CENTRE FOR TRANSPORT STUDIES

Imperial College London
Faculty of Engineering
Department of Civil and Environmental Engineering

UCL
Faculty of Engineering Sciences
Department of Civil, Environmental and Geomatic Engineering

MSc in Transport

Student Handbook 2018-19
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Welcome to the Intercollegiate MSc Programme in Transport

Congratulations on joining this renowned and well-established MSc programme. You are now a member of both of the two most prestigious universities in London: Imperial College London and UCL (University College London). As a student at each of these universities, you will enjoy the full rights and benefits of membership of both of them. As part of this prestigious community of discovery we hope you will take this opportunity to make your own unique contribution.

We are committed to providing you with the best academic resources to enrich your experience. We also provide a dedicated support network and a range of specialist support services to make sure you have access to the appropriate help, from further training in an academic skill such as note taking, project research, groupwork activities or simply having someone to talk to.

As two of the best universities in the world, we are committed to inspiring the next generation of leading scientists, engineers, clinicians and business leaders by continuing to share the wonder of what we do through public engagement events. We are committed to excellence in research and education and welcome your participation.

As a student on this programme, you will gain a systematic understanding of the causes, motivations and means of personal travel and goods movement; techniques for analysing and resolving transport problems; and methods of evaluating transport projects, plans and policies, recognising the need for public consultation and the political, social, commercial and financial issues involved.

The Centres for Transport Studies provide an energetic and exciting environment. Students benefit from engaging with the teaching staff who are actively involved in internationally leading research, and advising local, national and international transport agencies.

Both universities are located in the centre of one of the world's most exciting cities, near to relevant professional institutions and transport agencies. London provides a living laboratory in which students can observe many of the problems that they are studying, and analyse the success or failure of current efforts to deal with them.
# 1. Staff contact details

## Imperial academic and administrative staff

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<td>Chair in Positioning and Navigation</td>
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<td>Professor of Transport Demand</td>
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<th>Name</th>
<th>Position</th>
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## English language requirement

See the Admissions website for details:

[www.imperial.ac.uk/study/pg/apply/requirements/english](http://www.imperial.ac.uk/study/pg/apply/requirements/english)

For information on English language support available while you're here, see the Wellbeing and Advice sections.

## Attendance and absence

You must inform your Cluster Administrator if you are absent from the 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 produce a medical certificate immediately on your return to College. In such circumstances, a Mitigating Circumstances Form must also be completed. [http://www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/](http://www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/)

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 to the Home Office.

Read through Appendix A – Monitoring Attendance of Students, for information on the procedures in the Department of Civil and Environmental Engineering.

**Summer Term:** Formal teaching may have finished for the year, but while you are working on your project and writing your dissertation, you are still subject to the attendance conditions of your degree, up to the expiry of your student registration at the end of September 2019. The exceptions to this are:
• Short breaks (approved by your supervisor and notified to your Cluster Administrator by email).
• Completion of all the academic requirements of your degree.
• Approved External Study Leave (e.g. Fieldwork) (specific form to be completed – see Appendix A).

Recording of External Study Leave

For those of you spending periods of time abroad which form part of your research project (e.g. Fieldwork), such absences must be covered by the Postgraduate Taught (MSc): Recording of External Study Leave Form (see Appendix A). This form must be completed and submitted, via your Cluster Administrator, in advance of the requested absence. A record will be held in Starfish and you must register your return from Study Leave in person to your Cluster Administrator in order that your record may be updated for audit purposes.

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 visas to the Home Office.

Read through Appendix A – Monitoring Attendance of Students, for information on the procedures in the Department of Civil and Environmental Engineering.
2. Programme information

Programme dates 2018-19

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<thead>
<tr>
<th>Event</th>
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<tr>
<td>Written examinations</td>
<td>April – May 2019</td>
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<tr>
<td>Major project</td>
<td>May – August 2019</td>
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<td>Project hand-in</td>
<td>5 September 2019</td>
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<tr>
<td>Poster display</td>
<td>March 2019</td>
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<tr>
<td>Board of Examiners meeting</td>
<td>July 2019 and September 2019</td>
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<tr>
<td>End of course</td>
<td>27 September 2019</td>
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Introduction

The Centres for Transport Studies at Imperial College London and at UCL jointly offer a cluster of two Masters courses in the field of transport:

- MSc course in Transport
- MSc course in Transport with Business Management

The objectives of these courses are:

- To provide a systematic understanding of the causes and motivations of personal travel and good movement and of the means by which movement takes place;
- To provide a thorough grounding in techniques for analysing transport problems and developing and implementing policies and measures for resolving such problems;
- To develop appreciation of the importance and methods of evaluating transport projects, plans and policies, taking into account the political, social, environmental, commercial and financial issues involved.

In pursuit of these objectives, the courses place emphasis on road and rail transport in the more industrialised countries, whilst recognising the important roles of other forms of transport and interchange with them, and the different context in which transport problems present themselves in less industrialised countries. Subject to this emphasis, the fundamentals are addressed in ways that are relevant to all means of transport and to every kind of society. The courses are designed to equip their graduates for work in transport planning, engineering, operations, management, policy and research.

Availability

The courses can be taken by full-time attendance over 12 months, or part time attendance over either two or three years, starting at the beginning of each academic year, which is usually the first Monday in October.
The academic requirements associated with the part time mode are exactly the same as those for full time study, but attendance at College is spread over two or three years on a day release or term release basis. In day release mode, students attend College between one and two days per weeks over two or three years. In each year they take a combination of relevant core and option modules. In their penultimate year they commence work on their Research Dissertation, which is completed in their final year. In term release mode, the student attends College full time for a term in each of three years. Throughout their period of part time study, students are supported through contact with their Personal Tutors and Research Dissertation supervisors. Further details regarding the arrangements for part time study are presented later in this handbook.

**Overview of Requirements**

Full time students study core modules the first term (October-December) and select from a wide range of optional modules in the second term (January-March). In addition, an individual investigative design or research project (leading to the Research Dissertation) is carried out continuously from May to September. From May onwards, all student time is devoted to the Research Dissertation. Part time students carry out the same activities spread over their periods of study.

The assessment of candidates is carried out by a Board of Examiners comprising academic staff and an External Examiner. It is based on three elements:

- Written papers, covering the material in each core and option module.
- Coursework associated with the core and option modules, and
- The individual research dissertation.

Candidates are required to pass in each of these elements separately.

**Teaching**

Lectures are coordinated by the teaching staff from the Centre for Transport Studies at both Imperial College London and University College London, with students formally registered at each university. This means that you have access to the facilities (e.g., lecture rooms, libraries, social and sporting facilities) of UCL and Imperial. Lectures take place at both universities.

Substantial contributions are also made from other experts and professionals in the field. This provides a wide range of expertise amongst the staff and allows students to conduct their special study project with appropriate expert supervision. It is common for research dissertations to be undertaken in collaboration with an industrial partner.

The teaching provided by the academic staff responsible for the courses is enriched by their active involvement in internationally recognised research, in advice to local, national and international transport agencies, in the work of relevant professional institutions, in collaborative work with leading firms of consultants, and in the provision of short courses in Britain and overseas for a range of transport professionals.
Further information about ongoing research and opportunities for PhD research in Transport at Imperial College London and UCL can be obtained from: www.imperial.ac.uk/cts and http://www.cege.ucl.ac.uk/cts/Pages/cts.aspx

Programme overview

The programme offers a unique intercollegiate set-up between Imperial College London and University College London. Transport students undertake their study at both locations, and through this have access to a wide range of facilities including libraries, laboratories, PC labs, specialised software, and academic support.

The aims of our extensive suite of MSc courses are to:

- Attract very able engineers, scientists and related professionals from around the world by offering in-depth courses that focus on particular specialist areas and develop and extend students’ knowledge, professional skills and research experience.
- Meet the expectations of industry and academia, preparing graduates for professional or research careers in the UK and overseas, developing curricula that evolve to match the subjects’ changing requirements.
- Advance understanding of the underlying engineering science and practical techniques that underpin civil and environmental engineering.
- Provide teaching and learning that is informed by research and practice at the forefront of academic or professional disciplines.
- Provide an opportunity for students to show originality in the application of knowledge, and an understanding of how the boundaries of that knowledge are advanced through research.
- Develop students’ ability to deal with complex issues both systematically and creatively, demonstrating originality in tackling and solving problems.
- Engender the qualities needed for employment in circumstances requiring sound judgement, personal responsibility and initiative, in complex and unpredictable professional environments.
- Meet the career needs of students seeking specialist employment in planning and transport engineering, and address the skill-needs of their potential employers.
- Provide students with a solid technical basis in the key areas of the transport profession through delivery of a coherent, coordinated and balanced degree programme, integrating core transport studies with practical application.
- Enable students to acquire a mature appreciation of the context in which transport projects are developed within the industry.
- Develop our students’ excellence in oral and written communication, and poster presentations.
- Provide students with sufficient material to explore the subject, to carry out self-organised study, and to think about the issues and challenges of the material, in preparation for professional practice.

Programme structure

The full time programme is taken over 12 months, with a single entry point per year at the beginning of October. Part time options are:

- One day per week over three years (3YPT).
- One and a half, or two days per week over two years (2YPT)
- Term release (taken part time on a term-by-term basis, over three years). [http://www.imperial.ac.uk/civil-engineering/prospective-students/postgraduate-taught-admissions/transport-cluster/term-release/](http://www.imperial.ac.uk/civil-engineering/prospective-students/postgraduate-taught-admissions/transport-cluster/term-release/)
  - Year 1: Autumn term
  - Year 2: Fallow (or just project)
  - Year 3: Spring term and project

**Transport 2YPT**

*Part-time students taking the course over 2 years*

<table>
<thead>
<tr>
<th>Autumn Term – 1st year</th>
<th>Spring Term – 1st year</th>
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<tbody>
<tr>
<td>CI9-T-01 - Transport and its Context</td>
<td>Two Transport option module of your choice</td>
</tr>
<tr>
<td>CI9-T-02 - Quantitative Methods</td>
<td>Select Research Dissertation topic and commence work</td>
</tr>
<tr>
<td>CI9-T-05 - Transport Demand and its Modelling</td>
<td>Students attend special sessions during 1st fortnight of the term</td>
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<thead>
<tr>
<th>Autumn Term – 2nd year</th>
<th>Spring Term – 2nd year</th>
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<tbody>
<tr>
<td>CI9-T-03 - Transport Engineering &amp; Operations</td>
<td>Two Transport option modules of your choice</td>
</tr>
<tr>
<td>CI9-T-04 - Transport Economics</td>
<td>Continue work on Research Dissertation</td>
</tr>
<tr>
<td>CI9-T-06 - Transport Policy</td>
<td>Continue work on Research Dissertation</td>
</tr>
</tbody>
</table>

**Transport 3YPT**

*Part-time students taking the course over 3 years*

<table>
<thead>
<tr>
<th>Autumn Term – 1st year</th>
<th>Spring Term – 1st year</th>
</tr>
</thead>
<tbody>
<tr>
<td>CI9-T-01 - Transport and its Context</td>
<td>Two Transport option modules of your choice</td>
</tr>
<tr>
<td>CI9-T-05 - Transport Demand and its Modelling</td>
<td>Students attend special sessions during 1st fortnight of the term</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Autumn Term – 2nd year</th>
<th>Spring Term – 2nd year</th>
</tr>
</thead>
<tbody>
<tr>
<td>CI9-T-02 - Quantitative Methods</td>
<td>One Transport option module of your choice</td>
</tr>
<tr>
<td>CI9-T-06 - Transport Policy</td>
<td>Select Research Dissertation topic and commence work</td>
</tr>
</tbody>
</table>
### 3rd Year

<table>
<thead>
<tr>
<th>Autumn Term – 3rd year</th>
<th>Spring Term – 3rd year</th>
</tr>
</thead>
<tbody>
<tr>
<td>CI9-T-03 - Transport Engineering &amp; Operations</td>
<td>One Transport option module of your choice</td>
</tr>
<tr>
<td>CI9-T-04 - Transport Economics</td>
<td>Continue work on Research Dissertation</td>
</tr>
<tr>
<td>Continue work on Research Dissertation</td>
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</tbody>
</table>

*Transport with Business Management 2YPT*

Requirements for Part-time students taking the course over 2 years

<table>
<thead>
<tr>
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<tbody>
<tr>
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<td>Two Transport option modules of your choice</td>
</tr>
<tr>
<td>CI9-T-02 - Quantitative Methods</td>
<td>Select Research Dissertation topic and commence work</td>
</tr>
<tr>
<td>CI9-T-05 - Transport Demand and its Modelling</td>
<td></td>
</tr>
<tr>
<td>Students attend special sessions during 1st fortnight of the term</td>
<td></td>
</tr>
<tr>
<td>Autumn Term – 2nd year</td>
<td>Spring Term – 2nd year</td>
</tr>
<tr>
<td>CI9-B1 - Microeconomics</td>
<td>CI9-B3 - Project Management</td>
</tr>
<tr>
<td>CI9-B5 - Innovation in Civil Engineering</td>
<td>CI9-B4 - Business Environments and Construction Law</td>
</tr>
<tr>
<td>CI9-T-04 - Transport Economics</td>
<td>Continue work on Research Dissertation</td>
</tr>
<tr>
<td>Continue work on Research Dissertation</td>
<td></td>
</tr>
</tbody>
</table>

*Transport with Business Management 3YPT*

Part-time students taking the course over 3 years

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</tr>
<tr>
<td>Continue work on Research Dissertation</td>
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</tr>
</tbody>
</table>

**Competency statements**


**Accreditation and professional membership**

We encourage you to become a Student or Graduate Member of the Professional Institutions in the field that you are studying in. The following professional bodies are relevant for the Master’s programmes that we are running at the Department of Civil and Environmental Engineering. For each of them, we define the most appropriate route for you to become a member:

**The Institute of Highway Engineers (IHE)**


**The Chartered Institution of Highways and Transportation (CHIT)**


Further details of our accreditation are to be found at:

[http://www.imperial.ac.uk/civil-engineering/prospective-students/postgraduate-taught-admissions/](http://www.imperial.ac.uk/civil-engineering/prospective-students/postgraduate-taught-admissions/)

**Programme delivery**

Modules will be delivered through a series of lectures, although teaching methods will vary between individual modules. Other teaching methods employed may include tutorials, group discussions, group work, progress tests, computer laboratory sessions, practical work, and others depending on the member of academic staff responsible. Some lectures will be delivered by visiting academics or industry professionals, where appropriate.
Submission of coursework

Coursework submissions may be online or in paper copy, depending on the preference of the setter.

Coursework Cover Sheets (Imperial)

Coursework coversheets for group and individual work can be found in the General Office. Each one contains a plagiarism declaration on the front which must be signed. An example of the coursework cover sheets used for individual and group work can be found in Appendix E.

Submitting Coursework

MSc coursework will be set with a due date and time, and specific submission information will be made available to students.

Receiving Marked Coursework

Lecturers should return coursework within three weeks of it being handed in (four, if this period includes a College vacation). If there is a delay you should consult your MSc Cluster Administrator.

Returned Marked Coursework

You are required to submit all your marked coursework to your MSc Cluster Administrator, unless instructed otherwise, by the end of the academic session for inspection by the External Examiners.

Imperial: Penalties for late submission

Submissions made within 24 hours after the deadline has passed will have the mark capped at 50%. Submissions made more than 24 hours after the deadline has passed will receive a mark of zero.

UCL: Penalties for late submissions

- Penalties for late submission of coursework are set centrally by UCL. These rules apply equally to hard copy and electronic copy and both must be submitted for your coursework to be considered ‘on time’.
- The full allocated mark will be reduced by 5 percentage points for the first working day after the deadline for the submission of the coursework.
- The mark will be reduced by a further 15 percentage points if the coursework is submitted during the following six days.
- Providing the coursework is submitted before the end of the second week of term 3, but had not been submitted within seven days of the deadline for the submission of the coursework, it will be recorded as zero but the assessment would be considered to be complete.
Coursework submitted after the end of the second week of third term will not be marked and the assessment will be incomplete.

Coursework submitted after solutions have been released will receive a mark of zero, and may not be formally marked, even when the coursework was submitted within seven calendar days of the deadline. Nevertheless, the assessment will be considered to be complete provided the coursework contains material that can be assessed.

Development of professional skills

Professional skills development will be delivered throughout the curriculum in various forms, including teamwork, problem-solving, applying concepts to real-world situations, and formal presentations. [http://www.imperial.ac.uk/study/pg/graduate-school/professional-skills/masters/](http://www.imperial.ac.uk/study/pg/graduate-school/professional-skills/masters/)

Module descriptors

A full list of all MSc Transport module descriptors can be found on the following link:

[http://www3.imperial.ac.uk/civilengineering/prospectivestudents/postgraduatetaughtadmissions/msctransportengineering/transportsyllabus](http://www3.imperial.ac.uk/civilengineering/prospectivestudents/postgraduatetaughtadmissions/msctransportengineering/transportsyllabus)

Deadlines for choosing elective modules

The deadline for choosing your spring term elective modules is mid-November.

Employability statement

Planning for your future is an important aspect of postgraduate study. At Imperial you’ll be well-supported by our Careers Service, who are on hand to help in a variety of ways.

[http://www.imperial.ac.uk/careers](http://www.imperial.ac.uk/careers)

Imperial is one of the UK universities most targeted by graduate recruiters who also play an active role in our career development programme.

This provides access to hundreds of potential employers in a range of settings including industry sector forums, employer presentations, careers fairs, mock interviews and our one to one ‘recruiter-in-residence’ sessions.

A large number of employers also advertise their opportunities each year through JobsLive — our online careers platform, which Imperial students can access from the first day of term.

Work opportunities

The Department encourages you to take early advantage of the careers education, information and guidance available from the following sources:
• College Careers Advisory Service (Level 5, Sherfield Building), with which you can book careers appointments, quick interview sessions, skills workshops, mock interviews, and much more.

[http://www.imperial.ac.uk/careers/](http://www.imperial.ac.uk/careers/)

• The transferable skills training programme run by the Graduate School.

[http://www3.imperial.ac.uk/graduateschools/](http://www3.imperial.ac.uk/graduateschools/)

• Careers presentations and careers fairs, which occur throughout the autumn and spring terms. Details are circulated to all students closer to the dates.

• Details of jobs will be posted on the careers sections of the website. New posts are notified to us throughout the year, so check online regularly:

[http://www.imperial.ac.uk/careers](http://www.imperial.ac.uk/careers)

• Additionally you can contact the Departmental Careers Advisor for further guidance and information:

Dr Peter Stafford  
Room 321  
020 7594 7916  
p.stafford@imperial.ac.uk

**Continuing Professional Development**

Students may also wish to be aware of the fact that one or more individual modules from our MSc course portfolio can be taken on a 'Continuing Professional Development' (CPD) basis. Although CPD students are not registered for the MSc degree, they follow the same programme of study as a Masters student, in the relevant modules. Note that these arrangements are intended principally for individuals who are already employed in the UK transport industry and who wish to extend or update their professional competence; in particular, these arrangements are not an alternative route to a Master’s degree.

Because our Masters courses evolve over time to reflect changing industry needs and priorities, you may wish to consider returning as a CPD student at some point in the future. Note that graduates of the Intercollegiate course benefit from a substantial discount on the normal price of this CPD activity.

**Attendance and certification of absence or illness**

College Regulation for Certification of Absence: Taught Course Postgraduate Students who are absent from the College for more than three days must advise the Course Director (or Cluster Administrator) of the reason for their absence. An absence of more than seven days, if due to illness, must be supported by a medical certificate from the Imperial College Health Centre. However, if an examination is missed on account of illness, a medical certificate from the Imperial College Health Centre must be produced immediately. No other medical
certificate will be accepted, except for a hospital medical certificate where the illness has resulted in a period in hospital.

If students are absent from the programme of studies without the permission of the Course Director, it will be presumed that they have withdrawn from the College. The Academic Registrar will then be asked to terminate their registrations for the MSc degree.

If a situation arises that requires a substantial absence from the Department, the Course Director will seek an Interruption of Studies. This will allow the student to remain registered for the MSc degree, but would mean that the student would complete the degree in the following year.

Course governance and management

The Intercollegiate MSc courses in Transport operates in accordance with the relevant strategic agreement that has been established between the two universities. The courses are governed by a Course Coordinating Committee drawn from the permanent academic staff involved in teaching the course from the Centre for Transport Studies at Imperial College London and the Centre for Transport Studies at University College London.

The management structure consists of the Course Director, normally drawn from the permanent academic staff at Imperial College London and the Course Chairman, normally drawn from the academic staff at University College London. The Course Director, acting in consultation with the Course Chairman, is responsible for the overall academic management of the courses. The Course Chairman chairs the Course Coordinating Committee and the Board of Examiners. The Course Director and the Course Chairman are supported by a Cluster Administrator, based at Imperial College London. This structure ensures that students have access to day-to-day communication and support. If a student has a concern, he/she should in the first instance raise it with the individual concerned, before seeking the advice of the personal tutor and the Course Director. If the matter is not resolved to the student's satisfaction, he/she should seek the advice of the Departmental Post-Graduate Tutor and Director of the MSc programme, before consulting the Imperial College’s Registry website on how to take the matter further.

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

Further information

Further information on the MSc courses can be obtained from the following sections of this handbook and from the MSc course web site:

http://www.imperial.ac.uk/civil-engineering/prospective-students/postgraduate-taught-admissions/transport-cluster/

Timetable

As with our VLE’s, where UCL use Moodle and Imperial use Blackboard Learn, we also use different systems to deliver our respective timetables. For modules offered at UCL, your timetable is delivered via your timetable app, and for Imperial, it will be direct to your Imperial College Outlook calendar.
Supervision arrangements

Research projects will differ in their area of focus, but their role is to challenge the student to complete an independent piece of research under the direct supervision of a member of academic staff. Staff will provide one-on-one support and students are encouraged to maintain good contact with their supervisor throughout the period of research. The extent and nature of supervision will vary from one member of staff to another, so should a student have any difficulty, during the course of research, interfacing with his/her supervisor he/she should advise the Course Administrator as soon as possible.

Projects

Below is a list of typical example projects from the Transport MSc Cluster:

- Impact of driver manual operations on metro dwell time.
- Vulnerability and resilience analysis of road networks.
- Decision support systems for policy analysis
- Maritime Transport & Port Operations
- Demand responsive transport systems
- Measuring cyclist and pedestrian behavior
- Road transport safety
- The role of fatigue in transport safety
- Planning for the future in transport
- Railway Operation
- Designing Street Infrastructure
- Economic impacts of transport
- Public transport performance modelling
- Network and mechanism design
- Sustainable transport
- Transport planning methods
- Dynamics traffic assignment
- Travel behavior and activity patterns
- Parking/loading demand and supply
- Evacuation from fires in transport systems, focusing on human behaviour
- Air traffic flow management and airspace capacity analysis
- Public and private investments
- Transport telematics and intelligent transport systems
- Geodesy and surveying applications in transport
- Analysis and modelling of travel demand
- Smart cities and transport
- Modelling consumer attitudes to purchasing an electric vehicle
- Modelling the impact of social networks on choice behaviour
- Accessibility and transport equity analysis
- Environmental impacts analysis and policy
- Modelling and measurement of urban air quality
Research dissertation

Students will attend a number of lectures aimed specifically at helping them to complete their Research Dissertation. These lectures take place throughout the autumn and spring terms. Part-time students should attend these sessions in their penultimate year. The sessions are:

1. Conducting a literature review
2. Formulating a research problem
3. Principles of research design
4. Data collection and analysis (to complement CI9-T-02)
5. Presenting your research

Students are also required to complete two pieces of work in addition to the Research Dissertation. These are a poster and a project proposal. Further details will be circulated early in the session.

The submission date for Research Dissertation reports is 5 September, or the next Monday in years when the 5th falls on either a Saturday or a Sunday. In the 2018-19 session this will be Thursday 5 September 2019. Guidance specific to the Intercollegiate MSc programmes in Transport on the preparation and submission of the Research Dissertation is circulated early in the session. This guidance takes precedence over more general departmental guidance.

Personal tutors (MSc students)

Transport MSc students are assigned a Personal Tutor from the academic staff during the first week of the first term. Personal Tutors provide a source of support to their tutees, both pastoral and academic. Your Personal Tutor will take an interest in your academic and professional development, and you can discuss any issues and turn to them for advice and help.

You should meet with your Tutor as timetabled, but also if you feel that you are experiencing difficulties or any issues that impact on your studies or student experience in general. You can also use these meetings to highlight any achievements that you would like to share.

- To record your academic progress.
- To record any health or other problems that you may encounter (and ensure that any such instances are appropriately recorded).
- To follow your professional development.
- To be informed of your outside interests and activities, which we consider part of your life at College.

Note also these meetings may:

- Be used as a check-point on attendance.
- Advise the Board of Examiners of any circumstances to be considered in mitigation in individual cases.
Your Personal Tutor is likely to act as a future referee on your behalf, you should therefore make and maintain contact with them as necessary.

A timetabled slot is set for you to meet your Personal Tutor, if that slot is inconvenient for your or your Personal Tutor, please liaise with your tutor to rearrange.

**Reading lists**

The College has introduced a new interactive system, Reading Lists, for students to view their reading lists, and create their own virtual library collections. Each of your modules on Blackboard Learn will include a direct link to the core and supplementary recommended texts on Reading Lists. You can also view where in the Central Library your recommended texts are available, and how many copies are available, as well as commenting and collaborating with other students. [http://www.imperial.ac.uk/admin-services/library/learning-support/reading-lists/](http://www.imperial.ac.uk/admin-services/library/learning-support/reading-lists/)

**Programme specification**

Programme specifications will be located here:


**Transferring between courses**

Students wishing to transfer between courses should first contact the member of staff below, who will advise you as to whether or not this may be possible. Please note that for MSc students, transfers must be requested by the end of the first cycle of lectures, and may be restricted for those students under Tier 4 Visa restrictions.

- **Maya Mistry**
  - Phone: 020 7594 6100
  - Email: m.mistry@imperial.ac.uk

**Withdrawing from the degree programme**

If you wish to withdraw from your programme you should first discuss it with your Programme Director. If you decide that you do want to withdraw please email your Imperial College administrator who will also inform UCL Student Records.
3. Assessment

The Transport cluster assessments comprise three elements: examinations, coursework and the dissertation, each of which has to be satisfied separately.

The examination and coursework elements are further broken down into assessment for individual modules, known as components.

The elements above also apply to those taking Business Management, in which examinations and coursework results will be integrated into the overall examination and coursework elements.

Assessment criteria

Criteria for Award of Pass

A Pass would normally be awarded when all the following criteria are met:

• The aggregate examination mark is at least 50%
• The dissertation mark is at least 50%
• The aggregate coursework mark is at least 50%

Additionally, the award of the MSc will be classified as with merit or with distinction according to the following criteria.

Criteria for Award of Merit

A Merit would normally be awarded when all the following criteria are met:

• The aggregate examination mark achieved at the first attempt is at least 60% and no individual examination mark achieved at the first attempt is less than 50%
• The dissertation mark achieved at the first attempt is at least 60%
• The aggregate coursework mark achieved at the first attempt is at least 60%

Criteria for Award of Distinction

A Distinction would normally be awarded when all the following criteria are met:

• The aggregate examination mark achieved at the first attempt is at least 70% and no individual examination mark achieved at the first attempt is less than 50%
• The dissertation mark achieved at the first attempt is at least 70%
• The aggregate coursework mark achieved at the first attempt is at least 70%

<table>
<thead>
<tr>
<th>Mark</th>
<th>Grade</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>85+</td>
<td>A*</td>
<td>Outstanding - distinction standard</td>
</tr>
<tr>
<td>70-84</td>
<td>A</td>
<td>Distinction standard</td>
</tr>
<tr>
<td>60-69</td>
<td>B</td>
<td>Good</td>
</tr>
<tr>
<td>50-59</td>
<td>C</td>
<td>Adequate</td>
</tr>
</tbody>
</table>

The following are subject to discussion by the Board of Examiners

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>40-49</td>
<td>D</td>
<td>Unsatisfactory/borderline</td>
</tr>
<tr>
<td>30-39</td>
<td>E</td>
<td>Not satisfactory – may need to be retaken</td>
</tr>
<tr>
<td>0-29</td>
<td>F</td>
<td>Not satisfactory – may need to be retaken</td>
</tr>
</tbody>
</table>
**Mitigating circumstances**

If you have a serious problem affecting your study, coursework, or examinations, you must ensure that you inform a member of staff immediately, this might be your Personal Tutor, a member of the administrative staff, or the Senior Tutor (Postgraduate) as soon as possible.

A wide variety of things can be considered in mitigation, from health issues (physical or mental, acute or chronic) to bereavement or financial hardship.

If something out of your control affects your ability to study or to take assessments then it may be considered as a mitigating circumstance.

**Process:**

- If these circumstances affect examinations or other assessments, you should submit a mitigating circumstances form to your Department **within 5 working days** of the assessment or coursework submission deadline.
- The form **must** be supported by appropriate documentation. A medical certificate is essential where illness affects an exam – telling someone afterwards is not sufficient.
- Please contact the Undergraduate Education Manager or Senior Tutor if a problem arises on the day of an exam.

Forms are available from the following: [http://www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/](http://www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/)

**Please note:**

- The College Health Centre cannot certify an illness if you have not been seen at the Health Centre during the illness.
- The College Student Counselling Service can only provide a letter on request if you already attend counselling.
- The College Disability Advisory Service can only help students to obtain appropriate evidence of disability prior to examinations taking place and are not able to certify for absences due to disability.

[Mitigating circumstances policy and procedure](http://www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/) (pdf)

For independent support and advice, please contact the Imperial College Union Advice Centre.

**Unsatisfactory progress in year**

For those students not attending or progressing to the satisfaction of the Cluster Director during the term, a note of warning may be issued to him/her. This is called a “six-week warning” and is the equivalent to notice of withdrawal. If there is not satisfactory improvement then withdrawal will be required. The regulations may be found at the following: [https://www.imperial.ac.uk/media/imperial-college/administration-and-support-services/registry/academic-governance/public/regulations/2016-17/general/Student-Withdrawals-and-Appeals-Procedure-Oct16.pdf](https://www.imperial.ac.uk/media/imperial-college/administration-and-support-services/registry/academic-governance/public/regulations/2016-17/general/Student-Withdrawals-and-Appeals-Procedure-Oct16.pdf)
This may result in:

- (For Visa-dependent students) a report being sent to the UK-VI, and curtailment of the student Visa, and potentially revoking the right to remain in the UK.
- (For sponsored students) a report being made to your sponsors.
- Withdrawal from the programme.

**Progression from year to year**

In order to progress to the next year of the programme, students are required to:

1. Have an average performance mark for the year of 50% or better in the relevant element(s);
2. To have passed all individual components at a minimum of 50%*

*where the mark achieved in (an) individual component(s) is below the 50% pass mark, the Board of Examiners may, in certain cases, allow compensation. No compensation is allowed where the mark achieved is below 40%**

**Where a mark below 40% in an individual component is presented, the student is then permitted to re-take that component (normally by written examination paper) at the next opportunity, which is typically in the following year. Where the overall performance is below 50%, the student is permitted to re-enter for the elements of assessment in question, but not to attend or to progress to a subsequent year.

**The College’s Academic and Examination Regulations:**

[http://www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/](http://www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/)

**Mitigating Circumstances Policy and Procedures:**


**College Policy on Exams and Religious Obligations:**

4. Examinations

Examination guidance and regulations

Materials Permitted in Examinations

- Pencil cases which must be clear plastic.
- College identity cards (i.e. swipe card) which must be displayed on your desk.
- Pens, erasers and other drawing instruments as required.

