td>EE9-CS4-1</td>
<td>Predictive control</td>
<td>Kerrigan</td>
<td>Spring</td>
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</tr>
<tr>
<td>EE9-CS5-1</td>
<td>Probability and stochastic processes</td>
<td>Ling</td>
<td>Autumn</td>
<td>ec</td>
</tr>
<tr>
<td>EE9-CS5-2</td>
<td>Systems identification</td>
<td>Parisini</td>
<td>Autumn</td>
<td>ec</td>
</tr>
<tr>
<td>EE9-CS5-3</td>
<td>Estimation and fault detection</td>
<td>Parisini</td>
<td>Spring</td>
<td>ec</td>
</tr>
<tr>
<td>EE9-CS6-1</td>
<td>Modelling and control of multi-body mechanical systems</td>
<td>Evangelou</td>
<td>Autumn</td>
<td>ec</td>
</tr>
<tr>
<td>EE9-CS6-2</td>
<td>Power system dynamics, stability and control</td>
<td>Pal</td>
<td>Spring</td>
<td>e</td>
</tr>
<tr>
<td>Module Code</td>
<td>Module Title</td>
<td>Instructor(s)</td>
<td>Semester</td>
<td>Format</td>
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</tr>
<tr>
<td>EE9-CS7-1</td>
<td>Topics in control systems</td>
<td>Angeli Boem de Paola Jaimoukha Teng</td>
<td>Spring</td>
<td>c</td>
</tr>
<tr>
<td>EE9-CS7-2</td>
<td>Game theory</td>
<td>Vinter</td>
<td>Spring</td>
<td>e</td>
</tr>
<tr>
<td>EE9-CS7-21</td>
<td>Wavelets and applications</td>
<td>Dragotti</td>
<td>Autumn</td>
<td>ec</td>
</tr>
<tr>
<td>EE9-CS7-22</td>
<td>Traffic theory and queuing systems</td>
<td>Barria</td>
<td>Spring</td>
<td>e</td>
</tr>
<tr>
<td>EE9-CS7-23</td>
<td>Coding theory</td>
<td>Dai</td>
<td>Autumn</td>
<td>e</td>
</tr>
<tr>
<td>EE9-CS7-24</td>
<td>Intelligent data and probabilistic inference</td>
<td>Gillies &amp; Deisenroth</td>
<td>Spring</td>
<td>ec</td>
</tr>
<tr>
<td>EE9-CS7-25</td>
<td>Distributed computation and networks: a performance perspective</td>
<td>Gelenbe</td>
<td>Spring</td>
<td>c</td>
</tr>
<tr>
<td>EE9-CS7-26</td>
<td>Information theory</td>
<td>Ling</td>
<td>Spring</td>
<td>e</td>
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<tr>
<td>EE9-CS7-27</td>
<td>Real-time digital signal processing</td>
<td>Mitcheson</td>
<td>Spring</td>
<td>c</td>
</tr>
<tr>
<td>EE9-CS7-28</td>
<td>Machine learning for computer vision</td>
<td>Kim &amp; Mikolajczyk</td>
<td>Spring</td>
<td>c</td>
</tr>
<tr>
<td>EE9-CS7-29</td>
<td>Pattern recognition</td>
<td>Kim &amp; Mikolajczyk</td>
<td>Autumn</td>
<td>c</td>
</tr>
</tbody>
</table>

Only ONE of these modules listed below can be part of your 8 (9) examination modules (it is not compulsory to choose one of these modules)

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Module Title</th>
<th>Instructor(s)</th>
<th>Semester</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE9-CS7-21</td>
<td>Wavelets and applications</td>
<td>Dragotti</td>
<td>Autumn</td>
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</tr>
<tr>
<td>EE9-CS7-22</td>
<td>Traffic theory and queuing systems</td>
<td>Barria</td>
<td>Spring</td>
<td>e</td>
</tr>
<tr>
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<td>Autumn</td>
<td>c</td>
</tr>
</tbody>
</table>

e = closed book examination only  
c = coursework only  
ec = closed book examination with coursework  
r = for revision only, not examinable
Important notes on the modules (including information about coursework)

It would be wise to sample the first few lectures for each module at the start of each term in order to help you choose which subjects you will take for examination purposes. You need to choose 8 or 9 of the modules, with at least 4 being core modules, finalising your choices by the end of the Spring Term. Once you have registered them, you cannot change them. Of course, you need to do the coursework (if any) if you wish to be examined on a module.

You may attend the lectures for any module without choosing to be examined on it.

The syllabus can be found in the
A – Z for current students

http://intranet.ee.ic.ac.uk/electricalengineering/eecourses_t4/crslistpg.asp?c=C1

Click on the relevant module title for further information.

Blackboard self-enrolment can be found in the
A – Z for current students


You will need to enter your College username and password.

A reasonable familiarity with linear algebra is required for most of the courses. Dr Jaimoukha provides a revision handout which is supplied in the Welcome Pack. An online version can also be found here.