Unless specified or designated “Open Book”, no additional materials may be introduced into examinations by candidates. If, in the opinion of the Board of Examiners, such materials are required, they will be provided or notified to all candidates and the standard examination rubric amended to state that they will be provided or allowed. Calculators will be provided by the Department. We are currently using Casio **FX85GTplus**. Dictionaries are not permitted.

No food is permitted in an examination room unless prior permission has been given due to medical need. No drinks are permitted except for water in clear plastic bottles.

Conduct of Examinations

- Be prepared.
- Take with you only the items listed above.
- Arrive 15 minutes before the exam is scheduled to begin.
- When you enter the examination room, do so in **SILENCE**.
- Switch off your phones (and other electronic devices) and place them in your bag.
- Apple Watches are not permitted.
- Leave your bags in the area indicated by the Invigilator or Supervising Academic.
- Find the desk with the examination card which has your candidate number (or name) on it, then sit down at this desk.
- **DO NOT** turn over or open your examination paper until you are instructed to do so by the Invigilator. However you may start to fill in the front of your answer book giving:
  1. Candidate number (CID).
  2. Degree (Subject).
  3. Title of Paper.
  4. Date.
- You **MAY NOT SPEAK** to anyone other than the Invigilator. If you do need to speak to the Invigilator, raise your hand. Speak in a quiet voice so as not to disturb the other candidates.
- Write in **black or blue** ink. Candidates are not permitted to use red or green ink, or to use any writing implement that is capable of producing red or green marks on the script. You should **not** write in pencil.
- If unsure of the meaning of a word or question in the examination, write down your interpretation of that word or question, and continue.
- The use of correction fluids (e.g. Snopake® and Tippex®) is explicitly not permitted.
- Candidates should indicate incorrect work by drawing a single diagonal line through the work concerned.
At the end of the examination, stop writing when instructed to do so by the Invigilator or Supervising Academic.

Ensure that your answer book and all supplementary papers carry your College Identifier Number (which is also your candidate number), and that all graph paper and supplementary answer books are securely tied together inside the back cover of the main answer book.

Remain seated and silent.

When all examination materials have been collected by the examination team and you have been told you may leave, please do so in silence, collecting your belongings on the way out. You may not remove any examination material from the room.

Exam Technique

Read the rubric carefully BEFORE answering any questions.

Take some time to read through the questions and make a sensible decision as to which questions to tackle.

Ask yourself:

- Which questions can I answer fully?
- Out of the questions I cannot answer fully, which ones can I answer the majority of?
- Am I fulfilling the exam rubric? You must make sure you have understood the rubric; ask your invigilators if you need clarification.
- Example: How much time should you spend answering each question? If there are five questions to complete in three hours, that is approximately 35 minutes per question.

If you make a mistake just put a line through your work.
5. Plagiarism

Plagiarism: Imperial statement

1. Introduction to Plagiarism

You are reminded that all work submitted as part of the requirements for any examination (including coursework) of Imperial College must be expressed in your own words and incorporate your own ideas and judgements.

Plagiarism, that is the presentation of another person’s work, thoughts or words as though they were your own, must be avoided, with particular care in coursework, essays and reports written in your own time. Note that you are encouraged to read and criticise the work of others as much as possible. You are expected to incorporate this in your thinking and in your coursework and assessments, but you must acknowledge and label your sources.

Direct quotations from the published or unpublished work of others, from the internet, or from any other source must always be clearly identified as such. A full reference to their source must be provided in the proper form and quotation marks used. Remember that a series of short quotations from several different sources, if not clearly identified as such, constitutes plagiarism just as much as a single unacknowledged long quotation from a single source. Equally, if you summarise another person’s ideas or judgements, figures, diagrams or software, you must refer to that person in your text, and include the work referred to in your reference list or bibliography. Staff are able to give advice about the appropriate use and correct acknowledgement of other sources in your own work.

The direct and unacknowledged repetition of your own work which has already been submitted for assessment can constitute self-plagiarism. Where group work is submitted, this should be presented in a way approved by your Department. You should therefore consult your tutor or course director if you are in any doubt about what is permissible. You should be aware that you have a collective responsibility for the integrity of group work submitted for assessment.

The use of the work of another student, past or present, constitutes plagiarism. Where work is used without the consent of that student, this will normally be regarded as a major offence of plagiarism.

Failure to observe these rules may result in an allegation of cheating. Cases of suspected plagiarism will be dealt with under the College’s Exams, Assessments and Regulations, & Plagiarism, Academic Integrity & Exam Offences, a full copy of which can be found at the following: http://www.imperial.ac.uk/student-records-and-data/for-current-students/undergraduate-and-taught-postgraduate/exams-assessments-and-regulations/ and is likely to result in a penalty being taken against any student found guilty of plagiarism.

There have been in the past a few cases of plagiarism in this Department, where we operate a zero-tolerance policy, leading to penalties that range from voiding a coursework mark to expulsion from the course. In the majority of these cases, plagiarism was the result of poor practice and lack of awareness, so you are strongly advised to familiarise yourself with what constitutes plagiarism and to seek clarification if and when in doubt.
2. Ethics and Academic Integrity

There are at least two very good reasons why plagiarism should be allowed no place in the academic business of Imperial College, and why it must therefore be met by severe punishment whenever it is encountered.

At its most fundamental, plagiarism is seeking to deceive somebody – one’s teachers or examiners, for example – by presenting the ideas of another person as though the ideas were one’s own – whether with that person’s assistance, or by theft. Deception and intellectual theft are morally unacceptable in any well-ordered society. In a society of professionally licensed engineers, such conduct is even more reprehensible in that it undermines the ethical foundation on which professional practice is based.

There is also a question of academic integrity. Students who knowingly use plagiarism as a painless way of compiling the work needed for assessments, and teachers who knowingly allow students to do it, are both contributing to a blight that undermines the quality and integrity of the degree qualification.

Students under intense pressure to produce a design, a technical report, or a dissertation may feel tempted to resort to plagiarism. They must resist. The Imperial College degree is highly prized because it is respected far and wide as a true mark of achievement. To safeguard the integrity of its degrees, Imperial College staff must take action whenever plagiarism is suspected. As for students, they must expect that the penalty for a student who is guilty of this offence will normally be severe.

3. Definition of Plagiarism

Plagiarism is the presentation of another person’s thoughts, words, images or diagrams as though they were your own – for example when you copy someone else’s work or use their ideas in your coursework, thesis, report etc, and then do not acknowledge that you have done this.

Definition:

‘The wrongful appropriation or purloining, and publication as one’s own, of the ideas, or the expression of the idea (literary, artistic, musical, mechanical, etc.) of another.’


Other forms of plagiarism include self-plagiarism, which involves using your own prior work without acknowledging its reuse; and collusion, which involves sharing or copying (individual) coursework.

Plagiarism, whether intentional or unintentional, is considered a cheating offence and must be avoided, with particular care on coursework, essays, reports and projects written in your own time, and also in open and closed book written examinations.

Plagiarism is classified as either Minor or Major in nature, this is normally determined by the weight, or marks value, attached to the work submitted. However, the following would also be classified as major:
• Two cases of Minor plagiarism by the same individual
• Copying the work of another student without their knowledge
• Dissertation/Major Project
• Where the student does not admit that plagiarism has occurred, and that the plagiarism offence is upheld on appeal.

You are not permitted to act in collusion with another student or person, nor are you permitted to request or arrange for another individual to submit your coursework for you.

You must NEVER:

• Share your coursework, either electronically or in paper copy. If copying of material occurs as a result of such sharing, both parties are considered to have actively taken part in plagiarism.
• Give your coursework, whether electronically or in paper copy, to someone else to submit. If copying of material occurs as a result of such activity, both parties are considered to have actively taken part in plagiarism.

Passing coursework for others to submit
You are not permitted to request or arrange for another individual to submit your coursework for you. You must make every effort to ensure that you are available to submit your coursework in person. Should circumstances prevent you from handing in your own coursework, you should inform your Cluster Administrator and the lecturer concerned at the earliest opportunity to devise an alternative arrangement.

4. Collaboration (joint & group work) and Collusion

Students can struggle to understand the difference between collaboration and collusion.

Collaboration: Unlike collusion (where the work of another student is intentionally used with that student’s consent) which equates to deception, collaboration is encouraged as a professional skill much needed in engineering work. Collaboration involves mutual effort and joint work, to the benefit of all the parties involved, and where appropriate it should always be acknowledged, via footnotes for example. Students required to submit individual pieces must be clear on the distinction between the two.

Discussing coursework exercise submission with colleagues is fine: – what does the teacher expect from the work, what different approaches might there be, how much detail would be needed, how structured should the report be? In exploring with a colleague a range of approaches, or how to obtain specific solutions, one finds a positive help in learning something new. However, if the work is required to be an individual submission, then a line must be drawn where joint work is left behind and the individual work which is submitted for assessment should take over.

The results or calculations that form the basis of the report should be obtained by the individual student who is submitting the report as his/her own work, unless there is a clear expectation that others would be involved – as in the results of a survey – but then the contribution of the others should be made clear (for example, as footnotes in the report). The student is expected to write the report in his/her own words, to think of his/her own interpretations of the results and to make his/her own conclusions and recommendations.
Group work, for example group design projects, is work which is set by the teacher for joint working between two or more students and in which it is clearly understood that the teacher will give the assessment for the joint work undertaken. This provides valuable working experiences and learning opportunities, but these high-minded intentions can be severely undermined if any member of the group should not contribute in equal measure with his/her colleagues.

A student should always assume that coursework is individual work, unless it is clear that group assessment is planned by the teacher. If in doubt, seek the teacher’s advice about what working practices are acceptable. Do not hand over your work, under any circumstances, to another student.

**Collusion:** Where the work of another student is used with that student’s consent.

### 5. Exam Offences and Dishonest Practice

Exam offences include behaviour such as bringing unauthorised material into an exam, attempting to communicate with others apart from the invigilator, trying to remove examination material without permission, taking an exam for someone else or getting someone else to take an exam for you.

Examples of dishonest practice include bribery, contract cheating (buying work from an essay mill or other individual to submit as your own), 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.

### 6. Referencing

The recommended method of referencing is the Harvard style (author-date). All students have free access to RefWorks, an online reference management software package. More information is at the library website:

http://www.imperial.ac.uk/admin-services/library/learning-support/reference-management/

and library staff will provide training (contact details in section 6).

### 7. Advisory Services

**Academic Staff**

Your main source of information, and the College’s main source for the recognition of plagiarism, is the academic staff. Please be aware that you can approach them for advice and information if you are unsure or require clarification.

**The Library**

You can contact your librarian for advice, either in person or by emailing:

**Liaison Librarian:** Nicole Urquhart, n.urquhart@imperial.ac.uk
Department Librarian: Callum Munro c.munro@imperial.ac.uk

If you do have a query about a reference layout, include as much information as you have about the item you need help with.

The Central Library provides several sources of further information relating to referencing and plagiarism awareness:

- A guide to referencing and citing correctly, including how to use the Harvard style is available at http://www.imperial.ac.uk/admin-services/library/learning-support/reference-management/

- Further information about plagiarism awareness within College, please see the library website at http://www.imperial.ac.uk/admin-services/library/learning-support/plagiarism-awareness/

- In addition you can access the Library’s online Blackboard course, “Ensuring Integrity 1: Plagiarism Awareness” for Master’s students, using your College username and password. The course is available at http://bb.imperial.ac.uk and contains a section on plagiarism and how to avoid it.

Turnitin-UK

TurnitinUK is an online service hosted at www.submit.ac.uk that enables institutions and staff to carry out electronic comparison of students' work against electronic sources including other students' work. Once papers have been submitted to the system they become part of the database, and will be used for future checking.

IP / Data Protection

Some people have asked whether departments need to seek permission from students before submitting their work to a plagiarism detection system. The answer is no as the registration form, which is signed by students, states the following:

The College may submit your coursework to an external plagiarism detection service. By registering with the College, you are giving your consent for any of your work to be submitted to such a service'.

JISC Plagiarism Advice.org

www.plagiarismadvice.org/

Emphasis is on academic good practice from the lecturer's perspective, but the service can also provide help to students.

8. Submission of Individual Items of Coursework

Copying the work of others without acknowledgement of the source of the information is academic fraud, known as plagiarism. Wilfully copying is outright cheating, forgetting to list
references and reference material is ineptitude. Neither form of plagiarism is acceptable and may well result in one or more parties, deemed to be involved, being awarded a mark of zero.

All coursework, project work and research submissions, including dissertation must contain the following statement, signed by the student.

```
Declaration: I confirm that this submission is my own work. In it, I give references and citations whenever I refer to, describe or quote from the published, or unpublished, work of others.

Signature:___________________
```

Failure to submit the signed declaration with all written works will result in their being unmarked, or returned with a mark of zero.

An example of a Coursework Cover Sheet is given in Appendix E of this document.

More information on the actions taken by the Department following cases of suspected plagiarism will be provided to you at the time that you are given your first coursework assignments.
Plagiarism: UCL statement

It is a form of cheating to present the work of others as your own. Copying the work of others in its entirety or in part, without acknowledgement is referred to as Plagiarism. It does not matter whether the work you copy is published (as part of a book or an article) or unpublished (a research report, a planning document, or work submitted by someone else at some time in the past) copying it is still cheating. Where work is part of a joint project, the contribution of the individual to any common submission must be made clear: in submitting a piece of work, you are claiming credit for all elements of that work that are not referenced explicitly to other sources.

Guidance on plagiarism and how to avoid it is given at http://www.ucl.ac.uk/current-students/guidelines/plagiarism and http://www.plagiarism.org/citing-sources/whats-a-citation. This is not intended to stop you referring to other people’s work or ideas. It is meant to ensure that you acknowledge your sources and, if you use the same form of words, that you make clear that you are quoting somebody else and that the words are not your own. In the case of authoritative standards and design elements, identifying which of these your work follows will strengthen your submission.

If the examiners suspect that the work may not be the candidate’s own, the candidate will normally be required to discuss the matter with their Programme Director and/or Director of Studies. In every case where it is established that a candidate’s individual contribution to a piece of coursework is not entirely his or her own original work, marks may be deducted. If the copying is deemed to be extensive then the Department is required to report the matter to College. It is a College rule that candidates who are found to have been guilty of plagiarism will receive a mark of zero for the piece of work in question and in extreme cases may be disqualified from receiving a degree.

UCL has adopted a sophisticated system (Turnitin) that scans work for evidence of plagiarism and the Department now uses this for assessed coursework and project submissions. This system gives access to billions of sources worldwide, including websites and journals, as well as work previously submitted to the Department, UCL and other universities.

UCL is subject to the University of London’s General Regulations for Internal Students and the policy detailed below has been drawn up in accordance with those Regulations.

- Plagiarism is defined as the presentation of another person's thoughts or words or artefacts or software as though they were a student's own.
- Any quotation from the published or unpublished works of other persons must, therefore, be clearly identified as such by being placed inside quotation marks, and students should identify their sources as accurately and fully as possible with a reference to the source (including the page number) in the text.
- A series of short quotations from several different sources, if not clearly identified as such, constitutes Plagiarism just as much as does a single unacknowledged long quotation from a single source. Equally, if a student summarises another person's ideas, judgements, figures, diagrams or software, a reference to that person in the text must be made and the work referred to must be included in the bibliography.
- The source of all tables, maps and figures should be acknowledged by a reference preceded by the word "Source" which should be placed immediately below the table or figure.
- Recourse to the services of "ghost-writing" agencies (for example in the preparation of essays or reports) or of outside word-processing agencies which offer "correction/improvement of English" is strictly forbidden, and students who make use of the services of such agencies render themselves liable for an academic penalty.
- Where part of an examination consists of "take away" papers, essays, project reports,
theses or other work written in a student's own time, or a coursework assessment, the work submitted must be the candidate's own.

- The Department of Civil, Environmental and Geomatic Engineering gives specific advice about non-originality, plagiarism and the use of materials by others, and students must make themselves aware of such departmental guidelines and abide by them. For some assessments it is also unacceptable for a student to reproduce material that has been used in other work/assessment for the course or programme concerned. Students should make themselves aware of the department's rules on this "self-plagiarism". If in doubt, students should consult their Personal Tutor or another appropriate Tutor.

- Failure to observe any of the provisions of this policy or of approved departmental guidelines constitutes an examination offence under UCL Regulations. Examination offences will normally be treated as cheating or irregularities under the regulations for Proceedings in respect of Examination Irregularities. Under these Regulations students found to have committed an offence may be excluded from all further examinations of the University and/or UCL.

The following guidelines should always be respected:

- All indirect/paraphrased quotations and borrowed ideas should be acknowledged by means of a reference in the text.
- Second-hand quotations (i.e. where one work you have read refers to another which you have been unable to locate) should be given in the form (Author X, date, cited in Author Y, date) and only the work of Author Y should be cited in the text.
- No work should be submitted without references in the text and a list of references at the end.
- Each reference that is cited in the text should be accompanied by a full entry in the list of references.
- Each entry in the list of references should be cited at least once in the text.

For further information and guidance on plagiarism, see the CEGE Student Information Moodle page (under the General Information tab):
https://moodle.ucl.ac.uk/course/view.php?id=26073&section=0

Ignorance of the rules will not be accepted as a defence against a charge of plagiarism.

Referencing the work of others is not only a matter of giving credit where it is due, but also demonstrates appropriate reading, and is practically useful to both the writer and reader in doing further work.
6. Board of examiners

**Board of Examiners**

CHAIR

👤 Professor Benjamin Heydecker

EXAMINATIONS OFFICER

👤 Dr Arnab Majumdar

SECRETARY

👤 Maya Mistry

MEMBERS: All staff involved in the delivery, setting, and marking of assessment for the programmes.

**For external examiners**

Professor John Nelson, University of Aberdeen

It may happen that Master’s level students to have some form of academic or social interaction with their external examiners at some point during or after their studies as well as during the assessment process itself.

It is inappropriate for you to submit complaints or representations direct to external examiners or to seek to influence your external examiners. Inappropriate communication towards an examiner would make you liable for disciplinary action.

External examiners reports digests can be found here:

Welcome from the Head of Department at Imperial

I trust you have had a great summer, whether you were gaining work experience or taking a well-earned rest, and I hope that you are now ready to study again with renewed vigour!

You will be working alongside some of the brightest and most motivated students from around the world, taught by an exceptional group of internationally-leading experts. A strength of our Department, and the College as a whole, is its national and cultural diversity (well over 50 nationalities are represented in our Department alone) and we don’t intend to allow Brexit, or any other outside influence, to change that.

London is a wonderful place to be a student. Please take full advantage of your once-in-a-lifetime opportunity and find a good balance between studying hard to fulfil your potential, and enjoying the company of your fellow students and life in London.

Good luck for the coming year!

Professor Nick Buenfeld

Welcome from the Programme Director

On behalf of the staff of the Centre for Transport studies I would like to extend a warm welcome to our new and returning students to the 2018/19 academic year. I hope that you will find your courses stimulating and that the learning and expertise offered at Imperial College will enable you to realise your full potential. I am delighted that you have chosen to study with us and I hope that that you will really enjoy your time here in London.

With best wishes for a successful and fulfilling year.

Professor Daniel Graham

Imperial’s Principles

In 2012 the College and Imperial College Union agreed ‘Our Principles’ a series of commitments made between students and the College. The Principles are reviewed annually by the Quality Assurance and Enhancement Committee and changes recommended for Senate approval.

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

**Key dates 2018-19, Imperial**

**Term dates**
- Autumn term: 29 September – 14 December 2018
- Spring term: 05 January – 22 March 2019
- Summer term: 25 April – end of course

**Closure dates**
- Christmas/New year: 22 December 2018 – 01 January 2019
- Easter holiday: 18 April – 23 April 2019
- Early May bank holiday: 06 May 2019
- Spring bank holiday: 27 May 2019
- Summer bank holiday: 26 August 2019

**Key events**
- Postgraduate Awards Ceremonies: 06 May 2020
- Imperial Festival and Alumni Festival: 29-30 June 2019
Facilities and resources, Imperial

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:

📍 Imperial College London
Department of Civil and Environmental Engineering
Skempton Building
South Kensington Campus
Imperial College London
London SW7 2AZ

The Skempton building can be accessed from 07.00-00.00 daily. The main entrance requires the use of your college ID card between the hours of 07.00-08.00 and 18.00-00.00. During weekends and vacation periods you will be required to use your college ID card each time you enter and exit the building.

Smoke-free policy

All Imperial campuses and properties are smoke-free. This means that smoking by staff and students 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

📍 University College London
Department of Civil, Environmental and Geomatic Engineering
University College London
Chadwick Building
Gower Street
London WC1E 6BT

In order to provide security, entry to the Department is controlled by your UCL ID card. Ground Floor and above: Monday-Friday: 08:00-22:00; weekends: 08:00-19:00. Chadwick Basement labs: Monday-Friday: 08:00-17:00. NO access at the weekends.
Facilities

PC laboratories

The Skempton Building houses three PC laboratories located in rooms 208, 314, and 317. These facilities are shared space with the Department of Aeronautics and the Department of Mechanical Engineering. They are open to all registered students of the aforementioned Departments from 08.00-22.30 daily, except when timetabled for classes. Further PC facilities are available in, and shared with, the City and Guilds Building, and the College’s Central Library.

A full list of the College rules regarding computer use are available at:

http://www.imperial.ac.uk/admin-services/ict/

Shared teaching space

The Faculty of Engineering is committed to utilising its facilities and teaching space, hence there are a number of shared teaching spaces between Departments/Buildings. Teaching space in the Skempton Building is often timetabled to accommodate lectures between the Civil and Environmental, Mechanical, and Aeronautical Engineering Departments.

While the Department of Civil and Environmental Engineering is housed in the Skempton Building, teaching may also be delivered outside of Skempton, primarily in the City and Guilds Building.

Within the Skempton Building, the teaching areas are to be found on levels 0, 1, 2, 3, and 6, with the exception of the teaching laboratories which are located on levels 0, 1, 2, and 5.

http://www.imperial.ac.uk/engineering/students/current/teaching-spaces/
<table>
<thead>
<tr>
<th>Room</th>
<th>Level</th>
<th>Capacity</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting Room 002</td>
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<td>Seminars – presentations</td>
</tr>
<tr>
<td>Teaching Room 060A (P)</td>
<td>0</td>
<td>30</td>
<td>Lectures – tutorials – examinations – presentations</td>
</tr>
<tr>
<td>Teaching Room 060B (P)</td>
<td>0</td>
<td>30</td>
<td>Lectures – tutorials – examinations – presentations</td>
</tr>
<tr>
<td>Teaching Room 060C (P)</td>
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<td>Lectures – tutorials – examinations – presentations</td>
</tr>
<tr>
<td>Learning Centre 062</td>
<td>0</td>
<td>24</td>
<td>Exams – tutorials – study groups</td>
</tr>
<tr>
<td>Teaching Room 064A (P)</td>
<td>0</td>
<td>30</td>
<td>Lectures – tutorials – exams – presentations</td>
</tr>
<tr>
<td>Teaching Room 064B (P)</td>
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<td>27</td>
<td>Lectures – tutorials – exams – presentations</td>
</tr>
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<td>Hydrodynamics Laboratory</td>
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<tr>
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</tr>
<tr>
<td>Lecture Theatre 164 (P)</td>
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<td>Lectures – presentations – seminars</td>
</tr>
<tr>
<td>Teaching Room 165</td>
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</tr>
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<td>Structures Laboratory</td>
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<tr>
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<td>Lecture Theatre 207 (P)</td>
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<td>Reprographics Room 218</td>
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<td>N/A</td>
<td>Printing facilities</td>
</tr>
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<td>Intelligent Infrastructure Transport Systems Laboratory</td>
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<td>Teaching Room 224 (P)</td>
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<td>Teaching Room 301 (P)</td>
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</tr>
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</tr>
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<td>Computing – lectures – tutorials</td>
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<tr>
<td>Teaching Room 315 (P)</td>
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<td>Computing Lab 317 (P)</td>
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<td>Meetings – PhD Exams – presentations</td>
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<td>Laboratory Room 509</td>
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<td>Environmental Laboratory (Roger Perry)</td>
</tr>
<tr>
<td>Laboratory Room 528</td>
<td>5</td>
<td>N/A</td>
<td>Geotechnics Laboratory</td>
</tr>
<tr>
<td>Teaching Room 601</td>
<td>6</td>
<td>40</td>
<td>Lectures – tutorials – meetings – exams – presentations</td>
</tr>
</tbody>
</table>

(P) denotes rooms which are Panopto-enabled.
**College ID cards**

For MSc students who have uploaded their photos and registered online, ID cards can be collected from the General Office, Skempton Building following confirmed attendance at the day 2 Health and Safety induction. For those who have their photos taken on arrival, the ID card is normally available from the General Office in the Skempton Building within two days.

**ICT resources**

Find information on activating your College account, connecting to Wifi, using the Virtual Learning Environment (Blackboard Learn), and more ICT resources available for new students, visit:

http://www.imperial.ac.uk/admin-services/ict/new-to-imperial/students/

**Printing and binding**

There are five multi-function printers in the Skempton Building. The first is in room 317, two are located in the BOSS Space on level 2, and a further two in room 218 adjacent the BOSS Space.

Additionally the Service Point Print Shop is located in room 024 of the Sherfield Building. Service Point can be contacted by email at:

imperial.college@servicepointuk.com

There are networked printers across the South Kensington Campus, which you can access with your College ID card. When you print a document it is sent to a common print queue, meaning that you can collect it from any touch card printer that your College ID card gives you access to, including the Central Library and Departments across the Campus.

http://www.imperial.ac.uk/admin-services/ict/self-service/computers-printing/printing/

**Lockers**

There are 312 lockers located on Level 3, Skempton, of which 156 have been allocated to MSc students. If you would like to be allocated a locker you need to complete the relevant form below. Numbers are limited and allocated on receipt of the form:

https://skempton.wufoo.eu/forms/lockermscapplicationform201819/

The Department’s Postgraduate/General Office is located in room 118 in the ground floor of the Skempton Building, open Monday-Friday 08.00-17.30.

**Lost property**

If you think you have lost something within the Department your first port of call is the Reception. If it is not there you should check with the Security Office in Sherfield as it may have been handed in there. (If an item is handed in with ID, an email will be sent to the owner immediately to inform them).
All items found within the Department (e.g. keys/phones/bags) should be handed into the Reception. All items found outside the Department should be handed into the Security Office in the Sherfield Building in the South Kensington campus.

[Link to lost and found property]

**Facilities management**

Showering facilities are available within the Department, and are located in the toilets on levels 0 and 3.

Bicycles are **not** permitted within the Department. This is College policy. The following link provides information on suitable bicycle storage within the South Kensington Campus:

[Link to bicycle storage]

**Room bookings**

Room bookings on weekdays during term-time may be requested via an online form, or in person at the Postgraduate/General Office. This form is to be used only for room booking requests in the Skempton Building.

[Link to room booking form]

Please note: **We do not make room bookings for Imperial College Union Societies.** These need to be made via the Student Union. Room booking requests outside of normal College hours should be made via the Conference Office: 
[Contact information for the Conference Office]

**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. Download the timetable at:

[Link to shuttle bus timetable]

**Imperial Mobile app**

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

[Link to Imperial Mobile app]

**Maps**

Campus maps and travel directions are available at:

[Link to maps and directions]
Accessibility

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

viders:

Computing and library services, Imperial

Information and Communications Technologies (ICT)

If you’re having problems with technology (including computers, laptops and mobile devices), you can get help from ICT’s Service Desk.

020 7594 9000

www.imperial.ac.uk/ict/service-desk

Software store

The Software store offers a variety of general and subject specific software programs and packages for free or at a discounted price for Imperial students.

www.imperial.ac.uk/admin-services/ict/shop/software

Central library

The Central Library at South Kensington is open around the clock pretty much all year. Make sure you find out who your departmental librarian is as they’ll be able to help you find resources for your subject area. 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. Alongside these physical spaces and resources, the Library provides over 170,000 electronic books, journals and databases available both on and off campus and a free document delivery service to help you source books and articles from around the UK and the rest of the world:

www.imperial.ac.uk/library

Departmental library

The Civil Engineering Library provides a space for the exclusive use of students and staff of the Department. Funded by the Department, the Library hosts a collection of around 15,000 books, 400 online and print journal titles, a large collection of reports from industry, and historical collections. During term time it is open from 09.00 to 19.00, Monday-Thursday, and 09.00-17.00 on Fridays.

Our dedicated Librarian offers support with coursework and information skills in one-to-one or group formats. The Library engages with students via Twitter @CivEngLib.
Further information about the library and its services is available from the library staff and from the Departmental Library webpage:

- Callum Munro
- Departmental Library, Room 402
- http://www.imperial.ac.uk/civil-engineering/about-us/library/

**Institution of Civil Engineers Library (ICE)**

The library located at the Institution of Civil Engineers (ICE) is home to the world’s largest dedicated collection of civil engineering materials. In addition to printed books and journals, the ICE library also offers access to a number of digital services, including e-books and advanced search tools, and a quiet place to work. All ICE members can borrow up to three items in person, or by post.

- Institution of Civil Engineers Library
- 1 Great George Street, London, SW1P 3AA
- 020 7665 2251
- library@ice.org.uk
- https://www.ice.org.uk/disciplines-and-resources/ice-library-and-digital-resources

**Well-being and advice, Imperial**

**Student Space**

The Student Space website is the central point for information on health and well-being.

- www.imperial.ac.uk/student-space

**Director of Student Services**

The Director of Student Services has overall responsibility for all matters relating to student support and well-being.

- http://www.imperial.ac.uk/student-space/here-for-you/director-of-student-services/

**Departmental support and tutors**

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 here. We have a collective responsibility to ensure that during your time with us, you feel that you are working in a safe and supportive environment. You should feel free to approach any member of staff at any time. If they cannot provide immediate assistance, they will be able to signpost you.
The greatest source of support you will have is your own fellow students. If you are concerned about a fellow student, then you should feel comfortable in approaching a member of staff for guidance. Any such approaches will be treated with sensitivity.

Details of trained First Aiders and Mental Health First Aiders are located in the lifts and on notice boards around the Skempton Building – and included in the Health and Safety (orange) section of this handbook.

**Senior Tutor (Postgraduate)**

In the event of an issue arising, within the Department there are a number of avenues for you to seek support. This will include your departmental Senior Tutor (Postgraduate), Dr Ana Ruiz-Teran, and other designated staff such as programme directors and administrative staff.

**Faculty Senior Tutor**

There are a number of avenues within the College to seek help with academic or pastoral matters: [http://www.imperial.ac.uk/student-space/](http://www.imperial.ac.uk/student-space/). In the event that you would like to seek additional support or guidance, or that you wish to air your issues in confidence, the Faculty Senior Tutor, Dr Lorraine Craig, can be contacted by email l.craig@imperial.ac.uk in the first instance. Depending on the nature of your query, it may be passed onto other more relevant staff.

**Working while studying**

If you are studying full time, it is recommended 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 must 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 visa you are not permitted to work 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 issue with your supervisor or Senior Tutor (Postgraduate). If you are on a Tier 4 visa you should also seek advice from the International Student Support team regarding visa limitations on employment.