Topics in control systems covers at least 5 advanced topics of current interest in control systems and is examined by coursework alone on any 3 self-selected topics from the 5 topics.

Modules EE9-CS7-21 to EE9-CS7-29 enables students to be examined on one control-related course chosen from the list that is given above.

Please note that, for one reason or another, there may be time-tabling clashes which result in you not being able to attend all of the lectures you want. If this is very
disappointing for you, please contact the MSc Programme Director who will try to resolve the problem for you.

Regarding EE9-CS7-24 (Intelligent data and probabilistic inference), a separate computer account will be set up for you in the Department of Computing which will allow you to use their coursework submission system (CATE). The account information sheets can be obtained from the CSG Helpdesk, Room 220, Huxley Building. Please ask the lecturer about this.

**Coursework**
The lecturer sets a date by which time the coursework has to be submitted. Normally at least five weeks is allowed for the completion of each piece of coursework except when coursework consists of several relatively small parts that are issued separately. We hope to have coursework marked within 2 weeks of the deadline. Students are not allowed to keep their marked coursework since we need to keep it because the External Examiner will need to inspect it during one of his visits to the Department.

**VERY IMPORTANT – NO COPYING** As it is a valuable part of the educational process, you are free to discuss the coursework with other students; however, unless it is specified to be group work, **your submission for marking must be entirely your own work. You must not copy any part of another person’s work (i.e. you must not copy any part or all of the text, equations, programs, figures, graphs, etc.).** You must not copy material from any publication without making it clear what you have copied (usually by enclosing the copied material in ‘ ’ and following it by a reference such as [Page 32, 5].) There will be serious consequences for you if we detect any copying from another student or any unacknowledged copying from the web or any publication. Please see also the material regarding Plagiarism in Section 16.9 below.

**Submission of coursework**
Lecturers might request coursework to be emailed to them as pdf documents or uploaded using Blackboard which they will explain to you.

**Interpretation of grades and marks for coursework**
Corresponds to work at the Distinction-level, A and B to Merit level, C and D to Pass level. Please see Section 22 for more detail.

**Examination timetable**
The majority of examinations will take place during the first three weeks of the Summer Term but some Autumn modules are examined in December. Please refer to the exam timetable. Personalised timetables will also become available on iCal once
options are confirmed. Each examination lasts three hours. Typically, you are asked to answer four out of six questions.

**Use of calculators in exams**
You will be provided with standard scientific calculators in the exam rooms. You cannot use your own calculators. Please refer to the [Frequently Asked Questions](#) section.

**Past exam papers and model answers**
Departmental policy is that you will be able to access the [past exam papers](#) and model answers for the last two years from the departmental web-pages. You will need to enter your username and password to enter the site.

General instructions, special exam arrangements, re-sitting students, examination regulations and frequently asked questions can all be found on the Departmental [examination web page](#).

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### 10 Laboratory Work

Professor Astolfi’s hardware-based laboratory work, already mentioned in Section 7, will be carried out in the MSc Laboratory (Room 303). Detail and the time it starts will be emailed to you in due course and your work on it will be marked as part of your assessment.

### 11 Individual Research Project

You must pay particular attention to the requirements of your [Individual Research Project](#). On the web page you will find information on:
- Project aims and deliverables
- Project schedule
- Selection and allocation of projects
- Writing and submitting the project report
- Poster presentation
- Assessment
- Plagiarism
- Important note on external projects
- Useful links

*Failure to comply with Poster and Project deadlines might cause a 12-month delay in the award of the MSc degree.*
12 Poster Presentation Skills Course and Poster Presentation

The Department will arrange a Poster Presentation Skills Course for each MSc group, which will be hosted in the Electrical Engineering Building sometime in July/August 2018. The exact date is yet to be confirmed. **It is mandatory for you to attend this course** as you will be shown valuable skills which you can use for your poster presentation in September.

**Poster presentations** for all three MSc courses will take place on Monday 10th September 2018 in the College main entrance.

13 Late Submission of Coursework or Project Work and Deferral

Please refer to our [Assessment](#) page.

14 Plagiarism

An Avoiding Plagiarism Session has been arranged for all Master's students on **Monday 16th October 2017, 1.00 – 2.00 pm, Room 408, Electrical and Electronic Engineering**.

Following on from this session, all Master's students are required to undertake a **compulsory** online course in plagiarism awareness. All MSc students must complete the course by the deadline of **31st October 2017**.

Master's students should take time to make sure they read the section on [Plagiarism Awareness](#).

**PLEASE TAKE THIS VERY SERIOUSLY** when preparing your course work and project report.

15 Registration and Notification of Results

**Registration**

Students are reminded that it is their responsibility to comply with current regulations for registration for the MSc and DIC. European exchange students not registered for the MSc degree are eligible for the IDIC diploma. Details of the regulations can be obtained from the Registry, Sherfield Building.
Notification of results
You will be given a provisional indication of your performance in the exams (subject to
confirmation by the Board of Examiners) in July 2018, via your student eservice
account. Your final results will not be available until after an Examiners’ Meeting in
late October 2018.