Please refer to Imperial’s policy on working while studying:


**Advice services**

The tutor system is complemented by a College-wide network of advice and support. This includes a number of specialist services.
**Careers Service**

The Careers Service has strong links to your Department and you will have a named Careers Consultant and Placement and Internship Adviser who will run both group sessions and individual meetings within your Department. You can arrange to meet with your linked Careers Consultant or Placement and Internship Adviser either in your Department or centrally on Level 5 Sherfield where the Careers Service is based.

Visit the Career Service's website to:

- Book a careers appointment
- Find resources and advice on successful career planning

[www.imperial.ac.uk/careers](http://www.imperial.ac.uk/careers)

**Counselling and Mental Health**

The Student Counselling and Mental Health Advice Service offers short-term counselling to all registered students. The service is free and confidential. Counsellors are available at the South Kensington, Hammersmith and Silwood Park Campuses.

[www.imperial.ac.uk/counselling](http://www.imperial.ac.uk/counselling)

**Financial support and tuition fees**

If you’ve got any questions about student financial support (loans, scholarships and research council studentships, US and Canadian loans) then contact the Student Financial Support team:

- 020 7594 9014
- student.funding@imperial.ac.uk

If you suddenly find yourself in financial difficulties or experience an unexpected change in circumstances, you may be eligible to apply for emergency financial help through the Student Support Fund. The Fund offers a one-off payment of up to £2,000 to cover emergencies such as last minute accommodation and travel necessities, equipment and childcare. It does not have to be repaid.

[http://www.imperial.ac.uk/students/fees-and-funding/financial-assistance/student-support-fund/](http://www.imperial.ac.uk/students/fees-and-funding/financial-assistance/student-support-fund/)

For tuition fees queries, contact the Tuition Fees team:

- 020 7594 8011
- tuition.fees@imperial.ac.uk
**Imperial College Union (ICU) Advice Centre**

Imperial College Union runs the Advice Centre independently of the College with advisers on hand to provide free, confidential, independent advice on a wide range of welfare issues including housing, money and debt, employment and consumer rights, and personal safety.

[www.imperialcollegeunion.org/advice](http://www.imperialcollegeunion.org/advice)

**Student Hub**

The Student Hub represents a single point of contact for all key administrative information and support. The Student Hub team can help you with enquiries about:

- Accommodation (including checking contracts for private accommodation)
- Admissions
- International student enquiries
- Research degrees
- Student financial support
- Student records
- Tuition fees

📍 Level 3, Sherfield Building, South Kensington Campus

📞 020 7594 9444

✉️ student.hub@imperial.ac.uk

💻 www.imperial.ac.uk/student-hub

**Religious support**

The Chaplaincy Multi-Faith Centre has chaplains from many different religions, as well as prayer rooms and information on places of worship. In addition, it runs meditation classes and mindfulness workshops for stress management. There is a student-run Islamic prayer room on campus and separate areas available for male and female Muslims.

[www.imperial.ac.uk/chaplaincy](http://www.imperial.ac.uk/chaplaincy)
Support for international students

**English language support**

The Centre for Academic English provides free in-sessional English courses for international students while they are studying. These include classes and workshops on academic language, social language, the four skills of reading, writing, listening and speaking, 1-1 consultations with a tutor to work on a piece of academic writing or an oral presentation, self-study resources in the VLE Blackboard, and the Conversation Project, which partners students with a native-speaker volunteer to practise social and conversational English.

[www.imperial.ac.uk/academic-english](http://www.imperial.ac.uk/academic-english)

**International Student Support team**

Students from outside the UK make up around half of our student population, so our International student Support team offers year-round support to help our international students settle into Imperial life. This includes UK visa and immigration advice and trips to different places of interest.

[www.imperial.ac.uk/study/international-students](http://www.imperial.ac.uk/study/international-students)
Welcome from the Imperial College Graduate School

Professor Sue Gibson, Director of the Graduate School

The Graduate School has several roles but our main functions are to provide a broad, effective and innovative range of professional development workshops and to facilitate interdisciplinary interactions by providing opportunity for students to meet at academic and social events. Whether you wish to pursue a career in academia, industry or something else, professional skills development training will improve your personal impact and will help you to become a productive and successful researcher.

Professional development courses for Master’s students are called “Masterclasses” and they cover a range of themes, for example, presentation skills, academic writing and leadership skills (http://www.imperial.ac.uk/study/pg/graduate-school/professional-skills/masters/). All Masterclasses are free of charge to Imperial Master’s students and I would encourage you to take as many as you can to supplement your academic training. The Graduate School works closely with the Graduate Students’ Union (GSU) and is keen to respond to student needs so if there is an area of development training, or an activity that you would like us to offer, but which is not currently provided, please do get in touch (graduate.school@imperial.ac.uk).

The Graduate School also runs a number of exciting social events throughout the year which are an opportunity to broaden your knowledge as well as to meet other students and have fun. You should regularly check the Graduate School’s website and e-Newsletters to keep up to date with all the events and development opportunities available to you.

Finally, I hope that you enjoy your studies here at Imperial, and I wish you well.

Dr Janet De Wilde, Head of Postgraduate Professional Development

I would like to welcome you to the Graduate School’s programme of professional development for research students.

Our team of tutors have a wide variety of research and other career experiences. We understand just how important it is to develop professional skills whilst undertaking postgraduate research studies. Not only does our programme help you to progress in your academic studies, it can also be part of your preparation for your future career. We provide the opportunity for you to practice your presentation skills, academic writing skills and other key skills. It will also give you the chance to meet students from a variety of subject disciplines building your network.

We offer a range of interactive courses including face-to-face workshops, interactive webinars and online self-paced courses. We also offer a choice of residential opportunities. We have three residential retreats including thesis writing, team work and research impact. We also have our Global Fellows Programme which provides the fantastic opportunity to spend a week with researchers from across the world. I encourage you to explore and engage with the diverse range of opportunities on offer from the Graduate School and I wish you well in your studies.
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
- Networking activities, social and academic events to encourage cross-disciplinary 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:

[www.imperial.ac.uk/study/pg/graduate-school/professional-skills/masters](http://www.imperial.ac.uk/study/pg/graduate-school/professional-skills/masters)

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/graduate-school](http://www.imperial.ac.uk/graduate-school)

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](http://www.imperial.ac.uk/success-guide)
Welcome from the Graduate Students’ Union (GSU)

I am delighted to welcome you to Imperial College! Let me introduce you to the Graduate Students’ Union (GSU). We are the representative body defending your interests as a postgraduate student in major decisions taken by the College. Beyond that, we work towards building a thriving postgraduate community that spans faculties and where students effectively communicate in an interdisciplinary way. Our committee is comprised of motivated postgraduate students like yourself, who have been appointed in university-wide elections and volunteer to make your experience at Imperial as fulfilling and enjoyable as possible.

So, what are we up to for this coming year 2018/19? We are going to focus on three major areas of action:

- Continue improving postgraduate well-being by increasing the quality of supervision and by creating strategies to tackle common mental health challenges in higher education.
- Develop the GSU to become central to the post-graduate community by improving the two-way flow of information, between the GSU and you.
- Organise exciting events around the topics of well-being, interdisciplinary research, and entrepreneurship.

As the GSU president, I would like to emphasise that Imperial College London is relying on its postgraduate students to maintain its position as a front-runner in world-class research and teaching. For us, the GSU, to be successful we need to receive as much of your input as possible. We want to work with you, for you!

Finally, I hope that you have a fantastic time here at Imperial and take advantage of the richness of opportunities that awaits you. If ever you have questions or ideas to share with us, please do not hesitate to get in touch with us and we are looking forward to seeing you at our events!

Ute Thiermann, GSU President 2018/19

gsu.president@imperial.ac.uk

www.imperialgsu.com
Health services, Imperial

NHS Health Centre and finding a doctor

Even if you’re fit and healthy we recommend that you register with a local doctor (GP) as soon as you arrive in London. For help finding your nearest GP see the Student Space website:

网址: www.imperial.ac.uk/student-space/here-for-you/find-a-doctor

There is an NHS Health Centre on our South Kensington Campus which you may visit during clinic hours if you’re feeling unwell. Students living within the practice catchment area are encouraged to register with the Centre.

网址: www.imperialcollegehealthcentre.co.uk

NHS Dentist (based in the Health Centre)

Imperial College Dental Centre offers a full range of NHS and private treatment options.

网址: www.imperial.ac.uk/student-space/here-for-you/dentist

Disability support

Disability Advisory Service

The Disability Advisory Service provides confidential advice and support for all disabled students and students with specific learning difficulties.

If you think you may have dyslexia or another specific learning difficulty but have never been formally assessed, the Disability Advisory Service offers initial screening appointments.

地点: Room 566, Level 5, Sherfield Building, South Kensington Campus

电话: 020 7594 9755

电邮: disabilities@imperial.ac.uk

网址: www.imperial.ac.uk/disability-advisory-service
**Departmental Disability Officers**

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

Your Departmental Disability Officer is

- Mrs Louise Green
- Undergraduate Office, Room 401
- l.green@imperial.ac.uk

More information on Departmental Disability Officers is available at:

- [www.imperial.ac.uk/disability-advisory-service/support/ddos](http://www.imperial.ac.uk/disability-advisory-service/support/ddos)

More information on procedures for the consideration of additional exam arrangements in respect of disability is available at:


If you have any issues regarding a disability that you would like to discuss with your Department, or if you believe you will require special examination arrangements due to a disability, please feel free to speak to Mrs Louise Green in Room 401, or email for an appointment.

**Health and safety, Imperial**

You are responsible for looking after your own health and safety and that of others affected by your College-related work and leisure activities. You must:

- Comply with all local and College policies, procedures and codes of practice and with the arrangements which the College has in place to control health and safety risks.
- Ensure that your activities do not present unnecessary or uncontrolled risks to yourself or to others.
- Attend appropriate induction and training.
- Report any accidents, unsafe circumstances or work-related ill health of which you become aware to the appropriate person.
- Not interfere with any equipment provided for Health and Safety.
- Inform your supervisor or the person in charge of the activity in cases where you are not confident that you are competent to carry out a work or leisure activity safely, rather than compromise your own safety or the safety of others.

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

Your Departmental safety officer is:

Dr Geoff Fowler
Room 413, Skempton Building
020 7594 5973
g.fowler@imperial.ac.uk

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

- Health and Safety induction, at which a checklist must be completed, signed by the student, and a relevant member of staff (Note: ID cards, available from the Postgraduate/General Office will only be given to those presenting the completed and signed Health and Safety checklist).

A copy of the Department Health and Safety Booklet can be found in Appendix F.

**The College Safety Department**

The Safety Department offers a range of specialist advice 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 (biological, chemical and radiological substances) to field work, heavy or awkward lifting, driving, and working alone or late.

All College 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 via the “SALUS” online tool. This can be accessed via:

[www.imperial.ac.uk/safety](http://www.imperial.ac.uk/safety)

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 Safety Department 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](http://www.imperial.ac.uk/occupational-health)

**Communications**

It is not possible to provide a service for incoming telephone messages except in the case of emergency. Please ensure that your family/next of kin are aware of the following contacts:

**Civil Engineering General (Postgraduate) Office**

- 00 44 (0) 207 594 5929 (Fionnuala Donovan)
- 00 44 (0) 207 594 5932 (Yamini Chikhlia)
- 00 44 (0) 207 594 5931 (Melanie Hargreaves)
- 00 44 (0) 207 594 6123 (Angela Frederick)

**Transport Engineering**

- 00 44 (0) 207 594 6100 (Maya Mistry)

Please ensure that your student-e-service contact details are up-to-date at all times, including your next-of-kin-contact information.

The Department is not able to provide a postal or fax service.

**Working alone and emergency contact numbers**

It is prohibited under College safety regulations for any person to work alone in a laboratory or workshop at any time. At least one other person must be within calling distance. All members of the College must know how to contact the College’s emergency response services.

Please save the following number in your mobile/cell phone for use in all emergencies anywhere on the College’s South Kensington campus – including where an ambulance is felt to be needed, the call will go direct to the College Security Control Desk: **020-7589-1000**.

The Security team are on duty 24/7 and will assess the emergency and implement the necessary response for the situation (including calling the London Emergency services).

If using an internal College phone, the number to call is **4444**.

Any activity involving tools or machinery is deemed to be "working in a laboratory or workshop"; purely office or computing activities are excluded.

(Full details are given at the front of the orange Safety Booklet – see Appendix F.)
Student feedback and representation, Imperial

**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 (ICU) website.

[www.imperialcollegeunion.org/your-union/your-representatives/academic-representatives/overview](http://www.imperialcollegeunion.org/your-union/your-representatives/academic-representatives/overview)

Due to the number and complexity of our MSc programme configuration, elections to the positions of Programme Student Representatives are managed within the Department. You will be advised of the processes, both on self-nomination for the positions, and the selections processes, during the cluster induction sessions. Typically we look for one representative from each of the core programmes and one or two from Business Management.

**Staff-Student Committee**

The Staff-Student Committee is 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/student-feedback](http://www.imperial.ac.uk/about/governance/academic-governance/academic-policy/student-feedback)

There are three committees: Undergraduate, Master’s and Research Students/Staff. They meet once each term, and their remit is as follows:

- To provide a forum for debate about important matters.
- To receive feedback from students.
- To initiate enquiries or investigations on matters of concern to students.
- To represent the interests and requirements of the student body.
- To air grievances.

The membership is drawn from the student body, with members being elected by their peers at the beginning of term, the Student Union, the Graduate Student Association and relevant Departmental Officers.

The Undergraduate SSLC is chaired by the Director of Undergraduate Studies and both the MSc and PhD are chaired by the Senior Tutor (Postgraduate), with the Departmental Postgraduate Representative acting as Deputy-Chair.
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 Imperial experience, the following College-wide surveys give you regular opportunities to make your voice heard:

- PG SOLE lecturer/module Survey
- Student Experience Survey (SES)
- Postgraduate Taught Experience Survey (PTES)

The PG SOLE lecturer/module survey runs at the end of the autumn and spring terms. This survey is your chance to tell us about the modules you have attended and the lecturers who taught them.

For PG SOLE your lecturers will receive their individual numerical results and comments shortly after the survey closes. To make the most of your opportunity to give your feedback, please do not use offensive language or make personal, discriminatory or abusive remarks as these may cause offence and may be removed from the results. Whilst this survey is anonymous, please avoid self-identification by referring to personal or other identifying information in your free text comments.

The Student Experience Survey (SES) is another opportunity to leave your views on your experience. This survey will cover your induction, welfare, pastoral and support services experience.

The Postgraduate Taught Experience Survey (PTES) is the only national survey of Master’s level (MSc, MRes, MBA and MPH) students we take part in. This is the only way for us to compare how we are doing against the national average and to make changes that will improve our Master’s students’ experience in future. PTES covers topics such as motivations for taking the programme, depth of learning, organisation, dissertation and professional development. PTES last ran in spring term 2018.

All these surveys are anonymous and the more students that take part the more representative the results so please take a few minutes to give your views.

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](http://www.imperialcollegeunion.org/you-said-we-did)

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](http://www.imperial.ac.uk/students/academic-support/student-surveys/pg-student-surveys)

For further information on surveys, please contact the Registry’s Surveys Team at:

[surveys.registrysupport@imperial.ac.uk](mailto:surveys.registrysupport@imperial.ac.uk)

The pace and intensity of postgraduate study at Imperial can be demanding so it’s important to find time for outside interests.
Civil Engineering Society (CivSoc)

The Civil Engineering Society is the departmental student society, of which all Undergraduate and Postgraduate students are automatically members. Run by an elected committee of students, CivSoc is one of the most active departmental societies in the College and organises regular events throughout the academic year. These include numerous lunchtime lectures given by industrial companies, site visits, social events and parties. The highlight of the CivSoc year is the extremely popular international trip in the spring, open to all students in the Department. Additionally, CivSoc writes and publishes the departmental student newspaper LIVIC. All students are encouraged to participate in CivSoc-run activities. Announcements concerning upcoming events and society news are emailed to all members, displayed on the screen in the second floor Breakout Student Space, as well as being available on CivSoc’s website and social media pages.

Chair: Hippolyte Mounier-Vehier

Secretary: Elena Sakka

Treasurer: Dalia Lister

LIVIC Editor: Thibault Audic

Events Officer: Joshua Lim

Industrial Liaison Officer: Alexis de Germay de Cirfontaine

Tour Officer: Inigo Basterretxea Jacob

Treasurer: Hein Zaw (William)

Alumni and Mums & Dads: Dorian Sabathier

Department Representative: Ottilie Liu

Imperial College Union

The Union’s range of 375+ 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

Graduate Students’ Union

The Graduate Students’ Union is the postgraduate arm of Imperial College Union. The GSU works alongside the Imperial College Union President to ensure that the requirements of postgraduate students are catered for. It also organises a number of academic and social events during the year.

Physical Activity Sport

Imperial College has a wide range of sports and activities on offer that cater for all standards 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. With an annual fee of £30 you will get use of the gym and swimming facilities on our campuses.

www.imperial.ac.uk/sport

Policies and procedures, Imperial

Regulations for students

All registered students of the College are subject to the Regulations for Students, the College Academic and Examination Regulations and such other regulations that the College may approve from time to time.

www.imperial.ac.uk/about/governance/academic-governance/regulationswww.imperial.ac.uk/students/terms-and-conditions

Appeal and complaints procedures

We have rigorous regulations in place to ensure assessments are conducted with fairness and consistency. In the event that you believe that you have grounds for complaint about academic or administrative services, or wish to appeal the outcome of an assessment or final degree, we have laid out clear and consistent procedures through which complaints and appeals can be investigated and considered:

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

Academic integrity

You are expected to conduct all aspects of your academic life in a professional manner. A full explanation of academic integrity, including information on the College’s approach to plagiarism is available on the Student Records and Data website:


Intellectual property rights policy

For further guidance on the College’s Intellectual Property Rights Policy, please contact the Research Office:

www.imperial.ac.uk/research-and-innovation/research-office/ip

Use of IT facilities

View the Conditions of Use of IT Facilities: http://www.imperial.ac.uk/admin-services/ict/self-service/computers-printing/staff-computers/conditions-of-use-for-it-facilities/
Welcome to UCL Civil, Environmental and Geomatic Engineering

UCL Civil, Environmental and Geomatic Engineering is a multidisciplinary department with a long-established tradition of excellence in teaching and research. We currently hold the largest EPSRC research portfolio in civil engineering, with research projects and centres linking with industry leaders and reflecting a broad multidisciplinary view of the engineering world.

Our innovative undergraduate degree programmes have won praise from the Royal Academy of Engineering, with strong links to industry and our leading research embedded at every stage of the programmes. You can read more about them on our undergraduate pages and hear about them in our students' own words on our YouTube channel.

We were proud to celebrate our 190th birthday in 2017. In 1827 the founders of University College London appointed a professor of engineering, John Millington, to teach civil engineering, the first such appointment in England. Over 190 years later, we are still at the cutting edge of the discipline, home to some of the most successful engineering departments in the UK.

Following the recent EU Referendum result, UCL President and Provost Professor Michael Arthur and Executive Dean of Engineering, Professor Nigel Titchener-Hooker, would like to assure UCL students, prospective students and staff from EU countries that they will continue to be as valued and as welcome at UCL as before. If you have any queries regarding what the referendum result could mean for you and UCL, please read their responses.

Key dates 2018-19, UCL

**Term dates**

<table>
<thead>
<tr>
<th>Term</th>
<th>Dates</th>
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<tbody>
<tr>
<td>Autumn term</td>
<td>24 September – 14 December 2018</td>
</tr>
<tr>
<td>Spring term</td>
<td>7 January – 22 March 2019</td>
</tr>
<tr>
<td>Summer term</td>
<td>23 April 2019 – end of course</td>
</tr>
</tbody>
</table>

**Closure dates**

<table>
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<tr>
<th>Holiday Type</th>
<th>Dates</th>
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<tr>
<td>Christmas/New year</td>
<td>22 December 2018 – 1 January 2019 (inclusive)</td>
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<tr>
<td>Easter holiday</td>
<td>17 April – 22 April 2019 (inclusive)</td>
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<tr>
<td>Early May bank holiday</td>
<td>6 May 2019</td>
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<tr>
<td>Spring bank holiday</td>
<td>27 May 2019</td>
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<tr>
<td>Summer bank holiday</td>
<td>26 August 2019</td>
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</table>
All students are expected to be available for study and in College throughout term, including the summer project period. Any absence should be discussed with your personal tutor/project supervisor and Programme Director and, if approved, notified to the relevant administrator.

About UCL

UCL is London's leading multidisciplinary university, with more than 11,000 staff and 38,000 students from 150 different countries. Founded in 1826 in the heart of London, UCL was the first university in England to welcome students of any class, religion, and the first to welcome women on equal terms with men.

UCL vision, aims and values

UCL’s founding principles of academic excellence and research aimed at addressing real-world problems continue toinform our ethos to this day.

UCL is one of the world’s leading multi-disciplinary universities. We operate in a global context and are committed to excellence, innovation and the promotion of global understanding in all our activities: research, teaching, learning, enterprise and community engagement.

Vision

Our distinctive approach to research, education and innovation will further inspire our community of staff, students and partners to transform how the world is understood, how knowledge is created and shared and the way that global problems are solved.

Mission

London’s Global University: a diverse intellectual community, engaged with the wider world and committed to changing it for the better; recognised for our radical and critical thinking and its widespread influence; with an outstanding ability to integrate our education, research, innovation and enterprise for the long-term benefit of humanity.

Facilities and resources, UCL

Departmental staff

The Head of Department is responsible for all aspects of the management of the department: academic, financial, administrative and personnel. Students are encouraged to discuss any problems that cannot be more rapidly and effectively solved by the appropriate person listed below with the Head at any time.

Each postgraduate module or undergraduate course unit within each degree programme is led by a member of academic staff who is responsible for teaching and examining.
Security

Security is a major issue and should be treated seriously at all times by everyone. In particular:

• Ensure that the access doors to the department are closed at all times.
• Do not leave valuables unattended in the department - there have been thefts in the past, e.g. from handbags and pockets of jackets left over chairs.
• Do not allow entry to anyone who you do not recognise as having right of access.
• Report suspicious objects, or anyone acting suspiciously, to a member of staff, or to the security staff at the college entrance if no departmental staff are available.
• In an emergency dial 222 from any telephone in the department. Stay on the phone and be prepared to give your location in UCL.

Communication with and within the department

When you enrol with the College you will receive a “user ID”, which is used to log in to e-mail and other web-based systems such as Moodle and Portico. You can access your email via the Internet from any terminal around the world:

http://www.ucl.ac.uk/isd/students/mail/live

Except in the case of emergencies, departmental staff will contact you by e-mail at your UCL address. This form of communication will be used for a multitude of purposes, e.g. changes to the timetable, announcements of special lectures and opportunities for employment. It is your responsibility to check your email on a daily basis. When you are given a UCL address, we strongly advise you to set up forwarding either to or from your UCL email address if you primarily use another address (e.g. Hotmail etc.). Further information:

http://www.ucl.ac.uk/isd/services/email-calendar

You have your email address for life. In the event that we have to communicate with you after you have left, for example, with information regarding resits, this is how we will do it. So you MUST ensure that you keep your password up to date. You also have access to PORTICO for life.

The department operates an SMS Text service through which, when possible, you will be advised of any cancellations of lectures that may happen at short notice.

It is essential that the department has up to date local and home addresses as well as mobile phone numbers. It is your responsibility to ensure that this is the case. For information on how this is managed please see the section on PORTICO (see below).

If you need to see a member of staff you can go to their office or send them an email to arrange an appointment.

Once your end date has been reached (i.e. you are no longer formally enrolled as a student at UCL), access to most systems will stop. This includes revocation of access to:

• The Library, including borrowing privileges.*
• Electronic resources.
• Remote Working Services.
• Restricted departmental web pages.
• Certain other services requiring UCL user id and password to log on.

* NOTE: In certain circumstances, the Library may grant continued discretionary access to the person as a "de-registered student" once they have reached their formal end date. This would allow physical access to the Library, limited borrowing rights, and access to electronic resources only through the dedicated workstations situated in the libraries.

To secure de-registered student access to the UCL Libraries, the person involved must obtain a formal request, bearing a specific expected date of completion / return to normal study, from their Department (either the undergraduate or MSc/MRes administrator). The request letter should then be presented to one of the Library issue desks.

**UCL directory**

Email addresses of UCL staff and students can be found online through the UCL directory:

- [http://www.ucl.ac.uk/directory](http://www.ucl.ac.uk/directory)

Staff information can also be found on departmental web sites.

**Lockers**

There are 144 lockers available in the department, which are situated in room G04. You are allowed the use of one locker but you will need to provide your own padlock. Lockers are available on a first come first served basis.

To reserve a locker you must log in to CEGE’s Sharepoint site. This can be accessed via the CEGE Student Information page on Moodle under “General information” – Apply for a locker.

Padlocks on any unidentified lockers will be removed and contents disposed of after the 31st July. There are also a limited number of lockers available to MRes and Doctoral students in room 121. **The department accepts no responsibility for personal belongings left unattended or left in the lockers, locked or not.**

- [https://moodle.ucl.ac.uk/course/view.php?id=26073&section=0](https://moodle.ucl.ac.uk/course/view.php?id=26073&section=0)

**Mobile phones**

The department permits use of mobile telephones on the premises, **but students are asked to switch them off during all lectures, tutorials and laboratory classes, and when in academic staff offices.** You are also asked to respect your fellow students who may be working. So please keep conversations on your mobile at a reasonable level that will not disturb others.
Post

Post should only be sent to you at the departmental address in exceptional circumstances. You will be notified by email that any post has arrived and you will have a limited amount of time to collect it from the General Office (G03) before it is discarded. Please note: the department is not responsible for lost or missing post.

Notice boards

A notice board has been allocated for communication from staff to students and is located in G04. Generally it is expected that students will communicate amongst themselves by email, but notices may be given to the Departmental Receptionist in the General Office (G03) for display on the student board. All notices placed on the boards should be dated and will be removed two weeks after display unless otherwise requested.

In addition, boards are provided announcing employment opportunities, meetings, UCL and departmental notices relevant to students.

Smoking

No smoking is permitted in any building in UCL. The area outside the fire-escape doors that lead to the main quadrangle from the Chadwick Building are also NON SMOKING AREAS as indicated by the signs. The ventilation system for the department is situated above the doors and any smoke within 5m of the doors gets directed into the building.

Please DO NOT smoke within 15m of any external door.

Computing and library services, UCL

Library

The College Library is housed on several sites. The DMS Watson Science Library is located in Foster Court and contains engineering textbooks, references and journals. It maintains a reference section comprising most of the prescribed textbooks for the various degree programmes. Normally members of staff give advice on the purchase of text books early in their course. All new students are given a tour of the College’s library facilities at the start of their course. Full details of the College libraries can be found at: http://www.ucl.ac.uk/Library/

The main library and Science Library (DMS Watson) are open as follows:

Monday 08.45 to Saturday 21:00 (open all the time between those two times/days) Sunday 11:00 to 21:00

The ground floor of the Science Library is an open social space where you can talk without the threat of being thrown out. There are also bookable group study rooms in the Science Library that hold between 4 and 8 people; there are 4 on the ground floor and 2 on the third. The rooms can be booked in advance via the library website, but if they are empty you can use them without booking.
To book please see here: http://library.ucl.ac.uk/F/?func=file&amp;file_name=room-book
Computing facilities

The department has a cluster room which can be found on the first floor (Room 119), running 20 PCs. This is purely for specialist applications not usually found on UCL cluster machines. Students should not be using the cluster room computers to access Social media sites. They should also respect the fact that other students are trying to work and therefore should keep noise to a minimum.

All departmental machines available to students run either Windows 7, 8 or 10, and Microsoft Office 2013 applications. Secure shell terminal (SSH) software provides access to the college-wide UNIX computer system as well as to other departments (e.g. Geography).

Instructions for connecting your own laptop to the UCL college-wide wireless system can be found at:

http://www.ucl.ac.uk/isd/services/get-connected

There is a large amount of software available for student use. Some of this can be found at:

http://swdb.ucl.ac.uk

The site above will say if software is available for student use.

We are able to provide free Microsoft software (operating systems and other developer tools). To access this you will need to register for MSDN Academic Alliance via:

http://e5.onthehub.com/d.ashx?s=qr5kuolaul

Other software that students can buy at a discount or install for free to their own machines is here:

http://www.ucl.ac.uk/isd/services/software-hardware/student-software

All hardware or software problems with departmental machines must be reported to the IT Team: cegi-it-support@ucl.ac.uk by phone on 0207 679 7819, or notified to us in room 112.

Do not attempt to fix a problem yourself. Never switch off any machine or attached a device unless told to do so by a member of the IT team.

In addition to the computing facilities available in the department, students can also make use of the College clusters of Suns, Macintoshes, and PCs. Students may use any of these if they are not booked for a class. The nearest College cluster is in the basement (room B04) or second floor (room 223) of the Chadwick Building. Full details of College IT facilities can be found at the web site of the Information Systems Division:

http://www.ucl.ac.uk/isd

Students may print documents in College clusters, and they have a quota for the use of printing facilities. For more information, please refer to:

http://www.ucl.ac.uk/isd/services/print-copy-scan

Paper for the laser printers is available from the IT team during office hours.
Computer training courses

UCL’s Information Systems division offers online training courses for applications such as Microsoft Word, Excel, PowerPoint and Access. Course workbooks are available free of charge from the UCL Information Systems helpdesk. Or you can register for an online course. For more information, go to: http://www.ucl.ac.uk/is/training/student

CEGE Sharepoint (SP) and UCL Cloud

Sharepoint is the departmental intranet and can be accessed here https://sp.cege.ucl.ac.uk please click “sign-in” on the top right of the page and enter your user ID and password.

In the event that you cannot access the site if/when you are sent links to various sections of SP by members of staff, please contact IT Support Staff in room 112 on the 1st floor of the Chadwick building cege-it-support@ucl.ac.uk

DSSCC minutes:
https://sp.cege.ucl.ac.uk/committees/DSSCC/Forms/AllItems.aspx

Teaching committee minutes:
https://sp.cege.ucl.ac.uk/committees/Teaching%20Committee/Forms/AllItems.aspx

UCL Cloud

Information you will find useful during your time at UCL can be found here:
http://uclcloud.com/

UCL learning resources

Moodle is UCL’s “Virtual Learning Environment”: https://moodle.ucl.ac.uk
All of the department’s modules and most of the other courses you undertake will have a presence on Moodle. The content varies and depends on what those who teach the course wish to make available in this way. For example, some lecturers will put up lecture notes and other material for download from Moodle. Others might use Moodle for more interactive activities such as tests or online forums. Many staff will use Moodle as a means of asking students for feedback about courses.

You may also be required to submit coursework electronically via the relevant module code on Moodle.

MyPortfolio: https://myportfolio.ucl.ac.uk/
MyPortfolio is personal learning platform that includes a blogging tool, CV builder and social networking system. This facilitates UCL students and staff in creating online communities via groups. We suggest it is used to build up a portfolio of your activities at UCL for professional development. We’ve provided some tutorials to get you started with MyPortfolio which are available at: http://bit.ly/UCLMyPortfolio

Knodium: http://www.startupranking.com/knodium
Knodium is a network of communities within your university allowing you to collaborate on
group projects, engage with people on your courses or even to have discussions around common interests. You don’t need to register and can sign in using your UCL account. Anyone can go and start or join a community and it's a great way to have discussions, share documents and resources and connect with people in your university. You can even include equations, chemical formulae and snippets from documents straight in the documents.

**Lecturecast**

A number of staff within UCL Engineering make use of the UCL LectureCast service. This is available in most lecture theatres and enables staff to record the lecture (usually audio, slides and video). This enables students to look back at the lectures after and revisit the material that was presented. These are not a substitute for attending lectures, as it is a very different experience and in some venues things like the whiteboard do not record that well.

The best use of this technology is to go back and look at specific sections of material that you found difficult to understand at the time, or to make more detailed notes than you were able to do ‘live’ in class. To help you do this, Lecturecast has a ‘scenes’ function; this lets you jump to different points in the lecture based on the slides. Links to lecturecast material are usually advertised via the appropriate Moodle course. If you are not sure whether or not your class is going to be recorded, please ask the lecturer.

**Security and privacy**

UCL’s information security policy sets out to ensure that our computing systems, and all the information held on them, are adequately protected against loss and misuse, and that protection is provided in a cost-effective way.

The policy applies to staff and students alike, and to anyone else who has been authorised to use our facilities. It has been endorsed by UCL’s Information Strategy Committee.

[http://www.ucl.ac.uk/informationsecurity/policy](http://www.ucl.ac.uk/informationsecurity/policy)

**MATLAB**

MATLAB by Mathworks is a powerful numerical computation tool and programming language allowing users to process and plot data as well as create user interfaces to both code and hardware. MATLAB will be used in a large number of courses and you are well advised to become familiar with it. UCL has a full licence for the software which allows students to use in on UCL machines, through the desktop@UCL anywhere service or for students to download a personal copy to their own machines. A set of tutorial material, including details of how to download it are available on the open-access Moodle course, Basic MATLAB for Engineers.

**ResponseWare**

This year we are piloting an app-based voting software called ResponseWare. This enables staff to run in-class polls with the results automatically collected and instantly available to the class. You can use this in a number of ways:

Download the App:
- Android OS 1.6 and higher
- Apple OS 3.0 or higher – available free from the app store. Search for ResponseWare. If download to iPad check the iPhone only option for this to appear in the search)

Use through the web on laptop or tablet: Visit:

[http://www.rwpoll.com](http://www.rwpoll.com)
If you do not own or do not wish to bring a smart phone, laptop or tablet to college, we have a number of dedicated ‘clicker’ devices that will enable you to take part in polls. Contact the Faculty Learning Technologist Matthew Lever (m.lever@ucl.ac.uk) for details.

In the class that uses the system you will be given a session ID to use.

**UCL GO!**

UCL GO! is an application for you to access UCL University and Union information directly from your mobile devices:

- www.ucl.ac.uk/isd/ucl-go

**Timetable**

For room details and names of lecturers, you should access your personal timetable via the online app:

- https://timetable.ucl.ac.uk/tt/postLogin.do

At the top right, you can see the academic year: make sure this is 2018-19.

If you go via “Personal”, it will show you all the modules you are registered for.

You can view any UCL module by clicking “Custom” and then Click to start. In this view you will need to click on ‘switch Module Info’ and then enter the module code> search. Click on the module code> create timetable> the current display will show the whole year.

There may be unavoidable changes during the year, so you should check your personal timetable at the start of each week or more frequently. If it is a very late change, you will be told via email.

The Online Timetable will also offer a calendar subscription service, allowing you to get a feed of your personal timetable directly to your live@UCL account, or to your smartphone or personal calendaring service (e.g. Google Calendar, Apple iCal).

- https://timetable.ucl.ac.uk/tt/postLogin.do

The overview Timetables for each year can be found on CEGE Student Information Moodle site under the appropriate heading

- https://moodle.ucl.ac.uk/course/view.php?id=26073

**Portico: The UCL student information system**

UCL students own their personal data held by UCL on their central record and are responsible for maintaining their addresses (i.e. home/term time) and other personal details via the PORTICO web site; if students do not do this they will not receive any mail from UCL. To access PORTICO (either at UCL or from around the world), students should use the link www.ucl.ac.uk/portico/ and enter their main UCL user id [e.g. zcaaxxx] and password to gain access. Students who do not know their UCL ID should contact Information Systems http://www.ucl.ac.uk/isd/

Information will be sent out over the summer each year to the address held on students’ record by the Registrar’s Division at that time. (Addresses of agents, non-residential clubs, UCL departments, etc., are not acceptable. **UCL cannot accept responsibility if official**
communications fail to reach students because they have failed to maintain their addresses online.

Please remember that passwords automatically expire after 150 days, unless they have been changed. Warnings are sent to your UCL email address during a 30-day period, prior to your password being reset.
You can change your password or recover your password on the web, at any time, at http://myaccount.ucl.ac.uk

Passwords cannot be issued over the telephone.
If you have any comments or suggestions for PORTICO, please email: portico-services@ucl.ac.uk

Please note that optional modules may be withdrawn due to lack of numbers and other modules may have limited to the number of students allowed to take them. If this is the case then students for whom the module is compulsory will have preference and then it will be on a first come first serve basis

Academic performance, UCL

Coursework

Coursework is used to assess a variety of skills, including: technical understanding of the subject, competence in the management and execution of projects, the ability to discuss and draw conclusions from experiments and experience, and skills in written communication, presentation, teamwork, and time management.

Every effort has been made to distribute the coursework load evenly throughout each term, but, inevitably, there are periods that are more intense than others. Students are advised to plan ahead, to start work as early as possible and to submit coursework in advance of the deadline whenever possible. It is compulsory for students to submit 100% of their coursework; failure to do so will lead to “Not complete” being recorded and may result in overall failure of the module and the year.

UCL firmly believes that it is a form of cheating to present the work of others as your own. In its extreme form, copying the work of others in its entirety or in part, without acknowledgement and without the use of quotation marks, is deemed an act of plagiarism. It is immaterial whether the work you plagiarise is published (for example as part of a book, a journal article or material on the Internet) or unpublished (eg a research report, planning document or previous work submitted by a student), copying is classified as cheating and UCL treats cases of plagiarism very seriously. Where work is part of a joint project, the contribution of the individual to any common submission must be stated clearly. Further information and guidance on plagiarism can be found in Section 11 below.

For further guidelines on coursework please see the Marking Guidelines in Moodle on CEGE Student Information under General Information.

Submission of coursework (UCL)

Coursework is typically submitted in hard-copy format and/or electronically. You will be informed of how to make the submission when the coursework is set. Coursework should be placed in the Coursework Box, which is located near the departmental General Office (G.03). The box is emptied regularly and coursework date stamped and forwarded to the appropriate member of staff.
Where submission through Moodle is specified it is vital that work is indeed uploaded in this way. Coursework submitted through Moodle is checked for plagiarism by a system called Turnitin®.

The hand-out sheets for individual pieces of coursework will include instructions for submission, including a deadline. You must ensure that your coursework is submitted on time - a penalty will be imposed for any work submitted late. If you are in doubt about how, where or when to submit coursework, it is your responsibility to consult the appropriate instructor.

Coursework required in hard copy format must be submitted bound in a folder with a signed cover sheet clearly visible. A copy of the cover sheet is available in Appendix I; please photocopy as necessary. There will also be hard copies outside the General Office (G03) on the ground floor where you submit the coursework.

**Extension to Coursework Deadline requests**

Extensions will only be granted if medical evidence (certificate) is provided, so you should plan to complete and submit your coursework well before the published deadline. However, if you do wish to request an extension to a deadline, you will be required to submit an Extenuating Circumstances (EC) Claim Form and supporting documents.

A hard copy of the completed form and supporting evidence should be submitted to Mark Fairweather in Room 216. We also require it to be submitted by email to mark.fairweather@ucl.ac.uk

Please see the “Extenuating Circumstances” section for more information before submitting a request.

**Penalties for over-length coursework**

- The length of coursework will be specified in terms of a word count or number of pages.
- Assessed work should not exceed the prescribed length.
- For work that exceeds the specified maximum length by less than 10% the mark will be reduced by ten percentage marks; but the penalised mark will not be reduced below the pass mark, assuming the work merited a pass.
- For work that exceeds the specified maximum length by 10% or more, a mark of zero will be recorded.
- The method of measuring the length of coursework should be specified to students in writing. For example, a word count will depend on the software application and a page count on the margins, font and point size.
- For discipline specific practices such as bibliographies, tables, pictures and graphs, departments/divisions should specify in writing to students whether these are recorded as part of the maximum length and how this will be determined.
- In the case of coursework that is submitted over-length and is also late, the greater of the two penalties will apply.

**Return of coursework**

Coursework will be marked and returned to you, via your personal tutors (undergraduates) or the person setting the work (MSc/MRes), as soon as possible after the appropriate submission deadline. Strengths and weaknesses will be identified, and the coursework will be given a mark. A description of the marking system can be found below.

The aim is to return coursework within three weeks. If the three week deadline passes you should report that it is late (see below).
We welcome student feedback at any time during the year, particularly relating to the late return of coursework. If coursework isn’t handed back to you on time please email: cege-feedback@ucl.ac.uk making sure that you enter into the subject area the module code and name of member of staff. In the body of the message please give details of which assignment it was, the date it was set, and the date it was due to be given back. Emails to this address go ONLY to the teaching support administrators who will remove the sender’s name from the email and then pass it ANONYMOUSLY to the Director of Studies and the Section Head for them to take action.

Coursework for Exam Boards

You MUST retain all coursework after its return as it will be required for inspection by the External Examiner at the end of the academic year. For the June exam board, ALL students must submit a folder containing ALL items of coursework from the academic year. The folder should be clear plastic and must clearly show the name and degree programme of the individual to which the folder belongs. You can collect your folder after the Exam Board has met. You will be informed from where you can collect it. You should note that coursework is NOT retained by the department. If you don’t collect it, then it will be disposed of. Marks are not re-assessed at the exam board. The External Examiners view the work of students (including exam scripts) to ensure quality control.

Results

Final results are disclosed by Imperial College, via the student-e-service portal, typically before the end of October immediately following completion of your programme for full-time students, and annually for part-time students.

Provisional indications of progress may be communicated to the student by their Personal Tutors following the July and September meetings of the Board of Examiners.

Attendance

In the absence of documented extenuating circumstances, CEGE students are expected to be in full-time attendance during the UCL terms throughout their programme of study (excluding the approved vacations at Christmas and Easter, unless there is a requirement to attend a vacation or field course) unless enrolled on a part-time programme. Please refer to the college policy via the link below, and note that you may be refused entry to exams/assessment on the grounds of insufficient attendance.

In particular please take note that your travel arrangements should not encroach on term-time and that those absent due to illness must provide a medical note from an NHS registered doctor.

If you need any clarification about what is required of you, feel free to discuss it with your personal tutor, the Department Tutor (Dr Buldakov) or the Administrator for our undergraduate programmes (Anthony Colasanto or Ewa Kedzierska). You can also find the UCL policy regarding absence here:

https://www.ucl.ac.uk/current-students/services/studyinformation/absence
**Extenuating circumstances**

We know that certain events (family matters, illnesses, financial problems, accidents) can affect your studies. These are called extenuating circumstances, and you MUST notify us as soon as possible using the extenuating circumstances form found under the general tab in the CEGE Student information Moodle page. The form should be submitted to Mark Fairweather by email to mark.fairweather@ucl.ac.uk

An Extenuating Circumstances Panel will review each case and, where appropriate, take them into account in the end-of-year assessment. Extenuating Circumstances do NOT excuse you from engaging with your studies and taking your assessment – they may allow greater flexibility with, for example, coursework deadlines. Extenuating Circumstances Panels do NOT excuse you from engaging with your studies and taking your assessment – they may allow greater flexibility with, for example, coursework deadlines. Some serious extenuating circumstances may prevent you from engaging with your studies for weeks or even months. In such cases, your Tutor may advise you to apply for an interruption of studies, which can give you time to address whatever problem you are having. You may be prevented from attending an examination by an accident, an illness, bereavement or a similar serious event of force majeure. In such a case, if you are not a finalist you may apply for a deferral of your examination. Please complete the extenuating circumstances form. Final year students may be assessed using Special Provision.

**Well-being and advice, UCL**

**How to get help**

Those members of staff serve as the primary advisers to students and should be the first contact when any difficulty arises. The MSc Programme Directors and Graduate Tutor have overall responsibility for the welfare of students in the department and are also available to give pastoral advice.

Welfare support provided by UCL can be found here [http://www.ucl.ac.uk/current-students/support](http://www.ucl.ac.uk/current-students/support) and general support here [http://www.ucl.ac.uk/support-pages](http://www.ucl.ac.uk/support-pages)

If there are any issues with a lecturer, you should in the first instance approach them to try and resolve the problem. If you remain unsatisfied with the outcome, you should take up the issue with the module coordinator as soon as possible; if the matter remains unresolved, you should speak to the Programme Director, Director of Studies or the Head of Department. You should also report it to your personal tutor.

For general help in connection with their degree programmes, students should speak to their Undergraduate Year Coordinator or MSc Programme Director. All students should familiarise themselves with the content of the UCL Student Handbook [http://www.ucl.ac.uk/current-students](http://www.ucl.ac.uk/current-students)

**Union rights and advice centre**

The UCL Student Union runs a Rights and Advice Centre that offers free and confidential advice to UCL students on all welfare and academic related issues (eg financial advice,
immigration, housing and benefits). The Centre is located on the 1st Floor, Bloomsbury Building, 15 Gordon Street. For more information, including opening hours, go to: http://www.uclunion.org/get-advice

**Equal opportunities liaison officer**

UCL is committed to providing equal opportunities, including race equality. UCL’s Race Equality Policy can be found at: http://www.ucl.ac.uk/hr/equalities/

All students and staff are expected to abide by this policy. Every department at UCL has a Departmental Equal Opportunity Liaison/Information Officer (DEOLO). Our departmental officer is Dr Luiza Campos. She is the first point of contact regarding personal issues relating to equal opportunity, such as discriminatory practices and harassment.

**Female students**

Ms Denise Long is the College's adviser especially concerned with the welfare and social needs of women at UCL. She is available to provide individual, confidential advice on welfare issues: denise.long@ucl.ac.uk

Miss Liz Jones is the departmental contact.

**UCL careers service**

The Faculty Careers Service offers a range of activities aimed at developing the skills required by students for a career in engineering. It also provides information about employment opportunities and summer placements: http://www.engineering.ucl.ac.uk/careers/

The Departmental Careers Advisor oversees a programme of events embedded in the curriculum for each year of study. CEGE alumni give talks on their experiences since graduation and provide excellent role models for current students: http://www.cege.ucl.ac.uk/industry/Pages/Postgraduate-Career-Opportunities.aspx

Students should also be aware of the support that can be given by the UCL Careers Service. For more information, see: http://www.ucl.ac.uk/careers/

**Accommodation**

Students can extend their accommodation at the Halls of Residence or apply for summer vacation accommodation by going here https://ucl.ac.uk/apply-for-accommodation and submitting an application. In case of any problems please contact UCL Student Residences directly on 020 7679 6322.
Expenses

All students are responsible for course fees according to College regulations. Some additional expenses will also be incurred during the degree programme (e.g. for the costs of visits or field courses). Where payment is made to the department, this will be required in advance of the trips concerned. Should you have any concerns about your ability to meet such extra costs, you should speak with the relevant instructor, or Programme Director as soon as possible.

Bank account

If you need to open a Bank Account please follow the link for information: http://www.ucl.ac.uk/iss/when-you-arrive/bank-account

Volunteering services unit

London is the most diverse city in the world, and the best way to discover it is by getting involved in with the Volunteering Services Unit. UCL has the one of the biggest volunteering departments in the UK – with over 500 different opportunities to choose from – so make the most of us whilst you're here!

As a CEGE student, volunteering is a great way to get involved in local projects and apply your diverse skills for the benefit of the community. You'll make new friends and improve your chances of getting decent paid work too. But most of all, you'll be making a difference right here in this exciting city!

You'll get loads of support and advice from both the Volunteering Services Unit and the student-run Volunteering Society. Here's what we do:

Volunteering Services Unit

• Provide a weekly newsletter packed with new opportunities
• Give support and advice to students and staff
• Run our programme of Student Led Projects
• Host an online directory of all active opportunities with our partners
• Send targeted roles to your department
• Advertise one-off events
• Manage the Global Citizenship Voluntary Sector Programme
• Run an annual Awards Ceremony to recognise volunteers

Volunteering Society

• Run amazing socials and charity fundraising events
• Provide information on volunteering abroad
• Run an annual International Volunteering Fair
• Have regular meetings to meet fellow volunteers and steer the society
The Next Step...

- Have a look at our website
- Drop in and see us on the first floor of the Lewis’s Building at the top of Gower Street
- Email us at volunteering@ucl.ac.uk
- Come to our Volunteering Fairs

Health services, UCL

**UCL general practice (Doctors)**

Health Care is free in the UK (but some medications are not) as long as it is provided by the National Health Service (NHS). There is an NHS General Practice (i.e. doctors and nurses) based within UCL. The address is:

Ridgmount Practice

8 Ridgmount Street  
London, WC1E 7AA  
**Tel: 020 7387 6306**

Email: GPP@nhs.net

For information about the Ridgmount Practice (formerly Gower Place Practice), eligibility to register and how to register see: [http://www.gowerplacepractice.nhs.uk/](http://www.gowerplacepractice.nhs.uk/)

You are eligible to join if you are a student **and** live within the postcodes listed on their Website

Those who are not eligible to join may find a General Practice near where they live via: [http://www.nhs.uk/servicedirectories/Pages/ServiceSearch.aspx?2](http://www.nhs.uk/servicedirectories/Pages/ServiceSearch.aspx?2)

**Student dental care**

The UCL Dental Centre is found at the following address:

139 Euston Road  
London  
NW1 2AA

A deposit has to be paid for appointments, and treatments incur the NHS dental charge. Surgery hours: Mon-Fri 9.00-17.00
Health and safety, UCL

The CEGE Safety Statement Policy can be viewed at:  
https://sp.cege.ucl.ac.uk/building/Safety/Home.aspx

The Departmental Safety Office (DSO) and Senior Fire Evacuation Marshall (SFEM) is Keith Harvey keith.harvey@ucl.ac.uk

Students wishing to discuss a Health and Safety matter should at first do so with the DSO or the Head of Department s.robson@ucl.ac.uk. If problems are not resolved contact the student safety officer Mr Huanfa Chen huanfa.chen@ucl.ac.uk

Risk assessments

CEGE operates a strict Risk Assessment policy. Before you begin any project work or field work you must, in conjunction with your supervisor, produce a suitable and sufficient Risk Assessment.

Once this has been approved you can begin to procure any materials you require and begin your project. If there are any major changes to your project work along the way, such as a period of time that may involve fieldwork, or the purchasing of chemicals, then you must go back and review and amend your risk assessment to incorporate these changes.

Follow the link to Project & Fieldwork Risk Assessments:  
https://sp.cege.ucl.ac.uk/building/Risk%20Assessments/Forms/AllItems.aspx

Remember, you have a duty of care for the Health & Safety to yourself and others who may be affected by your acts or omissions.

Laboratory work

All laboratories have their own set of local rules. It is your duty to ensure that you have read and understood these local rules.

If you going to be working in the Labs you MUST read the Moodle page Principles of Laboratory Safety:  
https://moodle.ucl.ac.uk/course/view.php?id=26875

Safety footwear

All laboratories have a mandatory safety footwear policy in place. You must, at all times, ensure that you are wearing safety footwear when working in a laboratory. Failure to comply with this will result in you being asked to leave and return when you have the correct footwear on.
Personal Protective Equipment (PPE)

Any PPE that is required for you to wear whilst working in laboratories or fieldwork will be provided to you. It is your responsibility to ensure that you comply with this.

First aid

There are a large number of fully trained First Aiders throughout the department. Should you incur an injury then you can call upon a First Aider.

The following people in the department possess a valid first-aid certificate:

<table>
<thead>
<tr>
<th>Name</th>
<th>Room/Location</th>
<th>Phone No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Les Ansdell</td>
<td>Room B07 Civil Eng Workshop</td>
<td>Ext 32704</td>
</tr>
<tr>
<td>Warren Gaynor</td>
<td>Room B15 Concrete Lab</td>
<td>Ext 32692</td>
</tr>
<tr>
<td>Keith Harvey</td>
<td>Room B07</td>
<td>Ext 32702</td>
</tr>
<tr>
<td>Judith Zhou</td>
<td>Room B17a</td>
<td>Ext 32713</td>
</tr>
<tr>
<td>Sarah Davies</td>
<td>Room 203</td>
<td>Ext 31586</td>
</tr>
<tr>
<td>Eugeny Buldakov</td>
<td>Room GM02 (Mezzanine)</td>
<td>Ext 32708</td>
</tr>
<tr>
<td>Mike Dunderdale</td>
<td>Room 219 2nd floor</td>
<td>Ext 32756</td>
</tr>
<tr>
<td>Paul Groves</td>
<td>Room 106 1st floor</td>
<td>Ext 32730</td>
</tr>
<tr>
<td>Jon Iliffe</td>
<td>Room 118 1st floor</td>
<td>Ext 32733</td>
</tr>
<tr>
<td>Liz Jones</td>
<td>Room 216A</td>
<td>Ext 30674</td>
</tr>
<tr>
<td>Cerine Yudin</td>
<td>Room 219 2nd floor</td>
<td>Ext 32704</td>
</tr>
<tr>
<td>Tristan Robinson</td>
<td>Room 301 3rd floor</td>
<td>Ext 37224</td>
</tr>
<tr>
<td>Patrick Rickles</td>
<td>Room 118 Pearson Building</td>
<td>Ext 32452</td>
</tr>
<tr>
<td>Ilan Adler</td>
<td>Room GM07</td>
<td>Ext 30536</td>
</tr>
<tr>
<td>James Ford</td>
<td>Room GM07</td>
<td>Ext 37729</td>
</tr>
<tr>
<td>Les Irwin</td>
<td>Civil Engineering Workshop</td>
<td>Ext 32702</td>
</tr>
<tr>
<td>Martin Allchin</td>
<td>Civil Engineering Workshop</td>
<td>Ext 32702</td>
</tr>
<tr>
<td>Pedro Ferreira</td>
<td>Room 1M04</td>
<td>Ext 34366</td>
</tr>
<tr>
<td>Rodolfo Lorenzo</td>
<td>Room GM03</td>
<td>Ext 54084</td>
</tr>
</tbody>
</table>

First aid boxes

First aid boxes are located on all floors and laboratories and are maintained by the DSO.

Accident/Incident reporting procedure

1. ALL accidents, whether they involve personal injury or not, should be reported, as soon as possible after the occurrence, to the DSO or the member of staff in charge of the work.
2. The member of staff informed will then report the accident via [http://www.ucl.ac.uk/estates/safetynet/](http://www.ucl.ac.uk/estates/safetynet/) (Report an incident)

3. "Near Misses" should also be reported to the DSO so that action can be taken to prevent any reoccurrence.

4. If there is nobody from the department to help, then the following procedure should be followed:
   - If you require medical advice - ring 37200 - which will put you through to a duty doctor or nurse at the Gower Place Practice.
   - In an emergency - ring 222 - which will allow you to call an ambulance. Stay on the phone and be prepared to give your location in UCL.
   - In cases where hospital treatment is considered necessary, you will be taken to the Accident & Emergency Department of UCH.

Students wishing to discuss a Health & Safety matter should at first do so with the DSO or the Head of Department [s.robson@ucl.ac.uk](mailto:s.robson@ucl.ac.uk). If problems are not resolved, contact the student safety officer.

Students are advised to purchase insurance cover (or check that they have existing cover) for personal effects and personal accident, specifically to include fieldwork and educational visits. You are also covered by the basic college insurance as well.

**Fire safety**

There is a weekly fire alarm test which takes place at 09:00 every Thursday morning.

In the event of a real emergency evacuation, all staff and students are to evacuate the building from the nearest exit. All internal doors that are swipe card access will de-activate in the event of the fire detection system being activated. Fire Evacuation Marshalls (FEMs) will be on call to assist with the evacuation and will direct you towards the Fire Assembly Point. This is located at the far left hand corner of the front Quadrangle. Please evacuate the building in a timely fashion, and do not re-enter until instructed to do so by the FEMs.

All students should be familiar with the "College Fire Procedure" and the leaflet "Steps to reduce the risk and spread of fire". These two items along with the Fire Evacuation plan (see following page) are posted on the department safety notice board.

It is particularly important that you are aware of the location of fire exits and of the meeting point in the event of a fire (well away from the Chadwick Building).

The Fire Marshalls for the Chadwick Building are:

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keith Harvey (Senior Marshall)</td>
<td>Basement, Fluids Lab</td>
<td><a href="mailto:uceskeh@ucl.ac.uk">uceskeh@ucl.ac.uk</a></td>
</tr>
<tr>
<td>Judith Zhou</td>
<td>Basement, Environmental Lab</td>
<td><a href="mailto:ucesqzh@ucl.ac.uk">ucesqzh@ucl.ac.uk</a></td>
</tr>
<tr>
<td>Warren Gaynor</td>
<td>Basement, Concrete Lab.</td>
<td><a href="mailto:w.gaynor@ucl.ac.uk">w.gaynor@ucl.ac.uk</a></td>
</tr>
<tr>
<td>Ben Boorman</td>
<td>Basement, Geotechnics Lab</td>
<td><a href="mailto:b.boorman@ucl.ac.uk">b.boorman@ucl.ac.uk</a></td>
</tr>
<tr>
<td>Les Ansell</td>
<td>Basement, Fluids Lab</td>
<td><a href="mailto:l.ansdell@ucl.ac.uk">l.ansdell@ucl.ac.uk</a></td>
</tr>
<tr>
<td>Ian Seaton</td>
<td>Basement workshop</td>
<td><a href="mailto:i.seaton@ucl.ac.uk">i.seaton@ucl.ac.uk</a></td>
</tr>
<tr>
<td>David Krupp</td>
<td>Basement workshop</td>
<td><a href="mailto:d.krupp@ucl.ac.uk">d.krupp@ucl.ac.uk</a></td>
</tr>
<tr>
<td>Les Irwin</td>
<td>Ground floor, G04.</td>
<td><a href="mailto:l.irwin@ucl.ac.uk">l.irwin@ucl.ac.uk</a></td>
</tr>
</tbody>
</table>
Sarah Davies 2nd floor  sara.davies@ucl.ac.uk
Simon Justin 2nd floor. s.justin@ucl.ac.uk
Cerine Yudin 2nd floor. c.yudin@ucl.ac.uk
Mike Dunderdale 2nd floor. mike.dunderdale@ucl.ac.uk
Gert Van der Heijden 1st floor Mezzanine. ucesqvd@ucl.ac.uk
Pedro M Ferreira 1st floor Mezzanine. p.ferreira@ucl.ac.uk
Taku Fujiyama 2nd floor. taku.fujiyama@ucl.ac.uk
Patrick Rickles Pearson Building Room 118 p.rickles@ucl.ac.uk
Martin Allchin Civil Engineering Workshop m.allchin@ucl.ac.uk
Melissa Canales HIRC Laboratory, second floor e.canales@ucl.ac.uk
Shi Shi Basement Concrete Lab shi.shi.11@ucl.ac.uk

Fire extinguishers should not be used by students unless they have had proper safety training.

**Laser safety**

Users of Class 3 lasers and above must attend the college laser safety course prior to undertaking any work.

**Field courses and general safety regarding laboratory use**

The UCL “Safety in Fieldwork” booklet should be read thoroughly before undertaking any field work, site visits or other activities outside the College. The booklet is available online at: www.ucl.ac.uk/efd/safetyserviceswww/guidance/fieldwork/acop.pdf

Students should also consult the Safety Notice Board which is located opposite the lift on the ground floor of the Chadwick building. It is your responsibility, before attending a field course, to familiarise yourself with relevant safety guidelines.

Many of the activities in the department have potential dangers unless sensible precautions are taken. Students should be safety-conscious at all times, and take care to read and adhere to the Local Safety Rules for each laboratory. In order to comply with health and safety regulations, a risk assessment will be required for all laboratory and field work, indicating appropriate safety precautions, including protective clothing. Safety boots (steel toe cap) **MUST** be worn when entering the Labs. Students can wear their own or purchase a pair of safety boots at the start of session from the Teaching Administrator for approximately £20.
All taught student laboratory work must be supervised by an appropriate member of staff. Students may not use workshop facilities.

**Green issues/recycling**

The Departmental Environmental Officer (DEO) is Catherine Unsworth (c.unsworth@ucl.ac.uk), Green Champion is Anthony Colasanto (a.colasanto@ucl.ac.uk). Please feel free to contact either with any questions, suggestions or concerns. The majority of waste generated by UCL is being recycled. There are bins placed around the department that clearly show how to separate recyclables, food waste and land fill waste. Please use them. Even if households and businesses reduce their waste by a tenth it will significantly reduce the 177 million tonnes of waste sent to landfill every year. We need your help to do that.

We encourage the use of re-useable cups which reduces waste. Cafes at UCL also offer a 10p discount to purchasers bringing re-usable cups.

We have double-sided printing set up as standard on all printers and this typically reduces total paper consumption by 40%. Please be careful when printing lecture notes etc.

Is there one thing you will commit to doing differently this year? Ideas for pledges include:

- Use one less carrier bag. Or even better none at all. You'll find canvas and jute bags at Fresher’s events.
- Reduce food waste; pack a zero-waste lunch.
- Take clothes to a textile bank, charity shop or sell them online. You can find the training at: [https://moodle.ucl.ac.uk/course/view.php?id=21831](https://moodle.ucl.ac.uk/course/view.php?id=21831)

If you have any suggestions or observations that might help us operate a bit more sustainably please get in touch with Catherine or Anthony (or any of the Green Team).

**Keeping the department clean**

The department can only work efficiently if it is kept clean and tidy. Do not leave litter in the department. Please respect the working environment of other students and staff.

The department operates a ‘clean desk’ policy in its public areas. Any books, papers, etc. left lying around will be removed.
Know your safety signs

The Health & Safety (Safety signs & signals) Regulations 1996

These regulations provide the legal means to require employers to provide safety signs in a variety of situations where there is a significant risk to health and safety which has not been avoided or controlled satisfactorily by other methods.

Know your safety signs

- **Prohibition signs (Do not do)**
  - Signs prohibiting certain behaviour
  - *e.g.* No Smoking

- **Warning signs (Caution, Danger)**
  - Signs which indicate a specific course of action is to be followed
  - *e.g.* Danger high voltage

- **Mandatory signs (You must do)**
  - Signs which indicate a specific course of action is to be followed
  - *e.g.* Safety helmets must be worn

- **Safe Condition Signs (Safer way)**
  - Signs giving information about safe conditions, doors, exits and escape routes
  - *e.g.* Fire exits

- **Fire signs (Fire fighting equipment)**
  - Signs indicating the location of fire fighting equipment
  - *e.g.* Fire point
Policies and procedures, UCL

Student representation

Each cohort elects one or more student representatives (usually during the third week of the first term). Research students also elect one student representative. Their responsibilities include:

- Regularly consulting fellow students.
- Communicating promptly and directly with the relevant departmental staff members on matters relating to the whole cohort.
- Formally representing the cohort on the Departmental Staff/Student Consultative Committee.
- Organising the compilation of results from student feedback on teaching (MSc & undergraduate).
- Acting as a student spokesperson when required on visits outside the College.
- Representatives should familiarise themselves with the Department Manual.

Staff/Student Consultative Committees (DSSCC), STARS, and Departmental Teaching Committee (DTC)

There is a Departmental Staff/Student Consultative Committee (Undergraduate and Graduate Taught) which exists as a formal forum for raising issues of concern to staff and students in the department. They are intended to supplement and provide a formal structure above and beyond the normal opportunities for communication with lecturers, supervisors and tutors.