Your overall MSc result (Fail or Pass or MSc with Merit or MSc with Distinction) and
your transcript should be available to you from the Registry soon after the Board of
Examiners Meeting (probably by mid-November). The Registry will email instructions
for seeing your transcript when it is ready.

16 Special Arrangements for Students with Disabilities, Specific Learning
Difficulties or Long-Term Health Issues

At Imperial College we recognise that studying at university can be a challenge,
especially if you have a disability. We are keen that you have every opportunity to fulfil
your potential and graduate with the degree you deserve. It is therefore important that
you let us know about any disability, specific learning difficulty or health problem as
soon as possible so that we can give expert advice and support to enable you to do
this. Please refer to the Disability Advisory Service website

17 Help with Lectures, Coursework or Lab Work

You will be allocated a personal tutor soon after you join the MSc course. If you need
help with some aspects of the lectures or coursework, speak to the lecturer after a
lecture or state your problem in an email to the lecturer and ask for help. The lecturer
might be able to provide help by responding with a short email. If it is clear that you
need to speak to the lecturer, arrange an appointment by email.

Please note: it is better to show your work to the lecturer and ask where you have
gone wrong than to appear helpless by not having tried to do the work. We all feel
more sympathetic to someone who has tried than to someone who has given up
without trying hard. If you need more help, try asking your personal tutor or the
Programme Director. If you need even more help, use the support for non-academic
issues website.
18 If you think you have failed during the Exams or Project

Please refer to the frequently asked questions section in the Examinations section.

19 Research Carried out by the Control and Power Group

Members of the Group carry out research on many aspects of Control and Power. You can determine the interests of each member, details of recent research papers, major research projects, etc., by investigating the pages at

http://www3.imperial.ac.uk/controlandpower

20 Careers in Control and Power

http://www.imperial.ac.uk/electrical-engineering/study/current-students-course-handbook/careers/
All staff members are located in the Electrical and Electronic Engineering Building, except Dr Deisenroth and Dr Gillies who is based in the Huxley Building.

<table>
<thead>
<tr>
<th>Staff Name</th>
<th>Room</th>
<th>Email Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr David Angeli</td>
<td>1111</td>
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</tbody>
</table>
## Interpretation of Grades and Marks

<table>
<thead>
<tr>
<th>Grade on coursework</th>
<th>Mark (%) (on transcript)</th>
<th>Interpretation</th>
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</thead>
<tbody>
<tr>
<td><strong>Distinction Quality</strong></td>
<td></td>
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</tr>
<tr>
<td>A+</td>
<td>100</td>
<td><strong>Distinction standard</strong> - an exceptionally well presented exposition of the subject, showing: (i) command of the relevant concepts and facts, (ii) a high critical or analytical ability, (iii) originality, and (iv) evidence of substantial outside reading (where applicable). Distinction standard - excellent answer - a very well presented exposition of the subject, showing many of the above features, but falling short in one or two of them</td>
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<tr>
<td>A</td>
<td>70</td>
<td><strong>Merit standard</strong> - Good to very good answer which (i) shows a clear grasp of the relevant concepts and facts, (ii) gives an accurate account of the relevant taught material (as exemplified in the model answer), and (iii) shows evidence of some outside reading or of critical or analytical ability</td>
</tr>
<tr>
<td>B</td>
<td>60</td>
<td><strong>Pass standard</strong> - adequate to quite good answer which (i) shows a grasp of the basic concepts and facts, (ii) gives a mainly accurate account of at least half of the relevant taught material (as exemplified in the model outline answer), and (iii) does not go beyond that, or goes beyond that but is marred by significant errors</td>
</tr>
<tr>
<td>C</td>
<td>50</td>
<td><strong>Fail standard</strong> - Unsatisfactory answer: shows only a weak grasp of the basic concepts and facts, and is marred by major errors or brevity; presents only about one third to one half of the relevant taught material Shows a confused understanding of the topic; presents less than a third of the relevant taught material Answer is too inaccurate, too irrelevant, or too brief to indicate more than a vague understanding of the topic, less than a quarter of the relevant taught material Presents only one, two or three sentences or facts that are correct and relevant to the topic Contains nothing correct that is relevant to the topic</td>
</tr>
<tr>
<td>D</td>
<td>0</td>
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</table>

**Pass Quality**

**Merit Quality**

**Distinction Quality**
All grades and marks are provisional until confirmed by the Board of Examiners.

The table overleaf is designed to give a helpful interpretation of the grades for coursework and marks. The grade boundaries for many of the grades are consequences of the fact that most of the grade boundaries have been inherited from undergraduate programmes and are used for this MSc programme since many courses are attended by both MSc and undergraduate students and the staff are used to marking with these boundaries. Note that these interpretations apply to individual items of coursework and exam questions (for which the pass mark is 50%).