The committee meets two to three times a year: membership is comprised of academic staff and the student representatives from each year of the undergraduate programme and each graduate programme.

The College requires the SSCC’s to:

- Record minutes (including attendance).
- Record actions to be taken and by whom.
- Ensure that minutes are signed by at least one student.
- Display the minutes prominently within the department.
- Submit the minutes to a Departmental Staff Meeting for consideration and action.
- Forward minutes to the UCL Student Mediator and College Joint Staff Student Consultative Committee (JSSC).

The College JSSC is responsible for advising and reporting on all matters affecting the relations of the student body with the College and to review and monitor the mechanisms for promoting such relations. It is also responsible for reviewing and monitoring the minutes of Departmental Staff Student Consultative Committees.

As a student representative you will automatically become a StAR (Student Academic Representative). Guidance can be found here: [http://uclu.org/articles/stars-guide-star](http://uclu.org/articles/stars-guide-star)

The Departmental Teaching Committee meets on a regular basis to discuss all aspects of teaching within the department. It has responsibilities with respect to:
• The design of new degree programmes and modules.
• Ensuring the quality and appropriateness of current teaching.
• Assessment methods and procedures.
• Identifying priorities for the procurement of teaching resources.
• Ensuring adequate provision of transferable skills in courses based in the department.
• Considering matters arising at Staff Student Consultative Committee meetings.
• Agreeing the programme for Induction Week at the start of session.

The committee has formal student representation (usually one or two of the Student Representatives) and matters can be referred to it by the Staff/Student Consultative Committee (and vice versa). Other students may be invited to discuss specific topics.

Harassment and bullying

UCL, as part of its commitment to equality and diversity, believes that every student has a right to work and study in an environment which encourages harmonious relationships. UCL is committed to preventing harassment and bullying and its commitment to equal opportunity is enshrined in the principles on which it was founded.

Every student is also personally liable under the Equality Act 2010 and the Protection from Harassment Act 1997. Allegations of harassment and bullying will be treated very seriously by UCL and could result in disciplinary action being taken against the perpetrator. UCL will ensure that any student raising a genuine concern under this policy is not victimised as a result. As allegations of harassment and bullying are very serious, UCL will also treat very seriously any such allegations proven to be malicious and these are also likely to be the subject of disciplinary action.

[URL: http://www.ucl.ac.uk/academic-manual/part-5/harassment-bullying]

Appeals and grievances

UCL has formal appeal and grievance procedures for use in cases which cannot be resolved by informal discussion conducted via the undergraduate tutor in the department, the Faculty Tutor and/or the Dean of Students (Academic). A student may appeal against the result of a taught degree examination. Appeals and grievances should be implemented when a problem arises and not at the end of registration. Information may be found at: [URL: www.ucl.ac.uk/academic-manual/part-5/student-grievance-procedure]
9. Student records and data

The Student Records and Data 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, Transport for London and the UKVI, as well as other external bodies.

The team is currently 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.

Student Records and Data produce a variety of standard document requests for both current and previous students including:

- Statement of attendance
- Transcripts
- Confirmation of degree
- Visa letters / CAS
- Letter to open a bank account
- Council Tax exemption certificates

Appeal administration also sits within the team, as does the responsibility for confirming qualifications via the Higher Education Degree Datacheck service.


Student records and examinations

+44 (0)20 7594 7268
srouteam1@imperial.ac.uk

Degree certificates

+44 (0)20 7594 8037
certificates@imperial.ac.uk
10. After your MSc

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 Wifi, complementary 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

After you have completed your Master’s programme, you may choose to continue your studies on a PhD, CDT or other CPD programme at Imperial.

http://www.imperial.ac.uk/civil-engineering/prospective-students/postgraduate-research-admissions-phd-engd-mphil/

Explore the Departmental Alumni Profiles to find out what previous graduates have gone on to achieve:

http://www.imperial.ac.uk/civil-engineering/alumni/alumni-profiles/
11. Appendix A: Monitoring Attendance

Since the introduction of Tier 4 of the Points Based System in March 2009, the College has held a license permitting us to sponsor the visas of students from outside the European Union to enable them to attend our courses.

Sponsorship of students, under our Tier 4 Visa License, brings with it an obligation for us to inform the Home Office whenever we withdraw sponsorship from a student. This may be as a result of a student withdrawing or being expelled from their course, interrupting their studies, or not being in attendance. This is reflected in the College’s regulations and procedures to ensure the welfare and academic progress for all students. See Academic Regulation Paragraph 9.4 of the General Regulations for Students:

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

The College does not wish to discriminate in its treatment of students from outside the European Union, and so all procedures for monitoring attendance and reporting student activity apply equally to all students.

The procedure for compliance adopted for the Master of Science Programme within the Department of Civil and Environmental Engineering is to base the monitoring of attendance around a number of ‘check-points’, which are:

- Start-of-Session Induction.
- Confirmation of attendance at the Health and Safety Induction, which is a requirement of the College for issue of ID cards.
- Submission of selected items of coursework.
- Attendance at Field Trips/Site Visits.
- Examinations and Progress Tests.
- Randomly selected lectures/laboratories/tutorials.
- Scheduled meetings with Personal Tutors and/or Project Supervisors.

In order to make this process efficient, the following shall apply:

- The Cluster Administrator (or other relevant staff) shall conduct the monitoring using a class list supplied by Imperial College Registry.
- There shall be one location (which will be notified to you by email) for the submission of randomly selected coursework related assessment items.
- Each student shall sign (digitally or paper) the class list at each check-point.
- The Cluster Administrator shall inform the relevant Senior Tutor and Course Director of any student who fails to interact with the College on three consecutive occasions.
- The student will be invited for interview, and a warning may be issued.
- If non-attendance continues, the Senior Tutor shall inform the Head of Department and the College Registry.
- The Imperial College Registry report directly to relevant authorities, including HEFCE, the UK-VI and sponsors.

The Department expects students to demonstrate their commitment to their degree programme by attending lectures, complying with specific requests within specified deadlines, and submitting coursework on time. If students cease to engage properly with the course, e.g. by being absent without permission or adequate cause, this may be reported to
the relevant authorities, and may result in being asked to leave the College. In the case of those attending with Student Visas, this could jeopardise the individual’s ability to stay in the UK.

Internships

Postgraduate students can only undertake work placements if they are an approved part of their course of study (an example of which might be as part of the project element). Students who may wish to interrupt their studies to take an internship (in the UK or overseas) will have the sponsorship of their visa withdrawn and will need to apply for a new visa in order to return to their course at a later date.
**Department of Civil and Environmental Engineering**

**Postgraduate Taught (MSc): Recording of External Study Leave Form**
*(please see notes overleaf)*

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**This form must be completed by the Student and Supervisor and returned to the Cluster Administrator for processing**

<table>
<thead>
<tr>
<th>CID No:</th>
<th>Date of Initial Degree Registration:</th>
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<tr>
<th>Student’s Surname:</th>
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<tr>
<th>Student’s Forename(s):</th>
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<th>Supervisor(s) (print name(s)):</th>
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<th>Research Topic</th>
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<tr>
<th>Are you a Tier 4 Student?</th>
<th>YES / NO</th>
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<tr>
<td>If yes, please seek advice immediately from the Visa Compliance Team (see notes)</td>
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<tr>
<th>List any previous periods of external study leave:</th>
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### Details of External Study Leave

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<th>Details of remote location:</th>
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<th>Departure date:</th>
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<tr>
<th>Purpose and relevance of external study leave:</th>
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<tr>
<td>Eg. Site visits, field work, remote data gathering</td>
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<tr>
<th>Details of remote contact: (in case of emergency)</th>
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The following to be completed by the principal supervisor

I approve this period of study leave and confirm that I will maintain regular contact with the student named above

<table>
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<tr>
<th>Signature of supervisor(s):</th>
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NOTES

Recording Study Leave.

This form should be used to cover any and all study time which is spent outside of the UK, to for the following situations:

a. Field work and data collection.
b. Study Leave which is not subject to the Placement Learning Policy, such as extended field work. The College’s Off-Site Working procedures should be followed: [http://www.imperial.ac.uk/safety](http://www.imperial.ac.uk/safety)
c. For Tier 4 students the College is required by UKVI to report any time away from the College as a ‘change of study location’ within 10 days of this change taking place. This will not impact on a student’s visa status in the UK.

The form to be:

- completed by the student,
- authorised by the supervisor
- submitted to the Cluster Administrator (who will file a digital copy with the General Office, Skempton Building [cvpgo@ic.ac.uk](mailto:cvpgo@ic.ac.uk))

The General Office will be responsible for any further notifications required.

For students with Tier 4 visas

The Visa Compliance Team may be contacted by email on [visacompliance@imperial.ac.uk](mailto:visacompliance@imperial.ac.uk) for advice.

Queries regarding this form should be addressed to Fionnuala in the General Office or by email to [flo@ic.ac.uk](mailto:flo@ic.ac.uk).
Study Away from UCL Request Form
This form is for UCL Taught students who wish to study away from UCL.
Before completing this form please read the related regulation in the UCL Academic Manual:
https://www.ucl.ac.uk/srs/academic-manual/c1/taught-registration/study-away

Students may be permitted to study away from UCL on academic grounds which are not part of the standard delivery of a programme or module e.g. collecting data or conducting research. Such a period of study away from UCL must not be taken until it is authorised by the Departmental Tutor/Programme Leader. Students must inform their Departmental Tutor/Programme Leader before they intend to study away from UCL, and provide the location of study and the reason for doing so. The period of study away from UCL must not exceed three months.

Student Details
Surname: Student Number:
First Names: Tier 4 student? Y/N

Registration Details
Programme:
Department:
Faculty:

Study Away from UCL Details
Start Date of Study Away: End Date of Study Away:
Reason for Study Away:
Destination:
If the student holds a Tier 4, do they wish to retain sponsorship throughout this period?

Please note if this student is Tier 4 visa holder, UCL will still be required to complete Engagement Monitoring duties during the period the student is away from UCL. Under UK immigration requirements, UCL is required to record where students are studying if not at UCL. Students with Tier 4 visas must, therefore, also inform UCL’s Immigration Compliance Office of any period of study away from UCL.

Academic Approval
Departmental Tutor/Programme Leader
☐ I confirm that departmental support will be made available for the student, in particular for catching up on any work or teaching missed.
Print Name: Email Address:
Signature: Date:

Visa Compliance Team Approval (if student holds a Tier 4 visa)
If student holds a Tier 4 visa please also send this form to visacompliance@ucl.ac.uk

Visa Compliance Manager
Print Name: Email Address:
Signature: Date:
12. Appendix B: Disabilities Statement

Information 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 arrange expert advice and support to enable you to do this.

Some people never think of themselves as having a disability, but students who have experienced any of the issues listed below have found that a little extra help and support has made all the difference to their study experience.

- Specific learning difficulties (such as dyslexia, dyspraxia, AD[H]D).
- Autistic spectrum disorder (such as Asperger’s).
- Deafness or hearing difficulties.
- Long term mental health difficulties (such as chronic anxiety, bipolar disorder, depression).
- Medical conditions (such as epilepsy, arthritis, diabetes, Crohn’s disease).
- Physical disabilities or mobility impairments.
- Visual difficulties.

Where to find help:

Departmental Disability Liaison Officer

Mrs Louise Green
l.green@imperial.ac.uk
Room 401
020 7594 6045

Mrs Green is your first point of contact within your Department and is there to help you with arranging any support within the Department that you need. She is also the person who will apply for special examination arrangements on your behalf. You need to contact her without delay if you think that you may need extra time or other adjustments for your examinations.

Disability Advisory Service

The Disability Advisory Service works with individual students no matter what their disability or level of study to ensure that they have the support they need. Our advisors are committed to providing the best possible support for all students at Imperial College. They understand that each person’s disability can affect them in different ways and therefore the support offered is flexible and tailored to you. We can also help if you think that you may have an unrecognised study problem such as dyslexia. The Service is confidential and information about your support needs is only passed on to others within the College with your agreement and then only in order that you are fully supported. Our advisors never pass on information outside the College or to parents unless you ask them too.
Some of the sorts of things the Disability Advisors can help with are:

- Checking that your evidence of disability is appropriate and up-to-date.
- Arranging a diagnostic assessment for specific learning difficulties.
- Making recommendations for additional exam arrangements, for example extra time or rest breaks.
- Drawing up a “Suggested Reasonable Adjustment” document for you to share with your Department which outlines all of your support needs.
- Arranging and funding the support you need. This can include:
  - Note taking, study skills or mentoring support.
  - Purchasing disability related equipment (NOT computers).
  - Funding taxis for those who need help with transport.
- Help with arranging extra Library support and access to the Assistive Technology Suite
- Supporting applications, where appropriate, for continuing accommodation for your second or later years.

A disability is any long-term condition that has a substantial impact on your ability to study effectively, such as:

- A specific learning difficulty, e.g. dyslexia, dysgraphia.
- An enduring mental health condition, e.g. depression, OCD, generalised anxiety disorder.
- A visual, hearing or other sensory impairment.
- A long-term medical condition, e.g. IBS, ME, diabetes.
- A social/communication difficulty, e.g. autistic spectrum/Asperger’s syndrome.
- A mobility or dexterity issue.
13. Appendix C: Revision and Exam Stress

**Stress**

During revision and exam periods, anxiety and stress are very common problems for students – even for those who appear confident and calm. Don’t despair; you are not alone.

A small amount of anxiety can actually be beneficial, it can make you alert and focused, but too much anxiety means you will have trouble thinking clearly and this means you aren’t likely to do your best work.

**What exactly is stress?**

Stress is the body’s normal response to a challenge, threat or excitement. The consequence of stress depends largely on how you interpret the physical symptoms; it can help motivate you or it can paralyse you.

Take the following scenario:

- Joe: a student just before a critical exam
- Jane: an athlete just before a big competition
- Both Joe and Jane are aware of the same physical symptoms:
  - sweaty palms
  - racing heart
  - knot or butterflies in the pit of the stomach

Joe, the student, feels distressed by his symptoms and views them negatively, as if the symptoms are a sign of impending failure. Joe may have trouble sleeping and spend a lot of time worrying about his physical condition and the upcoming exam.

Jane, the athlete, interprets her symptoms as a sign that she can motivate herself to perform well. She views the symptoms as evidence that she is “psyching herself up” for the big competition.

**The bottom line?**

Stress can be a barrier to optimal performance or a motivating agent; it all depends on how you interpret, label and manage what you are experiencing.

The trick is to figure out what level of stress is motivating for you and what amount is paralysing and then work to keep it in the motivating zone.

**Anxiety**

Anxiety is very common and many people find ways of overcoming it or coping with it without seeking professional help. However, for some people anxiety can be harmful, it can affect your physical health, or your fears can take over your life and stop you doing the things you want to do. The good news is that there are things you can do to help.
Managing anxiety

1) Identify trigger factors
The first step in managing anxiety is to identify the specific situations that are making you stressed or anxious and when you are having trouble coping. One way to do this is to keep a diary of symptoms and what is happening when anxiety occurs. It is also helpful to identify any worrying thoughts as this can lead to finding ways to solve the specific problem that is of concern.

2) Thought management
Thought management exercises are useful when a person is troubled by ongoing or recurring distressing thoughts. There are a range of thought management techniques. For example, you can use distraction with pleasant thoughts. This can help take attention away from unpleasant thoughts. Alternatively, one can learn ‘mindfulness techniques’ to direct attention away from negative thinking and treat thoughts as just thoughts and not facts. The choice of thought management technique will depend on the type of anxiety problem. A psychologist can help you decide on thought management strategies that are likely to be most helpful.

3) Talk about it
Try a friend or relative who you trust and respect, and who is a good listener.

4) Learning to relax
People who feel anxious most of the time report that they have trouble relaxing. Knowing how to release muscle tension is an important anxiety treatment. Learning a relaxation technique and practising it regularly can help a person to maintain a manageable level of anxiety. You can learn these through groups, with professionals, but there are several books and self-help materials you can use to teach yourself. It’s a good idea to practice relaxation regularly, not just at times of crisis.


Managing revision stress

Take a look at the three categories outlined below and see which one best describes the type of student you are. Some students get stuck in one pattern – others may pass through each phase.

When you have identified what type of student you are or what phase you are currently in, click on the appropriate link below for tips on how to help yourself.

Which type of student are you?

1. The Self-Indulgent student

   - denial of responsibility / or overconfident
   - not lazy, but has low frustration tolerance
   - escapist tendencies
   - requires stimulus to raise anxiety (e.g. approaching deadline)
2. The Tense & Fearful student

- denial of potency – deskilling self unnecessarily
- self-critical, low self-esteem
- overwhelmed by the importance of the exam, pressure to succeed

3. The Perfectionist student

- denial of vulnerability, wanting total control
- critical of the “system”, passive-aggressive
- sets impossible goals, so never feels “good enough” or “safe enough”
- obsessive, workaholic tendencies; or procrastination

Study and exam strategies

Organise

- Sort out your topics for revision. Base selection of topics on syllabus and examination requirements, on predictions derived from past papers and on guidelines suggested by tutors.
- Devise a routine of study periods that is realistic and productive, and includes rest intervals!
- Pay attention to diet, sleep and recreation – all are important factors in maintaining balance and keeping stress levels under control.
- Breakdown targets into manageable units. Ticking off completed units creates a sense of forward movement. A checklist for the day’s targets (making sure the targets are realistic and achievable) can also boost morale.
- Use your time wisely – deal with less demanding tasks in periods of the day when you are less alert or focused. If you find yourself struggling unproductively with a problem, take a break or switch to some other work.

Maximise your learning

- The more you actively interact with the subject matter, making it your own, and linking it to previous knowledge, the more meaningful and memorable it becomes.
- Follow the PQRST model:
  - Preview – skim the material to get an overall preview
  - Questions – formulate questions that highlight what you aim to derive from your reading
  - Read Actively – make appropriate notes of key ideas
  - Summarise – identify the main points using lists, key words, flow diagrams, etc. and connect them with knowledge from other sources
  - Test – test yourself by reciting and reviewing the summaries immediately after learning the material and again at later intervals
Tips

- Use flow diagrams, keywords or patterns linking ideas to make master summaries for revision purposes.
- Use cue cards! Index-sized “flash” cards are easy to carry around and are useful for learning information you find particularly hard to remember. You can put facts, figures, formulae on the cards and use colours, keywords, mnemonics and other memory aids to help you learn.
- Space your studying and give yourself time for the information to sink in. Study related topics together and take regular, short breaks at suitable “achievement points”.
- Compare notes with other students and get feedback and/or clarification from tutors.

General exam strategies

Conquering exams: strategies and skills

- **Practical preparation:** Check the time and venue of the exam and figure out how to get there in good time, and have the necessary equipment ready (e.g. pens, ID card, clear bottle of water etc.)
- **Emotional preparation:** Mentally rehearse how to tackle the exam as a whole and review your strategies for dealing with anxiety. Consider what might also help, for example, staying away from crowds gathering outside exam halls.
- **Memory considerations:** Systematically review your revision notes the night before or the morning of the exam, but don’t attempt to learn complex new material at this late stage. Capitalise on short-term memory by glancing at your “difficult” cue cards just before entering the exam hall, then try reproducing them immediately when you are allowed to start.

Exam skills

Read the exam paper carefully and underline key words and instructions.

Don’t panic – if you feel unable to answer any of the questions at this stage it is likely due to a surge in anxiety.

- Note how many questions you are required to answer and if any are compulsory.
- Tick the questions you intend to answer. Make a rough timetable, allocating equal time to equally weighted questions. Allow for about 15 minutes of “planning” and 10 minutes of “finishing off” time overall for a typical 3 hour exam.
- Avoid getting demoralised at the start. Answer the easiest question first and save the most difficult one for last. Attempt all the questions required – usually the first 50% of marks for any question are easier to obtain than the next 50%.
- Watch the wording of the questions. Answering a question that wasn’t asked means no marks, no matter how thoughtful your answer was!
• Jot down key ideas that emerge about any of the questions and use them for “planning” an answer. This might show the examiner what you had in mind in case you run out of time.

• Save the last 5-10 minutes for “finishing touches” e.g. crossing out unwanted script, ensuring that questions are clearly numbered, and that all answer books have your identification number.

Sitting the exam

What if I get a mental block during an exam?

• Give yourself a couple of minutes to try to remember or puzzle out the answer. If you are still blocked, move on to the next question. If ideas for dealing with the question pop up while working on another one, jot them down before you forget them.
• With mathematical questions it pays to stick with the problem a bit longer, say 10 minutes. Try thinking back to first principles or representing the problem diagrammatically or more concretely, or think laterally about related issues.
• Adjust your timetable and still attempt all the required questions.

What if I panic during an exam?

If you start panicking in the exam, and you find that the harder you try to work the worse you feel, practise “Stop the Wasp”:

• STOP – the self-defeating thoughts that are buzzing around like wasps. Tell yourself instead that you are going to survive this experience, come what may. Go through the following “W-A-SP” squashing procedure, which you’ll need to practise during milder forms of anxiety in the revision period (so you can learn to recognise the early stages of panic, which are easier to neutralise).
• Familiarity with the procedure, through practice and mental rehearsal is essential emotional preparation.
• WAIT – switch off and unwind for a few moments. Focus on breathing and then relax with eyes closed. This will help you return to the task afterwards with a calmer, clearer mind and a more constructive perspective.
• ABSORB – taking in the relaxation, flood your mind with constructive self-talk (ideally from a repertoire of previously prepared and practised phrases), then slowly open your eyes and calmly bring yourself to face the exam situation.
• SLOWLY PROCEED – calmly get going again with the paper, as best you can, one step at a time.

Keep in mind:

• When focusing on your breathing, take a long, slow, deep breath, and allow the air to flow out slowly and smoothly. Sit back comfortably, dangling your arms by your side, and imagine any tension flowing out through your hands and feet. Try any relaxation strategy that works for you.
• If your breathing pattern has been rapid and shallow, you may be at risk of hyperventilating. Instead, pause after long exhalations, and breathe your stomach, rather than upper chest, movements. If you continue to hyperventilate, breathe into cupped hands (or even a paper or plastic bag – take one along if you think you’ll need it).
• It may help to reframe your attitude towards the examiner. Instead of some sadistic, persecuting figure, imagine him or her as a friend, or someone who just wants some help with the question.

Repeat “Stop the Wasp” if necessary – you may have rushed back too soon the first time. Stay longer “waiting” and “absorbing”. If the panic continues or escalates, tell the invigilator without delay.

**After the exam**

Don’t indulge in post-mortems and comparisons with others. Review what went well in your overall approach, including how you handled anxiety, and aim to improve upon it in your next exam.
14. Appendix D: Cheating Offences: Policy and Procedures

The Policy and Procedures contained in this document apply to all students and former students at Imperial College registered for Imperial College or University of London awards. A complete copy of the College regulations governing Cheating Offences: Policy and Procedures, under which Plagiarism is categorised, is available to download from the following link:


In any proceedings under these Policy and Procedures, the student shall be presumed to be innocent until the contrary is established beyond reasonable doubt.

Where the offence is an instance of suspected plagiarism, it shall be dealt with in accordance with the following procedures, commensurate with the severity of the suspected offence.

If you are not sure, please ask. Useful reference points are academic and library staff.

Plagiarism is defined as the presentation of another person’s words, ideas, judgement or data as though they were your own. For example; not referencing the source of your ideas or arguments when they have derived from your reading; taking verbatim the words of someone else’s work and putting it into your project without quotation marks and referencing; taking whole sections out of books, the internet, articles, lecture notes, other reports or other students’ work, and including them in your report uncited. It may also occur in formal written examinations, the above document addresses this possibility. An example might be where candidates have been able to learn text by heart (by rote) and simply reproduce this without acknowledgement of source. Where the examination is based on technical knowledge, this may be acceptable and not regarded as plagiarism. In other subjects where candidates are asked to write essay-type questions, the examiners may regard text reproduced without reference or critical analysis as plagiarism. This will be clarified, where appropriate, in the examination rubric on the front page of the examination paper.

You should be aware that you have a collective responsibility for the integrity of group work submitted for assessment. This means that if part of the work is plagiarised, all group members will be held accountable unless proof can be provided by each individual member of their contribution. You should, therefore, retain an audit trail of your contribution for this purpose.

When submitting (both individual and group) assessed coursework you will be required to complete and attach a Coursework Cover Sheet (examples on the following page) confirming that you have read and understood the definition of plagiarism. Submitting this form will certify that the work presented is entirely your own, except where indicated.

Plagiarism is a serious offence. The Examination Board reserves the right to take further action as it deems appropriate to protect the name of the Department and the College, and this may involve expulsion of a student from the programme or delay or withdrawal of a degree award.
15. Appendix E: Imperial-Only Cover Sheets

Coursework and Project Cover Sheet
Department of Civil and Environmental Engineering

Cluster: _________________________________________________
Module: _______________________________________________
Assignment: ____________________________________________
Supervisor: ____________________________________________
Submission Deadline: ___________________________________

DECLARATION

I understand that, unless specifically designated as Group work, all coursework submissions are individual, and that sharing my work, either electronically or in paper, is prohibited. If my submission is copied by another student, I will also be considered to have actively taken part in plagiarism.

I certify that I have NOT:
- Shared my coursework with any other person.
- Given my coursework to someone else to submit on my behalf.

Signature: ___________________ Name: ______________________

I certify that I have read the definition of plagiarism given overleaf, and that the work submitted for this coursework assignment is my own work, except where specifically indicated otherwise. In signing this document, I agree that this work may be submitted to an electronic plagiarism test at any time and I will provide a further version of this work in an appropriate format when requested:

CID:______________________ Date:________________________

Note: Until an assignment carries this completed front page it will not be accepted for marking.

TO BE COMPLETED BY THE MARKER

Grade awarded: _____________ Late penalty applied: _______________

Late submission penalties are 50% for the 24 hours and 100% thereafter.
Group Coursework and Project Cover Sheet
Department of Civil and Environmental Engineering

Cluster ________________________________
Module ______________________________
Assignment ____________________________
Deadline ______________________________

DECLARATION
I certify that I have read the definition of plagiarism given overleaf, and that the work submitted for this coursework assignment is my own work, except where specifically indicated otherwise. In signing this document I agree that this work may be submitted to an electronic plagiarism test at any time and I will provide a further version of this work in an appropriate format when requested.

Name: ___________ CID: ______ Signature: ___________ Date: ___________
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Name: ___________ CID: ______ Signature: ___________ Date: ___________

Note: Until an assignment carries this completed front page it will not be accepted for marking.

TO BE COMPLETED BY THE MARKER
Grade awarded: _______________________

Late penalty applied: ___________________

Late submission penalties are 50% for the 24 hours and 100% thereafter.
16. Appendix F.1: Map of Imperial South Kensington Campus
Building Key:

1. Beit Quadrangle
   Beit Hall, Chagall, Imperial College Union
2. Imperial College Union
3. Etho Sports Centre
   Sport Imperial
4. Prince's Gardens, North Side
   No.8: Early Years Education Centre
   No.10-12: Garden Hall
   No.15: Centre for Environmental Policy
5. Wells Hall
6. Blackett Laboratory
   Physics, Institute of Science Physics
7. Roderic Hill Building
   Aeronautics, Biology, Centre for Process Systems Engineering, Chemical Engineering, Composites Centre
8. Bone Building
   Aeronautics, Chemical Engineering
9. Royal School of Mines
   Earth Science and Engineering, Materials
10. Aston Webb
    Earth Science and Engineering
11. Bessemer Building
    Centre for Blast Injury Studies, Bioengineering, Imperial Innovation, Institute of Biomedical Engineering, Institute for Systems and Synthetic Biology
12. Goldeninh Building
    Bioengineering, Materials
13. Hudson Building
    Computing, Institute of Science Physics, Mathematics, Physics
14. ACE Extension
    Aeronautics, Chemical Engineering
15. William Penney Laboratory
    London e-Science Centre
16. Electrical Engineering Building
    Electrical and Electronic Engineering, Energy Futures Lab
17. Business School
    Centre for Quantitative Finance, Innovation Studies Centre, Entrepreneurship Centre, Centre for Health Management
18. 53 Prince's Gate
    Business School
19. Fascola
    Gabor Hall, Unstead Hall, Wilkinson Hall, Eastside bar and restaurant, Essentials convenience store
20. Sherfield Building
    Level 1: Catering, Centre for Health Policy, Queen’s Tower Rooms, Security Reception
    Level 2: Bank (Santander), Fuel Stop, Great Hall, Junior Common Room, Newsgate, QT snack bar, Senior Common Room, Union Shop
21. Flowers Building
    Cell and Molecular Biology, Centre for Integrative Systems Biology and Bioinformatics, Chemistry, Electron Microscopy Centre, MRC Centre for Molecular Bacteriology and Infection
22. Chemistry Building
    Chemistry
23. Sir Alexander Fleming Building
    Medicine, Biology, Biomedical Sciences, Cell and Molecular Biology, Molecular Biosciences
24. Chemistry RC31
    Biochemistry, Biology, Centre for Photomolecular Sciences, Chemistry
25. 52 Prince's Gate
    Imperial innovations
26. Alumni Visitor Centre
    College Cafe
17. Appendix F.2: Map of UCL Bloomsbury Campus
How to reach UCL's Bloomsbury Campus

By train:

- King's Cross:
  - Take taxi to UCL or walk.
- St Pancras:
  - Take taxi to UCL or walk.
- Liverpool Street:
  - Take taxi to UCL or walk.
- London Bridge:
  - Take taxi to UCL or walk.
- Marylebone:
  - Take taxi to UCL or walk.
- Victoria:
  - Take taxi to UCL or walk.

By bus:

Bus stops indicated on map 2

For further information on travelling by London bus visit www.tfl.gov.uk

Contact us: www.ucl.ac.uk

Download the official UCL Go! app!

UCL Go! is an app that enables you to access University and Union information on the move, direct from your Apple or Android device.

Just search for "UCL Go!" in the store.

From UCL Go! you can:
- access your personal timetable
- download maps to view or print
- see which PCs are free... and much more!

A selection of UCL maps can be viewed online or printed. www.ucl.ac.uk/maps

Follow our future campus plans @TransformingUCL

Further copies of this map can be obtained from:

- The Front Lodge at the entrance to the Main Quad
- or by email: roombookings@ucl.ac.uk

Please send your revisions to geog-drawingoffice@ucl.ac.uk

September 2016

Maps & Content produced and researched by the Drawing Office, UCL Department of Geography, www.geog.ucl.ac.uk/drawing_office

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PLEASE NOTE: THIS HANDBOOK IS REVISED ANNUALLY
SKEMPTON BUILDING

HEALTH AND SAFETY CONTACT INFORMATION

Emergency procedures:

- **MEDICAL, FIRE or SECURITY EMERGENCIES** - DIAL 4444 or 020 7589 1000
- **FIRST AID** – Contact the nearest First Aider (see separate sheet)
- **BUILDING EVACUATION** – Know your evacuation route, use the nearest staircase (east, west or central stairs). **DO NOT USE THE LIFTS.** Leave the building quickly and safely. Do not return to collect personal belongings.
- **ACCIDENTS + DANGEROUS OCCURRENCES** – All accidents and near misses, however minor, MUST BE REPORTED using the online system “SALUS”

### Department Emergency Control Team

<table>
<thead>
<tr>
<th>Office</th>
<th>Tel.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head of Department</td>
<td>442</td>
</tr>
<tr>
<td>Department Safety Officer</td>
<td>413</td>
</tr>
<tr>
<td>Technical Services Manager</td>
<td>417</td>
</tr>
<tr>
<td>Department Operations Manager</td>
<td>440A</td>
</tr>
<tr>
<td>Assistant to the Technical Services Manager</td>
<td>309</td>
</tr>
</tbody>
</table>

### Building Health and Safety Committee

<table>
<thead>
<tr>
<th>Office</th>
<th>Tel.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chairman of Department Safety Committee</td>
<td>417</td>
</tr>
<tr>
<td>DSO; EWRE Rep.; COSHH, Radiation, Fieldwork &amp; Biological Safety Advisor</td>
<td>413</td>
</tr>
<tr>
<td>Manual Handling Assessor</td>
<td>236</td>
</tr>
<tr>
<td>Committee Secretary, DSE Assessor, Fleet Manager</td>
<td>309</td>
</tr>
<tr>
<td>First Aid Coordinator</td>
<td>507</td>
</tr>
<tr>
<td>Fluid Mechanics Section Academic Safety Representative; Laser Safety</td>
<td>328A</td>
</tr>
<tr>
<td>Geotechnics Section Academic Safety Representative</td>
<td>528B</td>
</tr>
<tr>
<td>Structures Section Academic Safety Representative</td>
<td>228B</td>
</tr>
<tr>
<td>Transport Section Academic Safety Representative</td>
<td>337</td>
</tr>
<tr>
<td>UG Student representative (Dept. Rep.)</td>
<td></td>
</tr>
<tr>
<td>PG (Research) Student representative</td>
<td></td>
</tr>
<tr>
<td>Post-Doctoral Research Staff Representative</td>
<td></td>
</tr>
<tr>
<td>Skempton Building Manager (Office in City &amp; Guilds Building)</td>
<td>C&amp;G 260</td>
</tr>
<tr>
<td>Assistant Skempton Building Manager (Office in City &amp; Guilds Building)</td>
<td>C&amp;G 260</td>
</tr>
<tr>
<td>Department of Aeronautics DSO (Office in City &amp; Guilds Building)</td>
<td>C&amp;G 222</td>
</tr>
<tr>
<td>Department of Mechanical Eng. Deputy Safety Officer</td>
<td>238A</td>
</tr>
<tr>
<td>Wohl Reach Out Laboratory</td>
<td>100</td>
</tr>
<tr>
<td>Faculty of Engineering Safety Manager (Desk in Faculty Building L2)</td>
<td></td>
</tr>
</tbody>
</table>

**Imperial College Safety Department (level 4 Sherfield Building)**

<table>
<thead>
<tr>
<th>Office</th>
<th>Tel.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director of Safety Department</td>
<td></td>
</tr>
<tr>
<td>Safety Department Administrator</td>
<td></td>
</tr>
</tbody>
</table>

Any changes to this list should be notified immediately to Dr G. D. Fowler.

Email: g.fowler@imperial.ac.uk
First Aid

In the event of an accident or medical emergency contact the NEAREST first aider without delay!

Your Nearest First Aiders are:

<table>
<thead>
<tr>
<th>NAME</th>
<th>LOCATION</th>
<th>PHONE</th>
</tr>
</thead>
<tbody>
<tr>
<td>David de Ruyter</td>
<td>010b</td>
<td>45925</td>
</tr>
<tr>
<td>Fionnuala Ni Dhonnabhain</td>
<td>118</td>
<td>45929</td>
</tr>
<tr>
<td>Shreya Konnur (Reach Out Lab)</td>
<td>100</td>
<td>41924</td>
</tr>
<tr>
<td>Neal Beadle</td>
<td>Mech. Eng Teaching Workshop L1</td>
<td>41671</td>
</tr>
<tr>
<td>Aslan Kutlay</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paul Crudge</td>
<td>236</td>
<td>45902</td>
</tr>
<tr>
<td>Gordon Herbert</td>
<td>236</td>
<td>45948</td>
</tr>
<tr>
<td>Rebecca Naessens</td>
<td>328</td>
<td>45990</td>
</tr>
<tr>
<td>Tina Mikellides</td>
<td>401</td>
<td>45965</td>
</tr>
<tr>
<td>Roisin Buckley</td>
<td>506</td>
<td></td>
</tr>
<tr>
<td>Dr Angel Nievas-Pino</td>
<td>507</td>
<td>41214</td>
</tr>
<tr>
<td>Dr Antonio Carraro</td>
<td>528B</td>
<td>46038</td>
</tr>
<tr>
<td>Dr Richard Ghail</td>
<td>534</td>
<td>46001</td>
</tr>
</tbody>
</table>

MENTAL HEALTH FIRST AIDERS

<table>
<thead>
<tr>
<th>NAME</th>
<th>LOCATION</th>
<th>PHONE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lucy Chivers</td>
<td>441</td>
<td>46098</td>
</tr>
<tr>
<td>Sarah Willis</td>
<td>443</td>
<td>41127</td>
</tr>
<tr>
<td>Alexandra Williams</td>
<td>613</td>
<td>45995/46153</td>
</tr>
</tbody>
</table>

ALL FIRST AIDERS ARE DEFIBULATOR (AED) TRAINED

If you cannot get hold of a local first aider or need First Aid outside of normal working hours, contact Security on: 4444 or 020 7589 1000

<table>
<thead>
<tr>
<th>Nearest First Aid Box</th>
<th>General Office (118)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nearest AED</td>
<td>SAF Building - Foyer</td>
</tr>
</tbody>
</table>

This notice was last updated: 09/2018
## IMPORTANT SAFETY INFORMATION

<table>
<thead>
<tr>
<th><strong>Evacuation procedure:</strong></th>
<th>Evacuate the building on sound of the claxon sounder and evacuation voice and go to the assembly point on the steps of the Queen’s Tower</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Campus emergency number</strong></td>
<td>4444 (from an internal telephone) 020 7589 1000 (from all other telephones).</td>
</tr>
<tr>
<td><strong>Frequency of fire drills</strong></td>
<td>Annual (usually during the first 4 weeks of the autumn term)</td>
</tr>
<tr>
<td><strong>Frequency of alarm testing</strong></td>
<td>Weekly at around 8am on Tuesday mornings</td>
</tr>
<tr>
<td><strong>Locations of:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Fire alarm call points</strong></td>
<td>Five per floor located between each set of fire doors</td>
</tr>
<tr>
<td><strong>Emergency exits</strong></td>
<td>See map in this book</td>
</tr>
<tr>
<td><strong>Evacuation routes</strong></td>
<td>Follow the green arrows located on the back of all office and lecture theatre doors and in the corridors</td>
</tr>
<tr>
<td><strong>Assembly point</strong></td>
<td>On the steps of the Queen’s Tower</td>
</tr>
<tr>
<td><strong>Fire extinguishers etc</strong></td>
<td>Located throughout the building, at least three sets per floor, normally adjacent the emergency exits, plus in all laboratories (look for the Red location signs)</td>
</tr>
<tr>
<td><strong>Safety Notice Board</strong></td>
<td>Located on Level 4 on the wall outside the room 415</td>
</tr>
<tr>
<td><strong>Departmental Staff with Safety duties</strong></td>
<td>See the list enclosed in this book, in the lifts and on noticeboards in lecture rooms, offices and around the building</td>
</tr>
<tr>
<td><strong>First Aid Arrangements</strong></td>
<td>Use SALUS – the online reporting system. This can be accessed from the Safety department web pages on the College intranet: <a href="http://www3.imperial.ac.uk/safety">http://www3.imperial.ac.uk/safety</a></td>
</tr>
<tr>
<td><strong>Accident reporting</strong></td>
<td>Provided advice on Safety issues. Located in Sherfield Building, L4.</td>
</tr>
<tr>
<td><strong>Safety Department</strong></td>
<td>Provides advice and support (including vaccinations and health screening) for all College personnel involved in College work. Located in Sherfield Building, L4.</td>
</tr>
<tr>
<td><strong>Occupational Health</strong></td>
<td>Provides a 24 hour, college-wide service relating to building security, first aid and emergency support.</td>
</tr>
<tr>
<td><strong>Security</strong></td>
<td>The College intranet contains all the detailed information required to help staff &amp; students understand College policies &amp; procedures.</td>
</tr>
<tr>
<td><strong>Web site information</strong></td>
<td><a href="http://www3.imperial.ac.uk/">Imperial Home Page: http://www3.imperial.ac.uk/</a> Use the bookmarks along the top to locate the required Departments and services. For support services (non academic issues) use the A-Z index under “Admin and Service” to locate the required area. Safety is under “S”</td>
</tr>
<tr>
<td><strong>Key Web site addresses</strong></td>
<td>Building Access Hours</td>
</tr>
<tr>
<td><strong>Normal Working Hours</strong></td>
<td>8am-6pm weekdays.</td>
</tr>
<tr>
<td><strong>Departmental Hazards</strong></td>
<td>All department labs are considered to be high hazard areas. Do not enter any laboratories until you have been inducted for the lab and completed a risk assessment for the planned work. The department has a “No Lone Working” policy for laboratories, which applies outside normal hours.</td>
</tr>
<tr>
<td><strong>PPE</strong></td>
<td>All UG MEng students <strong>must</strong> own steel toed and soled safety</td>
</tr>
</tbody>
</table>
boots suitable for site work. Other PPE for MEng students is issued in week 1 for use throughout the course. For all other MSc courses, the leaders will advise you regarding the required PPE for each trip.

<table>
<thead>
<tr>
<th>Dept. Safety Committee</th>
<th>Meets three times per year to consider all matters relating to Departmental Health and Safety. All Research and Teaching activities are discussed. Student issues are represented by the “Dep Rep”.</th>
</tr>
</thead>
</table>
| General Advice on Safety | If you have any safety related questions, please contact the DSO:  
Dr G D Fowler, room 413, ext 45973, email:  
g.fowler@imperial.ac.uk |
INTRODUCTION

The Health and Safety of all students whilst studying at Imperial College is a primary concern to the Staff and College. There are several major pieces of legislation that dictate the implementation of Health and Safety Policy and Practice. We must ensure that students are not put at risk during their study at Imperial College. However, there is also a responsibility upon yourself to follow, to the best of your abilities, all instructions and guidance provided. This booklet has been written to provide an outline of Health and Safety arrangements within the Department and to provide you with guidance to your own responsibilities.

GENERAL INFORMATION

Health and Safety within the Department is organised and managed by the Departmental Safety Officer, Dr G. Fowler (room 413, ext. 45973). He is always available to provide advice and guidance on all aspects of Health and Safety. All major Health and Safety decisions are made by the Skempton Building Safety Committee, which meets every term. The committee comprises representatives from all the Sections in the Department, Users of the Building, Student representatives (UG & PG), plus staff with specialist advisory roles for particular activities that may present a risk.

The Orange Health and Safety and Green First Aid/Lifesaver notices provide Health and Safety guidance and list the members of staff with specific safety related duties and responsibilities. Copies of these notices are included inside this book and further copies are spread throughout the Department. These signs are updated regularly. You must yourself familiar with their content.

The College has a significant amount of safety-related information available via its web site: http://www.imperial.ac.uk/safety.

YOUR RESPONSIBILITIES

Each student is responsible for looking after their own health and safety and that of others affected by their College-related work and leisure activities. To this end, each student must:

a. Comply with all local and College policies, procedures and codes of practice and with the arrangements which the College has in place to control health and safety risks.

b. Ensure that their activities do not present unnecessary or uncontrolled risks to themselves or to others.

c. Attend appropriate induction and training.
d. Report any accidents, unsafe circumstances or work-related ill health of which they become aware to the appropriate person.

e. Not interfere with any equipment provided for Health and Safety reasons.

f. Where a student is not confident that he or she is competent to carry out a work or leisure activity safely, inform his or her supervisor or the person in charge of the activity rather than compromise his or her own safety or the safety of others.

DEPARTMENT SAFETY SHAREPOINT SITE

The Department operates an electronic safety registration and risk assessment system. It is based around an online resource for H+S using the Microsoft SharePoint platform. This system provides a single resource for safety management, including: risk assessment creation and final approval and laboratory safety information. Appendix 1 in this booklet provides a summary of how you can access the system and complete a risk assessment. As taught students, you will only need to use this system for the research project element of your course where your work may include laboratory or fieldwork activities. Risk assessments will not be needed for desk or computer-based projects. Appropriate training in using this system will be provided when required.

DEPARTMENT SECURITY

Security and safety are closely linked. Please help us keep the building secure and safe by following the following simple rules:

**ALWAYS** wear your College Security/ID card whilst at College. Belt clips or neck lanyards are available from the department General Office.

**DO NOT** allow strangers to enter the building out of hours (deliberately or via tailgating)

**NEVER** lend your ID card to anybody, if they cause damage or present a risk to security or safety, **YOU** will be liable.

DEPARTMENTAL WORKING HOURS

The nature of the College is such that it appears to operate 24 hours per day – research never stops. Nevertheless, there are times of the day which the College considers are “outside normal hours” or access is limited and so special safety procedures including specific risk assessments and or lone working approval may be needed for your work to continue. In addition, there are times of the day when the College is “closed”. The Department open and closed hours are as follows:

| Normal opening hours: | 8am – 6pm Monday to Friday |
| Swipe card access only: | 7am – 8am & 7pm – 12pm, Weekdays |
| College “Closed” (swipe inactive): | 7am- 12pm Weekends and Public Holidays |
| | 12pm to 7am every day and during selected whole days during College Closure at Christmas. |

Please make sure that you leave the Department before midnight. College Security patrol the buildings out of hours and any persons found on the premises will be removed from the building and have their access rights curtailed.
SAFE BEHAVIOUR IN THE DEPARTMENT

This is a large and busy building where many varied and potentially dangerous processes occur. You should always be careful when in the building, to ensure that you do not put your self or others in way of harm. For example, be aware of people around you when walking down corridors, so that you do not obstruct them or inadvertently release a door into their path. All doors on the corridors are fire doors and have automatic closer devices fitted which cause the door to swing back, almost instantaneously, to the closed position. Please note that some of these doors (mainly on Level 5) have a delayed close and should not be forced to close – this will damage the closer device. Fire doors must never be propped open with a wedge or other heavy object.

Also, please note:
- Do not run in the corridors.
- The wearing and use of roller blades, inline skates and the use of scooters in the building is forbidden. They are a hazard to other people and damage the floors.
- You must not enter any of the laboratories or workshops without prior permission.
- Bicycles are not allowed in the building – this is a College-wide policy. Bicycles must be stored in the racks provided on Campus.

WASTE DISPOSAL

There are very strict laws governing waste disposal. The College is proactive with regard to waste management and recycling, there are numerous recycling points around the building. Certain wastes generated in the department are separated for recycling/safety reasons. The following is a brief guide to the recycling and waste disposal mechanisms operating throughout the campus and applied within the department.

The College is striving to recycle as much of the waste it generates. One way to achieve this is by segregating waste at source. To achieve this the College has a number of different waste bins in use, which are colour-coded, each one designated for different wastes:

Waste domestic Glass (not broken glass): Use the red-topped bins
Paper and Card (no paper cups or food wrappers): Use the blue-topped bins
Cans and plastic bottles: Use the green-topped bins
Non-recyclable waste: Use the black-topped bins

Special arrangements exist for non-domestic, electronic and laboratory wastes:

Batteries A dedicated bin for batteries is located on level 2 (BOSS area) in the area near the photocopiers.

Chemical wastes Any waste arising from laboratory activity which is contaminated or classified as hazardous (laboratory staff will advise you if you are unsure) must be disposed of in a controlled manner. Each Laboratory has special containers for segregating these wastes, including solvents, flammable waste, oils, corrosive materials, powders, etc. Please follow the guidance in each laboratory appropriate for the waste requiring disposal.
Clinical waste: Of main concern are syringe needles and any bodily fluids. If you find anything which may fall into this category around the department, please contact the Department Safety Officer (DSO) immediately.

Electrical equipment: Waste electrical equipment must not be disposed of via the non-recyclable waste route. Please contact the DSO for details of the procedures which exist for disposing of these materials.

Laboratory waste: Every laboratory has rules regarding the disposal of laboratory waste. You will be advised by laboratory staff what is expected in each laboratory.

Laboratory Glass: The College operates special disposal systems for laboratory glassware which is contaminated or made from Pyrex – it **MUST NOT** be put into the red recycling bins in communal areas.

Toner cartridges: There is a bin on L2 (BOSS area) and L4 outside room 415, dedicated to printer and toner cartridges.

| If you have any doubts regarding the best way to dispose of a laboratory waste, ask the Laboratory staff, your Supervisor or the Department Safety Officer. Your risk assessment should specify all waste disposal procedures required for your work. |
FIRE EQUIPMENT AND ESCAPE ROUTES

The Department has several means of escape in an emergency. The plan below shows the building in relation to the rest of Imperial College.

Emergency exit locations and Assembly point for Skempton Building

THERE ARE FOUR PRIMARY EXIT ROUTES FROM THE UPPER LEVELS OF THE SKEMPTON BUILDING

The East Stairs adjacent Mechanical Engineering/Unwin Road
The West Stairs which are part of Electrical Engineering
The Main (Central) Stairs beside the lifts, through reception
Through the BOSS area on Level 2 into the City and Guilds Building

THE EMERGENCY EVACUATION ASSEMBLY POINT IS THE STEPPED AREA AT THE BASE OF THE QUEENS TOWER

All the corridors in the building must be kept clear. Do not put chairs or tables into corridors, as they reduce the width and cause an obstruction. Similarly, because all the doors in the Department corridors are fire doors, they must NEVER be propped open with wedges, fire extinguishers or by any other means.

You MUST know which way is the quickest emergency escape route from your location in the building. All the emergency escape routes are indicated with an “arrow and running directional figure” green sign. The evacuation alarm is a Claxon sounder with voice
instructions. If this activates you must stop what you are doing and leave the building IMMEDIATELY by the nearest emergency escape route in an orderly manner, making sure that you close any doors behind you.

There are evacuation notices in every room in the building (please following for an example) indicating with a green arrow the preferred exit route from that part of the building. Please follow these arrows as they will ensure that you can evacuate from the building with the minimum of delay. Please try to avoid using the main staircase during an emergency evacuation. The congestion on the Main Staircase can be significant and your evacuation will be much delayed.
THERE WILL BE A FIRE DRILL DURING THE FIRST TERM, TO FAMILIARISE YOU WITH EMERGENCY PROCEDURES.

Direction of the nearest escape route

The assembly point is adjacent the base of the Queens Tower

For further details see the Department Safety notices

This notice must NOT be removed from this room

IF THE FIRE EVACUATION ALERT SOUNDS, DO NOT:

- Wait or return to collect any belongings
- Leave the assembly point until instructed to do so
- Return to the building until the all-clear is given

For all Emergencies dial 4444

THERE WILL BE A FIRE DRILL DURING THE FIRST TERM, TO FAMILIARISE YOU WITH EMERGENCY PROCEDURES.
FIRE PREVENTION & SAFETY

The consequences of a fire in any building can be several fold. Apart from the unacceptable loss of life which may result, there are the lesser consequences of damage to the building, the cessation of activities in the damaged area (or the whole building) and the loss of research and data in an Academic building. None of these outcomes are acceptable.

There is a responsibility upon all users of the building to ensure that fire prevention is a core part of all risk assessments and our day-to-day activities. The College has suffered several fires in recent years. The most serious occurred in the Department of Chemical Engineering and resulted in three laboratories being destroyed. The consequence of the lost research, equipment and data was very costly to the students and staff concerned, irrespective of the fiscal implication for the College and Department.

Current UK Fire Brigade policy is to not place fire fighters at risk, if there are no members of the public (College personnel) in the burning building. Thus, they could allow the building to be destroyed.

There have been several fire incidents in the Skempton Building, mostly caused by faulty electrical equipment. Most recently there have been several incidents involving the communal microwave ovens. When using the microwave ovens, the instructions on the ovens must be followed. Failure to use the ovens responsibly and safely may result in them being removed.

MICROWAVE OVEN SAFE USAGE

- Follow the instructions on the front of the microwave oven
- Never microwave loose food – always place it in a container
- Only use “microwave oven safe” containers
- Do not use metallic containers or utensils in the microwave
- Loosen/open the lid on the container
- Do not leave food cooking unattended
- If food spills in the microwave, please clean it up.
- Report any problems with the microwave to the Technical Services Manager (b.whiting@ic.ac.uk)

The College has a policy that ALL accidents or dangerous occurrences, however small, MUST be reported. This is because there is a very strict law with regard to reporting accidents to the authorities. There is an online system “SALUS” available for reporting all accidents or dangerous occurrences. A dangerous occurrence is an incident that does not result in personal injury.

SALUS is accessible from the Safety department web page via a quick link:

http://www.imperial.ac.uk/safety
Typical accidents in the Department tend to occur due to “slips, trips, falls” and poor lifting practise. Many of the corridors in the Department are linoleum or terrazzo. When wet, the floors are slippery. If you see a wet floor, or cause a floor to become wet, for example by spilling coffee or tea, please do not walk away, clear it up with paper towels (these are available from the General Office).

FIRST AID & LIFESAVERS

The College has a very well organised First Aid system. There are several qualified First Aiders working within the building. The offices of these staff are identified by the Universal first aid sign (a Green & White cross). If you feel unwell or need First Aid assistance please contact any of the staff identified on the list in the front of this book for assistance. In addition, most of the College Security staff are trained in First Aid and can be contacted by calling the College emergency number 4444 or 020 7589 1000. There are supplies of sticking-plasters and bandages available to treat minor injuries (cuts, scrapes and bumps). Any injuries which cannot be readily treated by a First-Aider must be looked at by the Health Centre, who may decide that hospital treatment is necessary.

ELECTRICAL EQUIPMENT

The Department has a very strict policy regarding mains-powered portable and desk-based electrical equipment brought onto the premises. This is detailed below. The key aspect of this policy requires that any electrical equipment in the building must be either new or safety tested prior to use. The periodic testing of electrical equipment in the Department is undertaken by external contractors. Thus, unless your electrical equipment meets any of the conditions below, you are NOT PERMITTED to plug it into the department electrical 240V sockets.

All equipment which has been tested and passed the electrical safety test will have attached a green sticker indicating that it may be used in the department (see image following). Any equipment not displaying this sticker or meeting the exceptions criteria described below the image, will be confiscated.
New equipment brought into the Department

New equipment brought into the Department may be used for the first year without the need for a Portable Appliance Test (PAT). The user is asked to perform a simple visual check on all equipment prior to use. Records of the equipment purchase, usually through the College finance system or a receipt from the supplier, must be kept to be able to prove the date of purchase. It must also be marked with a European CE mark or an otherwise equivalent international directive.

Personal electrical equipment brought into the Department

Personal electrical equipment brought into the Department will be PAT tested as Departmental equipment. To ensure that personal electrical equipment is tested within an acceptable timeframe (limit of one year of safe usage), only new personal equipment may be brought into the Department. Proof of date of purchase will be required. **Under no circumstances may old equipment be brought into the Department.** If old equipment is found then it will be confiscated and may be destroyed. The exception to the above is personal mains chargers for devices such as laptops, tablets and phones, etc. for which there is no age restriction.

Unauthorised electrical equipment

The list below gives some examples of unauthorised electrical equipment which must not be brought into the Department:

- Electric fires and heaters of any form.
- Any form of equipment used for cooking or warming food (kettles, toasters etc.).
- International equipment which is not compatible with the UK mains voltage (220-240V).
- International equipment which is not marked with either the European CE mark or an equivalent international standard.
Electrical equipment belonging to visitors

Electrical equipment belonging to visitors and brought into the Department will be subjected to the normal Departmental rules.

Electrical equipment belonging to third parties

Electrical equipment belonging to third parties, such as contractors working within the Department, are the responsibility of the third party who will be required to demonstrate that their policies and procedure are at least in accordance with and of a standard compatible to those of the Department.

Design, construction, checking and testing of electrical equipment

Those involved in the design and construction of electrical equipment will be required to ensure that such equipment is suitably tested to ensure that it performs within the general conditions of the Departments “Electrical Equipment – Policy and Code of Practice”.

Repair, installation or modification of electrical equipment

Unless otherwise directed, staff and students in the Department are not allowed to undertake any repair, installation or modification to electrical equipment.

Disposal of electrical and electronic equipment

Consult the Facilities Management web pages to arrange for the collection and disposal of unwanted College Equipment (there may be a charge for this service).

http://www.imperial.ac.uk/estates-facilities/buildings/services/waste-disposal/waste-disposal-forms/weee-forms/

LABORATORY COURSES

There may be several occasions when you will undertake laboratory work as part of your course. The Department is very unusual within the College in that it operates all major classes of laboratories with many diverse activities, which include the traditional mechanical and engineering testing through to specialised chemical and biological work. Each laboratory has their own specific safety procedures which will be explained in detail before any work commences, you MUST abide by the following general rules for any laboratory behaviour/work.
Work in any laboratory must only be conducted during normal College hours (9am-6pm), with at least one other person in sight at all times. Lone laboratory working is **NEVER PERMITTED**. Additionally, the other person in the laboratory **must know the College emergency procedures and be familiar with the working environment** so that if they need to isolate a service or make safe an experiment in an emergency, they know what to do.

**RISK ASSESSMENTS**

Risk assessment is the cornerstone of Health and Safety management. No activity should be started before a risk assessment has been completed. To be able to perform a risk assessment you need to know what you are going to do and have an understanding of the steps and processes required in the task being assessed. If all the information is at hand, the assessment should be a straightforward task. If the risks are considered to be too high, this does not mean that the activity cannot be completed but it may mean that a different approach or better control measures are required to reduce the potential risks.

For most laboratory classes, the assessment will have been undertaken by the course or laboratory organiser. They will explain the assessment to you and indicate the main risks from the work to be conducted and advise you how to avoid these risks. However, some laboratory or fieldwork classes will require you to complete your own assessment (particularly for project work). The Department has standard online forms for this purpose, accessed via the SharePoint site mentioned earlier. Guidance on the completion of these forms will be provided in special introductory sessions prior to you undertaking the projects requiring assessments.

When completing risk assessments, if you need further information or require advice, you must ask the staff supporting your work (Academic or Technical). If they cannot provide the necessary answer or information, please do not hesitate to ask the DSO.

---

**Laboratory “Do and Do not”**

**DO**

Follow all instructions from the demonstrators/lab staff  
Wear all necessary personal protective equipment, especially your safety glasses, at all times in all laboratories  
Tie back long hair  
Wear appropriate clothing and stout shoes or safety boots, as required.

**DO NOT**

Wear long/dangly clothing or jewellery which may become snagged in moving machinery  
Wear sandals or open-toed shoes  
Run or fool about in the laboratories  
Eat or drink in ANY laboratory
FIELD COURSES

During the time of your studies within the Department of Civil and Environmental Engineering, there are several major courses of varying duration that require you leave the Department and College premises. Whilst away from these premises, your Health and Safety is still our responsibility. We take this responsibility very seriously. The College is covered for most events by its insurance, but there is an important onus (and a legal responsibility) upon you to abide by College Health and Safety rules. Every field course has its own specific set of instructions which detail the risks and methods for minimising these. Copies of these instructions will be given to you prior to your undertaking of the course. The following information is meant as a general benchmark for you to use and apply at all times when away for course purposes.

When we organise any field course, the course co-ordinator carefully considers all the potential risks that may occur and are attributable to the particular situation. For example a visit to a quarry has particular dangers which are different to a visit to a bridge or road, but there are several common risks which can be controlled and minimised if not entirely eliminated by applying several basic rules.

1. Whilst on any field course, the most important rule is that you MUST follow the instructions of the course leader. Pay particular attention to guidance on safe practices whilst on that trip.
2. Do not try to take too much luggage with you, heavy bags can be difficult to carry and cause back strain, as well as being a potential danger if they fall from luggage racks in buses.
3. Ensure that you are suitably dressed for the trip or course i.e.: a hard hat, warm and waterproof clothing and stout shoes would be a minimum requirement for a winter visit to a site – forget fashion!
4. Take particular care when crossing roads checking in both directions for traffic before crossing. When walking alongside roads not designed for pedestrians try to stay at least 1m from the traffic at all times.
5. Make sure that you inform the course leader of any medication which you use or any ailment which you suffer from that may be a problem during the course. For example if you are a diabetic or have food allergies, it is vital that the course leader of a residential trip is aware of this in advance for dietary purposes or in case you require medical assistance on the course. Ensure that you are carrying sufficient medication for the duration of your course. A less obvious condition, but equally dangerous would be if you suffer from vertigo and visits to a bridge or tall building may be a problem or conversely, claustrophobia would be an issue for a visit to sewers.
6. Be aware of problems like dehydration and sunburn which may occur on summer field trips.
7. Any accident or dangerous occurrence, however minor, must be reported immediately to the course leader.
8. The evenings of residential courses may seem like a ideal opportunity to relax and have fun, but alcohol abuse can be dangerous and antisocial behaviour resulting from this will NOT BE tolerated.
9. You are representing Imperial College whilst on the course. Any public nuisance or criminal prosecution resulting from disreputable behaviour whilst on the course will be your liability and not the College’s. For example, some sites are classified as SSI’s (Special Scientific Interest), damaging them by even walking across them can result in prosecution.
10. Visits to sewers, building sites or other outdoor environments may expose you to pathogens such as Tetanus or Leptospirosis (Weils Disease). It is recommended that your tetanus jab is kept up to date. It is usually valid for 10 years.

The course leader or coordinator must provide you with course details and risk assessments before commencing the field work activity. If you do not receive this information, ask the coordinator for it. **MEng Students must take the supplied PPE on all the field courses.** Failure to do this will result in you being refused participation in the course which may mean you fail that element and hence the year.

**Visits Abroad**

Trips outside the UK are a feature of some of the courses. However, depending on the reason for your trip abroad, the College’s insurance may not provide full cover in all eventualities (i.e. terrorism and war zones). There may be particular risks which must be considered alongside the normal risks discussed above.

The most obvious hazards are from disease, both insect and water-borne, which will generally be regional specific i.e. tropical climates – Malaria, so advice on the require vaccinations will be needed. The availability of clean drinking water cannot be overlooked.

There may also be hazards due to wildlife, for example, predators such as large cats, venomous creatures (snakes, spiders, fish etc.), sharks, polar bears and so forth.

Despite the growth of global communications, some parts of the world do not have very comprehensive satellite or mobile phone coverage, so communications with other part of the country or globe may be limited. In addition, battery life on mobile telephones must be carefully managed as you cannot guarantee to be able to find a suitable electrical supply to boost your telephone’s charge.

A further factor to consider is the political stability of the country you will be visiting. The risk of kidnap is a real threat in some countries. It is advisable to register with your national Embassy when you arrive in a foreign country, so that they know you are there. There are some countries around the world where organised society has broken down or is badly eroded due to Civil war or natural disasters. There must be very compelling reasons to travel to countries with these particular problems and comprehensive risk assessments will be required. In addition, approval for trip to countries which fall into this category will need to be given by the Head of Department. Your supervisor or course leader should make all the necessary arrangements to cover your trip. This includes activating the College insurance, which is a comprehensive policy. Nevertheless, it is very important to recognise that **no travel insurance** is truly and fully comprehensive. There are limits to what an insurance company can do to recover you from danger or protect you from harm. [International Rescue (“Thunderbirds”) do not exist].

There are several sources of information relevant to trips abroad:

The UK Foreign & Commonwealth Office web pages contain all the information to help make your trips as safe and enjoyable as possible: [http://www.fco.gov.uk/](http://www.fco.gov.uk/). Follow the links for “travel advice”.

If you need to undertake international trips for projects etc., please plan ahead. Discuss the project needs with your supervisors and the DSO, as required and submit the risk assessment form at least three weeks before you intend to travel.

College Occupational Health will provide advice on travel medication, injections etc., and will also undertake immunisation injections for College-required trips. However, you must arrange these well in advance of your trip (ideally, at least 1 month before travel).

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment, (PPE) is an essential part of Civil Engineering site safety. In recognition of this PPE is an essential requirement for the field courses run by the department.

All first year undergraduate (MEng) students will be issued with a personal safety pack after Christmas, just prior to the commencement of their first fieldtrip. This safety equipment must kept safe and looked after because the items will be needed throughout the four year MEng degree. If you lose any items you will be charged for replacements. If you do not bring them to your course when required, you will not be permitted to undertake the module and may fail the course as a result.

The safety pack will comprise the following items:

- Hard Hat
- Safety Glasses
- Site Gloves
- High-Vis Vest

Hard Hat

British Standard Hard Hats must be thrown away after four years, as their safety performance cannot be guaranteed after this time. MSc students will be issued with hard hats during field courses and other times as required, but these must be returned to the Department. The Department issues Hard Hats as part of the safety pack above for all undergraduate students in the Department. The Hats will be needed for most field courses over the 4 year course and must be looked after.

Safety Glasses

MSc students will be issued with safety glasses as required for laboratory and field courses. These are issued as part of the safety pack to the undergraduate students. Safety Glasses are required for all laboratory courses and most field courses. If you do not have a pair of safety glasses, you will be unable undertake the course.

IMPORTANT
The College Insurance Policy is NOT VALID if you take personal holiday whilst away for College purposes. YOU MUST ensure that you have separate, personal travel insurance for recreational activities, holidays and non-College related travel whilst away.
Gloves

Increasing concerns over dermatitis (from cement) and cuts and grazes from construction site activity has seen the compulsory wearing of gloves on all construction sites. A pair of cotton gloves suitable for site are included in the safety pack issued to the undergraduate students and these are needed for all site visits. MSc Students will be issued with a suitable type of glove for laboratory and fieldwork courses.

High-Viz Vests

Site visibility is a key part of safety management, hence all site visits require the wearing of high-viz vests or jackets. A high-viz jacket forms part of the Safety Pack, for UG students whilst MSc students will be issued with them as required.

Safety Boots

All undergraduates and some MSc students (Check your course information) must own a pair of safety boots. The footwear needs to be classified as complying with EN ISO 20345, which provides the highest level of impact resistance in the toe area and be fitted with a steel mid-sole with steel toe caps and offer ankle support.

Not only are safety boots essential for any visits to construction sites, but some laboratories within the Department require that they be worn at all times and they are needed for the Surveying, Geology and Constructionarium field trips during the 1st and 2nd years of the MEng degree respectively.

The Department will be arranging for a specialist supplier to attend the Skempton Building during the first week of term to sell these boots (check your course information for more details). The wearing of safety boots is compulsory during certain courses and failure to abide by this rule will result in you being barred from the course and possibly failing that module (and hence the year). Safety boots can be readily purchased from many high-street suppliers, but these must meet the minimum requirement described above.

Some MSc courses will issue the safety equipment as the class need arises, but this must be returned to the Department at the end of the class.

WEB RESOURCES FOR HEALTH AND SAFETY AT THE COLLEGE

The College Intranet, which is accessible for all College networked PC’s, has comprehensive health and safety information covering most aspects of the activities undertaken by the College. This information can be readily accessed from either the Safety Department or the Occupational Health web pages, which can be reached under the “A-Z” tab (admin and Services) on the right-hand side of the College main menu bar of the Home Page.

Some of this information is protected and you will need your College username and system password to view all the information contained within. You can access SALUS for reporting accidents and dangerous occurrences (as described above) from this site, plus view the College policy on health and safety and guidance on many aspects of safety.
COMPUTER USE

The Department is particularly well equipped with open access computing laboratories on levels 2 and 3 that are used for teaching as well as research purposes. However, it is becoming increasingly common for people who use computers or “display screen equipment” (DSE) for long hours to start to suffer from eye and skeletal/musculature problems, particularly if you use a laptop rather than a “fixed” desk computer. This may result in eye strain, back, neck and shoulder pain, problems with wrist and arm joints. The College has produced detailed guidance on ways of minimising/eliminating potential problems from DSE use. A copy of this information sheet is appended to this booklet. Please read and apply this information, it may save you much discomfort later in life.

If you undertake a project which involves long hours of computer use then you should follow the guidance below and undertake a DSE assessment of the workstation you are using. The “Computer Health & Safety Checklist” (DSE assessment) form is available to download from the following link:

http://www3.imperial.ac.uk/OCCHEALTH/formsandchecklists

Computer Use – Healthy Working

All members of the college community use computers to a greater or lesser extent. You should undertake a simple DSE assessment of the workstation you are using.

It is becoming increasingly common for people who use computers or “display screen equipment” (DSE) for long hours to start to suffer from eye and skeletal/musculature problems, particularly if you use a laptop rather than a “fixed” desk computer. This may result in eye strain, back, neck and shoulder pain, problems with wrist and arm joints. This is called “Cumulative Trauma Disorder”. The set-up of your computer workstation is very important. A poor set-up may cause the above health issues. If you start to suffer from any of the above symptoms from using computers, you must contact the departmental Display Screen Assessor (Dr Fowler) for any questions or concerns you have with regard to healthy computer usage.

The following guidance will help you in minimising the likelihood of the symptoms developing indicative of Cumulative Trauma Disorder.

Staying Healthy With Your Computer

Avoiding Cumulative Trauma Disorder

Computers can damage your health. Every year we see several cases of Cumulative Trauma Disorder (CTD) formerly called RSI or Repetition Strain Injury in staff & students and the problem is becoming more common. Avoid it happening to you by taking care to organise your work-station and organise your time spent using a computer both at work and at home.

Follow these simple rules and find that your computer can work for you without causing harm.
Take Breaks - The Key Issues

1. Intersperse with other work (take note laptop users!): phone calls, writing/reading work, filing, proof reading, photocopying, talking with colleagues. Even coffee breaks!
2. Five minute break every hour and don’t spend a whole day on computer-based activities (applies equally to work at home). Web-surfing, updating Facebook, blogging or online gaming do not count as a break!

Keep Your Desk Tidy

Avoid cluttering it up with books, papers etc. Make sure you have enough clear space to operate your mouse easily and to access your keyboard. Keep most frequently used items close to hand to avoid stretching.

Adjust Your Computing Equipment to Suit You

1. Set your screen to a comfortable height, usually with the top just below eye level, so you do not have to stretch your neck. Avoiding any twist in your spine, sit face-on to your screen.
2. Ensure sufficient room to rest your hands in front of keyboard when not keying. Interchange position of keyboard and mouse depending on data input device predominantly in use at the time.
3. Adjust your seat height so your arms are horizontal to the keyboard and avoid flexing/extending wrists. If you use a laptop, work with it on a table, never on your lap.
4. Ensure room for your feet to rest under your desk. A footrest may be beneficial for small people.
Get Comfortable

Make use of the illustrations below to see whether you’ve organised your desk and your work to avoid unnecessary problems. The rules for desktop users apply to work with laptops; whenever possible the same advice should be followed.

Don't ruin your work by poor practice. Be organised, be sensible with your work-time & be successful— without damaging your health.

1. Adjust the seat height & back tilt/height to fit you. Twisted or cramped posture to be avoided.
2. If you are copying documents, use a document holder.
3. Sit back when you are thinking, rather than staying hunched over your screen.
4. Use a soft touch when keying and avoid flexing your wrists. Try to adopt a neutral position. If possible, learn how to use short cut keys and touch typing.
5. Give your eyes a comfort break too. Look away from your screen or close your eyes when thinking. Avoid staring at the screen & throw in a few extra blinks as natural blink reflexes are often unconsciously suppressed.

DON'T IGNORE SYMPTOMS

If your arms or shoulders start aching/tingling, follow steps below.

1. Take a break and re-organise work to give yourself more breaks in future.
2. If symptoms persist or keep recurring, contact your occupational health (OH) service for help.
Make Use of the Experts

1. All College departments should have a DSE (Display Screen Equipment) Assessor who knows about computer ergonomics and can help you check your workstation. They’ll help you with the computer checklist if you don’t feel confident to complete it yourself. Also if you identify problems through the checklist which you can’t solve yourself or which may affect your or other’s safety.
2. Your local OH service can assess and advise on CTD problems.
3. Students can arrange vision screening with the OH service.

Personal Safety for Laptop Users

1. Do not endanger your health by carrying too heavy a total load with the addition of your laptop.
2. Take precautions to avoid theft while your laptop is in transit and check your insurance cover. Your personal safety is more important than loss of your laptop.

Dr G. D. Fowler
Departmental Safety Officer
August 2018
Risk Assessments

- All research activities undertaken in the College **MUST** have a risk assessment.
- Risk assessments **MUST** be done **BEFORE** the work starts.
- All the necessary forms and processes are available via a SharePoint system.
- Academic Supervisors must approve the assessment and electronically sign it off.
- Secondary Checker also approves (Lab manager or DSO)
The SharePoint Site

• An automated system to enable the creation of risk assessments and manage their approval and archiving

• Accessible from any Networked PC or VPN connection – use College ID and Logon

• Works with most internet browsers. It does not work in Linux

The SharePoint site allows you to attach extra information linked to your General Risk Assessment:

• COSHH Assessment

• Computer use (DSE)

• Fieldwork Risk Assessment

• These separate Word forms are all on Blackboard & SharePoint for download
Risk Assessment – A Step-by-Step guide

- Log onto SharePoint:
  https://imperiallondon.sharepoint.com/sites/foe/CivilEng/HealthandSafety/default.aspx

- The Microsoft SharePoint logon page may open first, asking for your College username ("USERNAME"@ic.ac.uk). Enter your details and then you will be transferred to the Imperial College SharePoint logon page. Enter your College Password and then:

- The Department H&S SharePoint site will open

*Use Explorer v10, Firefox or Chrome. It does not work in Linux or Explorer v11*

Logging on to SharePoint – Initial 365 sign in

Enter your College username. Use "@ic.ac.uk" as the address identifier. The site will automatically forward you to the Imperial College SharePoint Office 365 (cloud-based) main login page.
Logging into SharePoint – Imperial 365 site

Enter your College password
Then click the "sign in" button.
The department Health and Safety site should open.

Department SharePoint Site

The menu on the left hand side of the page shows the site structure and the site functionality. Use this to navigate around the site.

Welcome to the Department Health and Safety site. On the left, you will find links to safety forms and places to store records. To start using the site please follow the guide below:

- New starters: Registration contains a link to the Day 1 induction, which your supervisor or designate will take you through. When you know what you are doing, you must then complete the Departmental induction form. The Departmental Code of Practice must be read and followed by all.

- Risk Assessing: Go to "Create a Risk Assessment" to start with. If you need to upload existing risk assessments and Standard Operating Procedures (SOP), then click the "Risk Assessment and SOP" button.

- Training: For "Risk Assessments" you can access your usual risk assessments, or click and access your training details and online service details.

- Safety Site: will get you to the main College safety support pages, e.g. central safety, fire safety, occupational health and safety training.
Using the Site

- 1st step: Complete a General Risk assessment:
  - This covers many activities, but occasionally you will need to use special forms for certain tasks (COSH, Fieldwork, Biological work)
  - You need to identify all the risks and quantify them
  - Attach extra information including Engineering/experimental designs, SOPs etc.

- 2nd Step: submit your form(s) for approval:
  - Approvers may include: Your Supervisor, the Laboratory Manager, A qualified 2nd engineering academic (for Structures), the HoD (for hazardous fieldwork) & the DSO.

- 3rd Step: Forms are assessed and approved (or rejected) by your Supervisor & Lab Manager

SharePoint General Risk Assessment
How to complete the form (1)
Starting the form & selecting the assessors
SharePoint General Risk Assessment
How to complete the form (2)
Lone Working & Hazard identification

Lone working is a significant issue in concern for the College. This section must be completed accurately & honestly.

Use these options to help identify hazards. Ticking a box opens a guidance section with links to a specific specialist risk assessment forms. The specialist forms (COSHH, Fieldwork etc.) must be completed too and attached to this form for submission and approval as part of this risk assessment process.

Complete all the sections. Any unanswered parts will prevent submission of the form.

Read the guidance & advice to understand what is needed here.

SharePoint General Risk Assessment
How to complete the form (3)
Risk assessment

Raw risk: Probability is always 4
Severity is selectable (1-4)

Use the help box to understand what severity and probability mean and the difference between each numerical value (1-4).

Identify each hazard on a separate line/row can be added using the "insert another hazard box".

Attach all supporting documents here. These can include: COSHH forms, Fieldwork Forms, method descriptions. Bio/tech approval forms, experiment design notes and other supporting documents.

Residual risk: Probability should have reduced
Severity is unlikely to change

Do not leave an empty line in this table – it will prevent the form from being submitted.
SharePoint General Risk Assessment
How to complete the form (4).
Completion and Submission

Answer all these questions. Use the risk analysis outputs to ensure that you do not overlook any required measures.

Select a review period longer than the planned length of the project. If the assessment is for a 3 month MSc project, pick at least 6 months as the review period etc.

You do not need to complete the form in a "single sitting". You can save the form at any time and return to it later.

This box will remain unavailable until you have completed all the required sections/boxes.

Once you have completed the form and are happy with the content, you should submit it and await the assessors' opinion. Hopefully, they will approve it. If they do not, you should receive feedback on the rejection email stating what improvements are required. You will need to make the changes and resubmit the form.

You CANNOT start work until the form has been approved.

The SharePoint site allows you to attach extra information linked to your General Risk Assessment:

- **COSHH Assessment (Dept specific form)**
  - Legally required for any work involving harmful substances: Acids, glues, gases, solder, flux, dyes, etc

- **BIO1 form**
  - College requirement for any work involving biological agents. Any Biological work MUST be discussed with the DSO before you do any preparation work

- **Fieldwork Risk Assessment (FW1)**

- Each of these forms are separate WORD documents available through SharePoint
5 Steps for undertaking a risk assessment

• Step 1: Identify the hazards
• Step 2: Decide who might be harmed and how
• Step 3: Evaluate the risks and decide on precautions
• Step 4: Record your findings and implement them
• Step 5: Review your assessment and update if necessary

Hazard & Risk Defined

• HAZARD: anything that may cause harm, such as chemicals, electricity, working from ladders, an open drawer etc;

• RISK: the chance, high or low, that somebody could be harmed by these and other hazards, together with an indication of how serious the harm could be.
Lone Working

- There must be at least one other person in a laboratory with you outside of normal hours.

- That person must know what to do in an emergency (A “BUDDY”).
  - How to stop the experiment
  - Emergency procedures
  - Who to call

- The best way to avoid lone working concerns is to plan your work

Research Specific Training

- It is essential that you know how to perform your research competently and safely.

- You are forbidden to use any item of Laboratory equipment or undertake a procedure until you have been appropriately trained

- If you have any doubts or concerns about the equipment or methods, even after training, then you must ask for more instruction.

- Failure to do this may result in harm to you, your colleagues and/or the equipment.

- This may result in prosecution of the College, your Supervisor and you.
FINALLY...

- If in doubt about any safety issue, ALWAYS ask somebody:
  
  1. Your Supervisor
  2. Laboratory Staff
  3. Department Safety Officer

If you have any questions about using the SharePoint Site, need assistance to complete a risk assessment, or have any other safety-related questions, please contact the department Safety Officer:

Dr Geoff Fowler
Room 413
g.fowler@ic.ac.uk
CI9-T-01 Transport and its Context

Course leader: Professor Washington Ochieng

Other contributors: Dr Marc Stettler, Professor Ben Heydecker, Dr Ke Han, Professor Nick Tyler, Professor Neil Hoose, Dr Nicola Christie, Dr Helena Titheridge, Dr Panagiotis Angeloudis, Mr Phil Cunningham

Module status: Core

Pre- or co-requisites: 

Term: Autumn

Contact hours: 30

ECTS units: 6 (MSc)

FHEQ Level: 7

Assessment: Not assessed

1.0 Aims

- To introduce students to the fundamentals of the transport system and the context in which it operates, forming the foundation and basis for the rest of the transport MSc courses.

2.0 Syllabus

Through a combination of lectures and seminars by industry leaders, this module covers:

- The transport system, including: movement of people and goods; transport modes and infrastructure; characteristics of transport systems.
- Demand for transport and its interaction with supply: location, passenger and freight demand, needs of special groups, transport costs.
- Resources and expenditure.
- Agencies and individuals in Britain and in Europe as a whole having roles related to transport.
- Policy issues world-wide concerning transport.
- Legislation, regulation and administration.
- Case studies are based on London and its transport system.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Staff</th>
</tr>
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<tbody>
<tr>
<td>Introduction to Transport.</td>
<td>WYO</td>
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<tr>
<td>Social and Historical context.</td>
<td>MS</td>
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<tr>
<td>Transport Engineering.</td>
<td>BGH</td>
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<td>Intelligent Transport Systems</td>
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<td>Accessibility</td>
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<td>Health and Safety</td>
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<td>Logistics</td>
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<tr>
<td>Research Methods.</td>
<td>NC/HT</td>
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<tr>
<td>Optional Module Briefing.</td>
<td>PA</td>
</tr>
<tr>
<td>Activities: Weekly seminars by industry leaders and experts.</td>
<td>WYO</td>
</tr>
</tbody>
</table>
3.0  Intended learning outcomes

On successfully completing this course unit, students will be able to:

- Provide a coherent statement of the fundamentals of transport systems and their operational context.

4.0  Teaching methods

A combination of lectures and seminars.

5.0  Assessment

The module is not assessed.

6.0  Recommended textbooks

Category as defined by Central Library:

C = Core, S = Supplementary

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<td>X</td>
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7.0  Subject threads

The table below shows how the themes of design, sustainability and health & safety risk management are embedded in the curriculum (as defined by the JBM degree guidelines).

Key: Primary (P), Secondary (S) and Contributory (C).

<table>
<thead>
<tr>
<th>Design</th>
<th>Health &amp; Safety Risk Management</th>
<th>Sustainability</th>
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<tr>
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<td>P</td>
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CI9-T-02 Quantitative Methods

<table>
<thead>
<tr>
<th>Course leader:</th>
<th>Professor Daniel Graham</th>
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<tbody>
<tr>
<td>Other contributors:</td>
<td>Professor Benjamin Heydecker, Dr Helena Titheridge</td>
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</tbody>
</table>

1.0 Aims

- To introduce students to key concepts underpinning quantitative techniques used in transport analysis.
- To show how fundamental concepts of probability can be used to represent travel behaviour and how statistical techniques can be used to summarise and analyse travel-related data.

2.0 Syllabus

Sources and examples of transport data; survey methods; presentation and interpretation of data; systematic and non-systematic variations in data, models for systematic variation; approaches to decision making and design; optimisation; probability and random processes; sampling; standard probability distributions; estimation of population parameters; hypothesis testing; categorical models; continuous models; model specification and fitting; model calibration and validation; students will be introduced to relevant software packages.

<table>
<thead>
<tr>
<th>No.</th>
<th>Topic</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Presentation and interpretation of data</td>
<td>DJG</td>
</tr>
<tr>
<td>02</td>
<td>Presentation and interpretation of data</td>
<td>DJG</td>
</tr>
<tr>
<td>Tutorial</td>
<td>Data editing and descriptive statistics</td>
<td>DJG</td>
</tr>
<tr>
<td>03</td>
<td>Sources and examples of transport data, survey methods</td>
<td>HT</td>
</tr>
<tr>
<td>04</td>
<td>Sources and examples of transport data, survey methods</td>
<td>HT</td>
</tr>
<tr>
<td>Tutorial</td>
<td>Workshop on survey methods</td>
<td>HT</td>
</tr>
<tr>
<td>05</td>
<td>Probability and random processes</td>
<td>BGH</td>
</tr>
<tr>
<td>06</td>
<td>Probability and random processes</td>
<td>BGH</td>
</tr>
<tr>
<td>Tutorial</td>
<td>Exercise on probability</td>
<td>BGH</td>
</tr>
<tr>
<td>07</td>
<td>Standard probability distributions</td>
<td>BGH</td>
</tr>
<tr>
<td>08</td>
<td>Standard probability distributions</td>
<td>BGH</td>
</tr>
<tr>
<td>Tutorial</td>
<td>Workshop on distributions</td>
<td>BGH</td>
</tr>
<tr>
<td>09</td>
<td>Sampling and estimation</td>
<td>BGH</td>
</tr>
</tbody>
</table>
3.0 Intended learning outcomes

On successfully completing this course unit, students will be able to:

- Understand concepts and techniques for the acquisition, processing, description and presentation of quantitative information, including elementary descriptive and inferential statistics.
- Have a foundation in essential quantitative methods that will be required in other core course units and for study project research and report writing.

4.0 Teaching methods

There will be 18 hours of lectures delivered over nine weeks in two hour blocks. Tutorials are scheduled after each two hour lecture to review and practice problems and to set coursework. If you have questions about specific problems, please be prepared to ask them at the tutorial.

5.0 Assessment

<table>
<thead>
<tr>
<th>Assignment Title</th>
<th>Date Set</th>
<th>Coursework Weighting</th>
<th>Set by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probability Coursework</td>
<td>Lectures 11-12</td>
<td>50%</td>
<td>BGH</td>
</tr>
<tr>
<td>Regression Coursework</td>
<td>Lectures 17-18</td>
<td>50%</td>
<td>DJG</td>
</tr>
</tbody>
</table>
6.0  Recommended textbooks

Category as defined by Central Library:

C = Core, S = Supplementary

<table>
<thead>
<tr>
<th></th>
<th>Clarke and Cooke: A Basic Course in Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>Hogg and Tanis: Probability and Statistical Inference</td>
</tr>
</tbody>
</table>

7.0  Subject threads

The table below shows how the themes of design, sustainability and health & safety risk management are embedded in the curriculum (as defined by the JBM degree guidelines).

Key: Primary (P), Secondary (S) and Contributory (C).

<table>
<thead>
<tr>
<th>Design</th>
<th>Health &amp; Safety Risk Management</th>
<th>Sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
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</tr>
</tbody>
</table>
CI9-T-03 Transport Engineering and Operations

**Course leader:** Dr Bani Anvari

**Other contributors:** Dr Nicola Christie, Dr Taku Fujiyama, Dr Kamal Achuthan, Dr Neil Hoose

**Module status:** Core

**Pre- or co-requisites:**

**Term:** Autumn

**Contact hours:** 30

**ECTS units:** 6 (MSc)

**FHEQ Level:** 7

**Assessment:** Written examination

### 1.0 Aims

To introduce description, analysis and modelling of elements that are relevant to transport engineering and operations. This includes basic mechanics of transport operations and implications for safety; flow of traffic on open track; queuing at points of conflict or interruption; basic operational and engineering requirements for railways; intelligent transport systems (ITS); roundabouts and priority junctions; traffic signal control; alignment and layout of highway links and free-flow junctions; public passenger transport infrastructure; road safety engineering; and transport system management including use of street space by different kinds of users for different purposes.

### 2.0 Syllabus

- This course provides students with an introduction to the subject of traffic and transport engineering with consideration of aspects including mobility, safety, energy, and environment.

- Lectures are supported by extensive sets of notes provided by the lecturers and containing examples for students to practise new concepts.

- During tutorials, students are encouraged to apply the material delivered in the lectures to the solution of a wide range of problems.

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>No.</th>
<th>Topic</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>08 Oct</td>
<td>UCL</td>
<td>01-02</td>
<td>Basic mechanics of transport operations</td>
<td>BA</td>
</tr>
<tr>
<td>15 Oct</td>
<td>UCL</td>
<td>03-04</td>
<td>Fundamentals in traffic flow</td>
<td>BA</td>
</tr>
<tr>
<td>22 Oct</td>
<td>UCL</td>
<td>05-06</td>
<td>Mobility and queuing</td>
<td>BA</td>
</tr>
<tr>
<td>29 Oct</td>
<td>UCL</td>
<td>07-08</td>
<td>Safety</td>
<td>NC</td>
</tr>
<tr>
<td>05 Nov</td>
<td>UCL</td>
<td>09-10</td>
<td>Environment and energy</td>
<td>BA</td>
</tr>
</tbody>
</table>
3.0  Intended learning outcomes

On successfully completing this course unit, students will be able to:

- Set out basic engineering and operational concepts that are relevant to transport, and to consider the road system and more briefly the rail systems, together with the provision of public passenger transport and use of street space, in the light of these concepts.

4.0  Teaching methods

This module is delivered through taught lectures and participation in activities. Activities include an assessed group work exercise to assimilate, process and interpret national data.

5.0  Assessment

<table>
<thead>
<tr>
<th>Assignment Title</th>
<th>Date Set</th>
<th>Date Due</th>
<th>Return Date</th>
<th>Coursework Weighting</th>
<th>Set by</th>
</tr>
</thead>
<tbody>
<tr>
<td>CW1: Exercise on traffic flow and queuing</td>
<td>Lecture session 5-6</td>
<td>Lecture session 9-10</td>
<td>Lecture session 13-14</td>
<td>50%</td>
<td>BA</td>
</tr>
<tr>
<td>CW2: Exercise on junction design and public transport</td>
<td>Lecture session 13-14</td>
<td>Lecture session 17-18</td>
<td>Lecture session 19-20</td>
<td>50%</td>
<td>BA</td>
</tr>
</tbody>
</table>

6.0  Recommended textbooks

Category as defined by Central Library:

C = Core, S = Supplementary

7.0 Subject threads

The table below shows how the themes of design, sustainability and health & safety risk management are embedded in the curriculum (as defined by the JBM degree guidelines).

Key: Primary (P), Secondary (S) and Contributory (C).

<table>
<thead>
<tr>
<th>Design</th>
<th>Health &amp; Safety Risk Management</th>
<th>Sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>S</td>
<td>S</td>
</tr>
</tbody>
</table>
1.0  Aims

The course aims to give students a solid grasp of transport economics, finance theory and practice at the intermediate level.

Transport Economics Module (T4) examines the main concepts of transport economics and finance. The following topics will be covered during the course: Principles of Public Economics, Travel Demand, Pricing and Supply of Transport, Cost Functions and External Costs, Financial Resources for Transport, Economic Appraisal, Investment in Transport.

The module includes the fundamental topics of transport economics and finance as well as the new frontiers in the field.

2.0  Syllabus

Each lecture is constituted by two integrated parts:

(1) A Theoretical part where students are given the foundation concepts of the topic of the lecture, and

(2) An empirical (Practical) part which demonstrates the application of the lecture topic in the transport economics field.

The Theoretical part will be delivered by Professor Medda and industry experts from the private and public sector will deliver the Practical part.

The lecture modules have been developed specifically in conjunction with the industrial experts to create the theoretical framework for each lecture module, which is then linked with the application part. The lecture modules have been designed so that students can follow the course from theory to practice. The Transport Economics module framework allows students to appreciate the connection between the topics covered in theoretical lectures and specific applications provided by the industrial lecturers immediately thereafter.
The two parts (Theoretical and Practical) of each lecture are integral to the lecture module. It is important to keep in mind that both parts are mandatory subjects in the exam.

Each lecture is a stand-alone module and, when taken altogether, they form the course syllabus. The module Transport Economics is a cumulative process of learning and therefore the structure of the module does not follow a progression in learning. This approach has been chosen because students should challenge themselves through inspiring and critical types of learning, where real applications and real experiences are compared and combined with their theoretical frameworks.

The finalised schedule of the lectures, with the succession of relevant topics to be covered, will be provided to students at the start of the module.

3.0 Intended learning outcomes

On successfully completing this course unit, students will be able to:

- Appreciate the connection between the topics covered in theoretical lectures and specific applications provided by the industrial lecturers.
- Examine the main concepts of transport economics and finance.
- Challenge themselves through inspiring and critical types of learning, where real applications and experiences are combined with theoretical frameworks.
- Acquire a basic knowledge of microeconomics.
- Use multiple texts from a variety of media to develop their critical understanding and prepare for their careers.

4.0 Teaching methods

The module is delivered through an interactive technique, so students will need to attend and actively participate in class discussions. These discussions focus on solving real or hypothetical transport economic problems. Class participation in the discussion constitutes the first course assessment.

5.0 Assessment

Assessment will be based on one piece of written work, participation discussion and a two-hour examination.

6.0 Recommended textbooks

Category as defined by Central Library:

C = Core, S = Supplementary

|---|------------------------------------------------------------|
The module does not have a textbook. By being a graduate module, students should be at ease reading different materials, such as academic journal articles, textbooks, government documents, media information, and so forth. This approach is used in order to develop students’ critical understanding and thus prepare for their careers where it will be very useful to be able to use multiple texts.

Prior to the lectures, students are recommended to read the relevant chapters in Transport Economics (3rd edition, K. Button).

At the end of each session of the module students will receive specific study notes that will facilitate the students’ revision activity and help them to comprehend the material.

7.0 Subject threads

The table below shows how the themes of design, sustainability and health & safety risk management are embedded in the curriculum (as defined by the JBM degree guidelines).

Key: Primary (P), Secondary (S) and Contributory (C).

<table>
<thead>
<tr>
<th>Design</th>
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<th>Sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>S</td>
<td>P</td>
</tr>
</tbody>
</table>
CI9-T-05 Transport Demand and its Modelling

**Course leader:** Professor John Polak (JWP) / Dr Aruna Sivakumar (AS)

**Other contributors:** Dr Jacek Pawlak (JP), Dr Fangce Guo (FG)

**Module status:** Core

**Pre- or co-requisites:**

**Term:** Autumn

**Contact hours:** 30

**ECTS units:** 6 (MSc)

**FHEQ Level:** 7

**Assessment:** Coursework, Written examination

### 1.0 Aims

- To provide an understanding of the nature of travel demand and how to model it. This involves examination of the processes underlying travel demand, the modelling of transport demand using the four-stage travel demand model, the interaction of demand and network performance and the use of the 4-stage model in the evaluation and appraisal of transport policies and projects.

### 2.0 Syllabus

<table>
<thead>
<tr>
<th>Week No.</th>
<th>Topic</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Lectures 1-2: Introduction to transport planning and modelling</td>
<td>AS</td>
</tr>
<tr>
<td>3</td>
<td>Lectures 3-4: The concept of travel demand and its economic basis</td>
<td>AS</td>
</tr>
<tr>
<td>4</td>
<td>Lectures 5-6: Trip generation and related forecasting processes</td>
<td>JP</td>
</tr>
<tr>
<td></td>
<td>Activity 1: Tutorial 1 – Trip generation</td>
<td>JP</td>
</tr>
<tr>
<td>5</td>
<td>Lectures 7-8: Trip generation and destination choice</td>
<td>JP</td>
</tr>
<tr>
<td></td>
<td>Activity 2: Tutorial 2 – Trip distribution</td>
<td>JP</td>
</tr>
<tr>
<td>6</td>
<td>Lectures 9-10: Modal choice</td>
<td>JP</td>
</tr>
<tr>
<td></td>
<td>Activity 3: Tutorial 3 – Mode choice</td>
<td>JP</td>
</tr>
<tr>
<td>7</td>
<td>Lectures 11-12: Route choice and assignment</td>
<td>FG</td>
</tr>
<tr>
<td></td>
<td>Activity 4: Tutorial 4 – Route choice</td>
<td>FG</td>
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<tr>
<td>8</td>
<td>Lectures 13-14: Modelling the timing of travel</td>
<td>JP</td>
</tr>
<tr>
<td>9</td>
<td>Lectures 15-16: Evaluation and cost benefit analysis</td>
<td>AS</td>
</tr>
<tr>
<td>10</td>
<td>Lectures 17-18: Integrated Land Use Transport Models</td>
<td>AS</td>
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<tr>
<td></td>
<td>Activity 5: Seminar 1 – Examples of practical applications of land use transport modelling</td>
<td>David Simmonds, David Simmonds Consultancy</td>
</tr>
<tr>
<td>11</td>
<td>Lectures 19-20: Stated preference methods</td>
<td>AS</td>
</tr>
<tr>
<td></td>
<td>Activity 6: Seminar 2 – Examples of practical applications of stated preference methods</td>
<td>Charlene Rohr, RAND Europe</td>
</tr>
</tbody>
</table>
• The role of transport planning and modelling.
• Fundamental concepts of transport demand modelling.
• The four-stage transport planning model.
• The evaluation and appraisal of transport policies and projects.
• Land use transport models.
• Activity based models.
• Stated preference methods.
• Transport modelling software.

3.0 Intended learning outcomes

On successfully completing this course unit, students will be able to:

• Have an understanding of the concepts in transport planning and modelling, such as the concepts of
  generalised costs and the economic basis of travel demand modelling.
• Understand and have gained experience in using the basic techniques of travel demand modelling
  including the calibration of trip generation, trip distribution and destination choice, time of day,
  mode choice, route choice and assignment models, and the implementation of these models to
  forecast travel demand.
• Have acquired experience in the use of transport planning and engineering software, including tools
  for data manipulation, model calibration and implementation.
• Appreciate the relationship between land use and transport and the context within which travel
  demand is generated.
• Understand and be able to apply the travel demand models towards evaluation and economic
  appraisal.

4.0 Teaching methods

A combination of lectures, tutorials and computer workshops will be used. A group design exercise also
forms part of the module.

5.0 Assessment

<table>
<thead>
<tr>
<th>Assignment Title</th>
<th>Date Set</th>
<th>Date Due</th>
<th>Return Date</th>
<th>Coursework Weighting</th>
<th>Set by</th>
</tr>
</thead>
<tbody>
<tr>
<td>CW1: Calibration &amp; Implementation of 4 Stage Travel Demand Models</td>
<td>Activity 3</td>
<td>6 December 2018, by 16:00 with cluster administrator</td>
<td>8 January 2019</td>
<td>100%</td>
<td>AS</td>
</tr>
</tbody>
</table>
6.0 Recommended textbooks

Category as defined by Central Library:

C = Core, S = Supplementary

<p>| | |</p>
<table>
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<tr>
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<th></th>
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</thead>
</table>

7.0 Subject threads

The table below shows how the themes of design, sustainability and health & safety risk management are embedded in the curriculum (as defined by the JBM degree guidelines).

Key: Primary (P), Secondary (S) and Contributory (C).

<table>
<thead>
<tr>
<th>Design</th>
<th>Health &amp; Safety Risk Management</th>
<th>Sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>-</td>
<td>S</td>
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</tbody>
</table>
CI9-T-06 Transport Policy

<table>
<thead>
<tr>
<th>Course leader:</th>
<th>Dr Tom Cohen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other contributors:</td>
<td>Dr Clemence Cavoli; Dr Nicola Christie, Dr Iqbal Hamiduddin</td>
</tr>
<tr>
<td>Module status:</td>
<td>Core</td>
</tr>
<tr>
<td>Pre- or co-requisites:</td>
<td></td>
</tr>
<tr>
<td>Term:</td>
<td>Autumn</td>
</tr>
<tr>
<td>Contact hours:</td>
<td>20</td>
</tr>
<tr>
<td>ECTS units:</td>
<td>6 (MSc)</td>
</tr>
<tr>
<td>FHEQ Level:</td>
<td>7</td>
</tr>
<tr>
<td>Assessment:</td>
<td>Written examination</td>
</tr>
</tbody>
</table>

1.0 Aims

- To consider and analyse the nature and process of formulating transport policy.
- To cover the main types of policy measures typically introduced and their impacts on behaviour.
- To examine interactions between transport policy and other policy areas.

2.0 Syllabus

- Most sessions will consist of a double lecture dedicated to a particular topic; some sessions will include a presentation from a guest speaker.

<table>
<thead>
<tr>
<th>No.</th>
<th>Topic</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-02</td>
<td>Introduction to module; the idealised policy process</td>
<td>TC</td>
</tr>
<tr>
<td>03-04</td>
<td>Policy tools and other context</td>
<td>TC</td>
</tr>
<tr>
<td>05-06</td>
<td>Economy – prosperity and growth; supply and demand</td>
<td>TC</td>
</tr>
<tr>
<td>07-08</td>
<td>Accessibility and social inclusion</td>
<td>CC</td>
</tr>
<tr>
<td>09-10</td>
<td>Land development and regeneration</td>
<td>IH</td>
</tr>
<tr>
<td>11-12</td>
<td>Environment</td>
<td>CC</td>
</tr>
<tr>
<td>13-14</td>
<td>Safety, health and well-being</td>
<td>NC</td>
</tr>
<tr>
<td>15-16</td>
<td>Political reality; conclusion</td>
<td>TC</td>
</tr>
</tbody>
</table>

3.0 Intended learning outcomes

On successfully completing this course unit, students will be able to:

- Understand how transport fits into and interacts with wider policy
- Explain the theory and the reality of transport policy development, how they differ and why
- Show awareness of the range of transport policy measures, their application and their applicability
- Demonstrate the principal impacts of transport policies, positive and negative
Know how transport proposals can be appraised and how transport interventions should be evaluated.

4.0 Teaching methods

A combination of lectures and seminars. Lectures will be held at UCL.

5.0 Assessment

<table>
<thead>
<tr>
<th>Assignment Title</th>
<th>Date Set</th>
<th>Date Due</th>
<th>Return Date</th>
<th>Coursework Weighting</th>
<th>Set by</th>
</tr>
</thead>
<tbody>
<tr>
<td>CW2: Development of outline strategy to respond to defined problem</td>
<td>23/11/2018</td>
<td>7/1/2019</td>
<td>28/1/2019</td>
<td>65%</td>
<td>TC</td>
</tr>
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</table>

6.0 Recommended textbooks

Category as defined by Central Library:

C = Core, S = Supplementary

<table>
<thead>
<tr>
<th>Category</th>
<th>Textbook</th>
</tr>
</thead>
</table>
7.0  Subject threads

The table below shows how the themes of design, sustainability and health & safety risk management are embedded in the curriculum (as defined by the JBM degree guidelines).

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<table>
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<tbody>
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</tbody>
</table>


CI9-T-07 Highway Engineering (CI3-371)

Course leader: Dr Arnab Majumdar
Other contributors: 
Module status: Elective
Pre- or co-requisites: 
Term: Spring
Contact hours: 
ECTS units: 6 (MSc)
FHEQ Level: 7
Assessment: Coursework, progress tests, written examination

1.0 Aims

- To follow the process of locating, designing, constructing and maintaining highways.

2.0 Syllabus

<table>
<thead>
<tr>
<th>No.</th>
<th>Topic</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture 01</td>
<td>Highway planning process and principles of route location</td>
<td>AM</td>
</tr>
<tr>
<td>Lecture 02</td>
<td>Bitumen and the concept of design speed</td>
<td>AM</td>
</tr>
<tr>
<td>Lecture 03</td>
<td>Design speed factors and geometric link design 1</td>
<td>AM</td>
</tr>
<tr>
<td>Activity 1</td>
<td>Group presentations on factors associated with route location</td>
<td>AM</td>
</tr>
<tr>
<td>Lecture 04</td>
<td>Geometric link design 2</td>
<td>AM</td>
</tr>
<tr>
<td>Lecture 05</td>
<td>Pavement engineering 1</td>
<td>AM</td>
</tr>
<tr>
<td>Lecture 06</td>
<td>Pavement engineering 2</td>
<td>AM</td>
</tr>
<tr>
<td>Activity 2</td>
<td>Numerical exercise on highway design</td>
<td>AM</td>
</tr>
<tr>
<td>Lecture 07</td>
<td>Pavement design</td>
<td>AM</td>
</tr>
<tr>
<td>Lecture 08</td>
<td>Pavement maintenance</td>
<td>AM</td>
</tr>
<tr>
<td>Activity 3</td>
<td>Numerical exercise on pavement design</td>
<td>AM</td>
</tr>
<tr>
<td>Lecture 09</td>
<td>Road safety audits and surface drainage - 1</td>
<td>AM</td>
</tr>
<tr>
<td>Lecture 10</td>
<td>Sub-surface drainage – 2</td>
<td>AM</td>
</tr>
</tbody>
</table>

- Firstly, the course will cover the highway planning process and the principles of route location. The second part of the course introduces the concepts of design speeds, operating speeds and speed limits.
- Based upon the design speeds, consideration is then given to geometric link design and in particular vertical links and horizontal links. The optimisation of horizontal and vertical alignments is also presented in the second part.
• This is followed by pavement design, considering the design of both flexible and rigid pavements. This part also considers how such pavements deteriorate, and their maintenance.
• The final part of the course considers alternative methods of surface drainage for highways, as well as the earthworks requirement for the construction of highways. The quantitative methods taught in the lectures are practised in tutorials and there is a test in the latter half of the course.

3.0 Intended learning outcomes
On successfully completing this course unit, students will be able to:

• Understand the use of different road types in the highway network.
• Design a highway allowing for differing terrains, horizontal and vertical curves.
• Assess alternative pavement designs and understand their maintenance.
• Assess alternative surface drainage schemes and calculate required lengths of drainage channels.
• Calculate earthworks quantities needed for highway construction.

4.0 Teaching methods
This module is taught via lectures and tutorials.

5.0 Assessment
(MSc) The assessment comprises a 2-hour written examination paper and one item of group coursework. The coursework is given in Week 7 and submitted in Week 10. The examination-coursework ratio is 55:45. The examination contains five questions of which three must be answered.

(UG) The assessment comprises a 3-hour written examination paper and one item of group coursework. The coursework is given in Week 7 and submitted in Week 10. The examination-coursework ratio is 55:45. The examination contains five questions all of which must be answered.

6.0 Recommended textbooks
Category as defined by Central Library:
C = Core, S = Supplementary

<table>
<thead>
<tr>
<th>C</th>
<th>Highways, 5th Edition by Edited by Coleman A. O’Flaherty with David Hughes (Author), Coleman A. O’Flaherty (Editor), ICE Publishing.</th>
</tr>
</thead>
</table>
7.0 Subject threads

The table below shows how the themes of design, sustainability and health & safety risk management are embedded in the curriculum (as defined by the JBM degree guidelines).

Key: Primary (P), Secondary (S) and Contributory (C).

<table>
<thead>
<tr>
<th>Design</th>
<th>Health &amp; Safety</th>
<th>Sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
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</table>
CI9-T-08 Road Traffic Theory and its Application

<table>
<thead>
<tr>
<th>Course leader:</th>
<th>Dr Bani Anvari (BA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other contributors:</td>
<td>Professor Benjamin Heydecker (BGH), Dr Neil Hoose (NH)</td>
</tr>
<tr>
<td>Module status:</td>
<td>Elective</td>
</tr>
<tr>
<td>Pre- or co-requisites:</td>
<td>CI9-T-03, CI9-T-11</td>
</tr>
<tr>
<td>Term:</td>
<td>Spring</td>
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<tr>
<td>Contact hours:</td>
<td>30</td>
</tr>
<tr>
<td>ECTS units:</td>
<td>6 (MSc)</td>
</tr>
<tr>
<td>FHEQ Level:</td>
<td>7</td>
</tr>
<tr>
<td>Assessment:</td>
<td>Written examination</td>
</tr>
</tbody>
</table>

1.0 Aims

- To introduce vehicle-following and fluid models of traffic flow; applications of traffic models.
- To cover traffic queues: steady state and time-dependent analysis. Modelling, analysis and design of priority junctions and roundabouts.
- To understand signal control at individual junctions; coordinated signal control; priority for public transport in signal control; design of signal-controlled road junctions; principles of urban traffic control and calculation of timing plans.
- To cover comprehensive traffic management – objectives, techniques, modelling and evaluation.
- To consider the nature and process of formulating transport policy, with an emphasis on urban transport policy. Covers setting policy objectives, the main types of policy measures typically introduced in urban areas, and their impacts on behaviour.
- To cover interactions between transport policy and other policy areas.

2.0 Syllabus

- This course provides students with an introduction to the subject of traffic flow theory and its application to various aspects in traffic engineering and control.
- Topics cover various kinds of traffic models ranging from microscopic to macroscopic, performance analysis and control of transport systems, and state-of-the-art applications in practice.
- The students will also have a chance to apply the theories through a set of exercises.
- The students will also have a chance to apply the theories through a set of exercises with practical software packages including ARCADY, PICADY, and TRANSYT.

<table>
<thead>
<tr>
<th>Date</th>
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<th>Topic</th>
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<tbody>
<tr>
<td>11 Jan</td>
<td>UCL</td>
<td>01-02</td>
<td>Car-following models and fluid models of traffic flow</td>
<td>BA</td>
</tr>
<tr>
<td>18 Jan</td>
<td>UCL</td>
<td>03-04</td>
<td>Applications of traffic models</td>
<td>BA</td>
</tr>
<tr>
<td>25 Jan</td>
<td>UCL</td>
<td>05-06</td>
<td>Time-dependent analysis of traffic queues</td>
<td>BA</td>
</tr>
</tbody>
</table>
3.0 Intended learning outcomes

On successfully completing this course unit, students will be able to:

- Show how current techniques for design of elements of the road system, and the management and control of all kinds of traffic on the roads, are supported by fundamental understanding, modelling and optimisation techniques.

4.0 Teaching methods

A combination of lectures and tutorials.

5.0 Assessment

<table>
<thead>
<tr>
<th>Assignment Title</th>
<th>Date Set</th>
<th>Date Due</th>
<th>Return Date</th>
<th>Coursework Weighting</th>
<th>Set by</th>
</tr>
</thead>
<tbody>
<tr>
<td>CW1: Exercise on traffic flow theory</td>
<td>Lecture session 3-4</td>
<td>Lecture session 7-8</td>
<td>Lecture session 11-12</td>
<td>33%</td>
<td>BA</td>
</tr>
<tr>
<td>CW2: Introduction to exercise based on ARCADY and PICADY</td>
<td>Lecture session 7-8</td>
<td>Lecture session 11-12</td>
<td>Lecture session 15-16</td>
<td>33%</td>
<td>BGH</td>
</tr>
<tr>
<td>CW3: Exercise on urban signal design TRANSYT</td>
<td>Lecture session 15-16</td>
<td>Lecture session 19-20</td>
<td>Two weeks after Lecture 19-20</td>
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</table>

6.0 Recommended textbooks

Category as defined by Central Library:
C = Core, S = Supplementary

<table>
<thead>
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</table>

X None recommended

7.0 Subject threads

The table below shows how the themes of design, sustainability and health & safety risk management are embedded in the curriculum (as defined by the JBM degree guidelines).

Key: Primary (P), Secondary (S) and Contributory (C).
1.0 Aims

- To give the basic knowledge, understanding and skills that are necessary for planning and designing public transport systems.

2.0 Syllabus

- Students will develop a plan of a public transport system throughout the module. Each lecture will give a viewpoint, of which students will take account in the project development.
- Students will give presentations about their plans in the last lecture.
- Some of the topics (e.g. Business Case Development, Timetabling) would be covered also by CI9-T-28: Railway Management, Operation and Engineering.

<table>
<thead>
<tr>
<th>No.</th>
<th>Topic</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-02</td>
<td>Introduction, Site Visit</td>
<td>NAT</td>
</tr>
<tr>
<td>03-04</td>
<td>Transport Planning and Demand Modelling</td>
<td>LW</td>
</tr>
<tr>
<td>05-06</td>
<td>Project Objectives and Business Case Development</td>
<td>NAT</td>
</tr>
<tr>
<td>07-08</td>
<td>Decision Making</td>
<td>NAT</td>
</tr>
<tr>
<td>09-10</td>
<td>Bus Network Design</td>
<td>NAT</td>
</tr>
<tr>
<td>11-12</td>
<td>Operational Aspects: Crime and Accessibility</td>
<td>RS</td>
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<tr>
<td>13-14</td>
<td>Infrastructure Planning and Development</td>
<td>NAT</td>
</tr>
<tr>
<td>15-16</td>
<td>Operational Resource Planning (2): Passenger movements management</td>
<td>NAT/SSA</td>
</tr>
<tr>
<td>17-18</td>
<td>Preparation for Presentation</td>
<td>NAT</td>
</tr>
<tr>
<td>19-20</td>
<td>Presentation</td>
<td>NAT</td>
</tr>
</tbody>
</table>

3.0 Intended learning outcomes

On successfully completing this course unit, students will be able to:

- Design and manage public transport systems.
• Become aware of wider contexts associated with public transport.

4.0  Teaching methods
This module is taught through lectures, and includes student presentations

5.0  Assessment

<table>
<thead>
<tr>
<th>Assignment Title</th>
<th>Date Set</th>
<th>Date Due</th>
<th>Return Date</th>
<th>Coursework Weighting</th>
<th>Set by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mini Presentation 1</td>
<td>Lecture session 1-2</td>
<td>Lecture session 5-6</td>
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<td>Lecture session 1-2</td>
<td>Lecture session 7-8</td>
<td>Lecture session 9-10</td>
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<tr>
<td>Mini Presentation 3</td>
<td>Lecture session 9-10</td>
<td>Lecture session 13-14</td>
<td>Lecture session 15-16</td>
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<tr>
<td>Final Presentation</td>
<td>Lecture session 13-14</td>
<td>Lecture session 19-20</td>
<td>Lecture session 19-20</td>
<td>70%</td>
<td>NAT</td>
</tr>
</tbody>
</table>

6.0  Recommended textbooks
Category as defined by Central Library:

C = Core, S = Supplementary

| X | None recommended |

7.0  Subject threads
The table below shows how the themes of design, sustainability and health & safety risk management are embedded in the curriculum (as defined by the JBM degree guidelines).

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<table>
<thead>
<tr>
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<th>Sustainability</th>
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</thead>
<tbody>
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</table>
CI9-T-11 Quantitative Techniques for Transport Engineering and Planning

<table>
<thead>
<tr>
<th>Course leader:</th>
<th>Professor Benjamin Heydecker</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other contributors:</td>
<td>Professor John Polak</td>
</tr>
<tr>
<td>Module status:</td>
<td>Elective</td>
</tr>
<tr>
<td>Pre- or co-requisites:</td>
<td>CI9-T-02; This course unit is co-requisite for CI9-T-08, CI9-T-14</td>
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<tr>
<td>Term:</td>
<td>Spring</td>
</tr>
<tr>
<td>Contact hours:</td>
<td>30</td>
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<tr>
<td>ECTS units:</td>
<td>6 (MSc)</td>
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<tr>
<td>FHEQ Level:</td>
<td>7</td>
</tr>
<tr>
<td>Assessment:</td>
<td>Written examination</td>
</tr>
</tbody>
</table>

1.0 Aims

- To understand and apply quantitative techniques including modelling and analysis to practical processes in transport. This includes theoretical analysis, case studies and classroom discussion.

2.0 Syllabus

- Optimisation and linear programming.
- Sensitivity analysis.
- Simulation modelling and analysis.
- Statistical modelling.
- Estimation of statistical models.
- Validity and hypothesis testing.
- Survey design.
- Analysis of survey data.
- Experimental design.
- Statistical inference techniques.

<table>
<thead>
<tr>
<th>No.</th>
<th>Topic</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-02</td>
<td>Optimal design and sensitivity analysis.</td>
<td>BGH</td>
</tr>
<tr>
<td>03-04</td>
<td>Techniques of optimisation: linear and convex formulations.</td>
<td>BGH</td>
</tr>
<tr>
<td>05-08</td>
<td>Simulation modelling and analysis.</td>
<td>BGH</td>
</tr>
<tr>
<td>09-10</td>
<td>Principles, estimation and use of statistical models; calibration and validation.</td>
<td>BGH</td>
</tr>
<tr>
<td>11-12</td>
<td>Formulation of models in transport studies.</td>
<td>JWP</td>
</tr>
<tr>
<td>13-14</td>
<td>Approaches to survey sampling and design.</td>
<td>JWP</td>
</tr>
<tr>
<td>15-16</td>
<td>Analysis of survey data.</td>
<td>JWP</td>
</tr>
<tr>
<td>17-18</td>
<td>Model-based inference.</td>
<td>JWP</td>
</tr>
<tr>
<td>19-20</td>
<td>Application of statistical models to transport studies.</td>
<td>JWP</td>
</tr>
</tbody>
</table>
Activity 1 | Exercise on optimisation. | BGH
Activity 2 | Workshop on simulation. | BGH
Activity 3 | Workshop on survey design and analysis. | JWP
Activity 4 | Exercise on modelling. | JWP

3.0 Intended learning outcomes

On successfully completing this course unit, students will be able to:

- Show how quantitative modelling and analysis can be used for practical problem solving in transport studies. This course unit supports other analytical option units, including CI9-T-8 and CI9-T-14 for which it is a pre-requisite. Case studies will be used to illustrate transport models and data, methods for analysing and using them, and to investigate their scope and limitations. Application areas that will be discussed include traffic modelling, transport safety, traffic engineering and travel behaviour.

4.0 Teaching methods

A combination of lectures and classroom activities.

5.0 Assessment

<table>
<thead>
<tr>
<th>Assignment Title</th>
<th>Date Set</th>
<th>Date Due</th>
<th>Return Date</th>
<th>Coursework Weighting</th>
<th>Set by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercise on optimisation</td>
<td>Lectures 3-4</td>
<td>Lectures 7-8</td>
<td>Lectures 9-10</td>
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<td>BGH</td>
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<tr>
<td>Workshop on survey design</td>
<td>Lectures 13-14</td>
<td>Lectures 19-20</td>
<td>4 weeks later</td>
<td>33.3%</td>
<td>JWP</td>
</tr>
<tr>
<td>Exercise on modelling</td>
<td>Lectures 19-20</td>
<td>11 weeks later</td>
<td>4 weeks later</td>
<td>33.3%</td>
<td>JWP</td>
</tr>
</tbody>
</table>

6.0 Recommended textbooks

Category as defined by Central Library:

C = Core, S = Supplementary

7.0 Subject threads

The table below shows how the themes of design, sustainability and health & safety risk management are embedded in the curriculum (as defined by the JBM degree guidelines).

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<table>
<thead>
<tr>
<th>Design</th>
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<tbody>
<tr>
<td>S</td>
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</table>
CI9-T-14 Advanced Transport Modelling

<table>
<thead>
<tr>
<th>Course leader:</th>
<th>Professor John Polak (JWP) / Dr Aruna Sivakumar (AS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other contributors:</td>
<td>Professor Daniel Graham (DJG), Professor Benjamin Heydecker (BGH), Dr Fangce Guo</td>
</tr>
<tr>
<td>Module status:</td>
<td>Elective</td>
</tr>
<tr>
<td>Pre- or co-requisites:</td>
<td>CI9-T-05 and (concurrently or after completion of) CI9-T-11</td>
</tr>
<tr>
<td>Term:</td>
<td>Spring</td>
</tr>
<tr>
<td>Contact hours:</td>
<td>30</td>
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<tr>
<td>ECTS units:</td>
<td>6</td>
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<tr>
<td>FHEQ Level:</td>
<td>7</td>
</tr>
<tr>
<td>Assessment:</td>
<td>Coursework, written examination</td>
</tr>
</tbody>
</table>

1.0 Aims

- To provide a rigorous mathematical understanding of the fundamental theories underlying models of travel demand and transport supply and their application to the evaluation and appraisal of transport policies. Both aggregate and disaggregate modelling techniques will be considered.

2.0 Syllabus

- Fundamental concepts of discrete choice modelling.
- Principles of the formulation and estimation of discrete models including multinomial logit and nested logit.
- Principles of network equilibrium with fixed and elastic demand.
- Computation methods for network equilibrium.
- Causal inference in transport modelling.
- Investment and economic appraisal of transport policies and projects.

<table>
<thead>
<tr>
<th>Week No.</th>
<th>Topic</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Lecture: Economic fundamentals of random utility theory (1,2)</td>
<td>AS</td>
</tr>
<tr>
<td>16</td>
<td>Lecture: Estimation of discrete choice models (3,4)</td>
<td>AS</td>
</tr>
<tr>
<td></td>
<td>Activity: Modelling project I</td>
<td>AS/FG</td>
</tr>
<tr>
<td>17</td>
<td>Lecture: Generalised extreme value models (5,6)</td>
<td>AS</td>
</tr>
<tr>
<td></td>
<td>Activity: Biogeme workshop</td>
<td>AS</td>
</tr>
<tr>
<td>18</td>
<td>Lecture: Mixed logit models (7,8)</td>
<td>AS</td>
</tr>
<tr>
<td>19</td>
<td>Lecture: Network equilibrium I (9,10)</td>
<td>BGH</td>
</tr>
<tr>
<td>20</td>
<td>Lecture: Network equilibrium II (11,12)</td>
<td>BGH</td>
</tr>
<tr>
<td>21</td>
<td>Lecture: Combined transport models (13,14)</td>
<td>BGH</td>
</tr>
<tr>
<td></td>
<td>Activity: Modelling project II</td>
<td>AS/FG</td>
</tr>
<tr>
<td>22</td>
<td>Lecture: Causal Inference I (15,16)</td>
<td>DJG</td>
</tr>
</tbody>
</table>
3.0 Intended learning outcomes

On successfully completing this course unit, students will be able to:

- Have a critical understanding of the theories modern methods of analysing travel demand.
- Have a critical understanding of economic theories underlying the evaluation of transport policies.
- Have acquired practical experience in the use of relevant software tools implementing the methods presented in the module.
- Have acquired practical experience of how these methods can be used to develop and evaluate transport policy measures.

4.0 Teaching methods

A combination of lectures, tutorials and computer workshops will be used. A group design exercise also forms part of the module.

5.0 Assessment

<table>
<thead>
<tr>
<th>Assignment Title</th>
<th>Date Set</th>
<th>Date Due</th>
<th>Return Date</th>
<th>Coursework Weighting</th>
<th>Set by</th>
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<tr>
<td>Studytown modelling exercise</td>
<td>Lectures 3-4</td>
<td>After lectures 19-20</td>
<td>End of April</td>
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<td>AS/FG</td>
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6.0 Recommended textbooks

Category as defined by Central Library:

C = Core, S = Supplementary

<table>
<thead>
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<th>Category</th>
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7.0  Subject threads

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<table>
<thead>
<tr>
<th>Design</th>
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<tr>
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CI9-T-17 Intelligent Transport Systems

<table>
<thead>
<tr>
<th>Course leader:</th>
<th>Professor John Polak (JWP) / Dr Aruna Sivakumar (AS)</th>
</tr>
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<tr>
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<td>Professor Washington Ochieng (WYO); Professor Neil Hoose (NH); Dr Fangce Guo (FG)</td>
</tr>
<tr>
<td>Module status:</td>
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<td>Pre- or co-requisites:</td>
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<tr>
<td>Term:</td>
<td>Spring</td>
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<td>ECTS units:</td>
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<td>FHEQ Level:</td>
<td>7</td>
</tr>
<tr>
<td>Assessment:</td>
<td>Coursework, written examination</td>
</tr>
</tbody>
</table>

1.0 Aims

- To introduce key aspects of Intelligent Transport Systems (ITS), in particular the architectural and functional design of ITS, the role of key technologies and standards and the techniques used for evaluation and appraisal of system performance. These are illustrated by means of selected case studies which focus on practical issues associated with successful implementations and potential causes of failure.

2.0 Syllabus

- Overview of the history, context and applications of ITS.
- ITS architecture and standards.
- Capturing user requirements for ITS.
- Core ITS technologies including communications, positioning and sensing.
- Evaluation and business case development for ITS.

<table>
<thead>
<tr>
<th>Week No.</th>
<th>Topic</th>
<th>Staff</th>
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<tbody>
<tr>
<td>15</td>
<td>Lecture: Context of ITS in Transport – safety, environment, efficiency</td>
<td>NH</td>
</tr>
<tr>
<td></td>
<td>Activity: Essay on ITS policy / telematics applications</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Lecture: System engineering, architecture and standards</td>
<td>NH</td>
</tr>
<tr>
<td>17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Lecture: Evaluation and Business Case Development</td>
<td>FG</td>
</tr>
<tr>
<td></td>
<td>Lecture: Core Technologies: Communications</td>
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</tr>
<tr>
<td></td>
<td>Activity: ITS Design Exercise</td>
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</tr>
<tr>
<td>19</td>
<td>Lecture: Core Technologies: Positioning</td>
<td>WYO</td>
</tr>
<tr>
<td></td>
<td>Activity: Visit to TfL control room and visualisation suite I</td>
<td>NH</td>
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<tr>
<td>20</td>
<td>Lecture: Core Technologies: Sensors</td>
<td>NH</td>
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<tr>
<td></td>
<td>Activity: Visit to TfL control room and visualisation suite II</td>
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</table>
### Lecture: Mobile sensing and data, security and privacy
Activity: Introduction to GIS Hardware and Software for transport applications

<table>
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<tr>
<th>Lecture</th>
<th>Activity</th>
<th>Set by</th>
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<tr>
<td>21</td>
<td>Lecture: Mobile sensing and data, security and privacy&lt;br&gt;Activity: Introduction to GIS Hardware and Software for transport applications</td>
<td>NH/WYO</td>
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### Case Study 1: Location based services - Navigation, positioning, mapping, mobile communications
Activity: Seminar by TfL on the iBUS system

<table>
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<th>Case Study 1</th>
<th>Activity</th>
<th>Set by</th>
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<td>WYO</td>
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</tbody>
</table>

### Case Study 2: Information Services - Passenger information, web, mobile, signs, operations management, co-operative systems

<table>
<thead>
<tr>
<th>Case Study 2</th>
<th>Activity</th>
<th>Set by</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>Case Study 2: Information Services - Passenger information, web, mobile, signs, operations management, co-operative systems</td>
<td>NH</td>
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</table>

### Case Study 3: Real time control systems: Managed Motorways and Dynamic UTC
Activity: Project presentations

<table>
<thead>
<tr>
<th>Case Study 3</th>
<th>Activity</th>
<th>Set by</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>Case Study 3: Real time control systems: Managed Motorways and Dynamic UTC&lt;br&gt;Activity: Project presentations</td>
<td>AS/WYO/NH/FG</td>
</tr>
</tbody>
</table>

### 3.0 Intended learning outcomes

On successfully completing this course unit, students will be able to:

- Understand relevant ITS system engineering processes.
- Appreciate the concepts of system architecture and their evolution.
- Understand the capabilities of key ITS technologies.
- Understand the impact of ITS on different modes and movements.
- Understand how to evaluate ITS technologies, applications and services.

### 4.0 Teaching methods

A combination of lectures, tutorials and computer workshops will be used. A group design exercise also forms part of the module.

### 5.0 Assessment

<table>
<thead>
<tr>
<th>Assignment Title</th>
<th>Date Set</th>
<th>Date Due</th>
<th>Return Date</th>
<th>Coursework Weighting</th>
<th>Set by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essay on ITS Policy</td>
<td>Lectures 1-2</td>
<td>After lectures 5-6</td>
<td>After lectures 15-16</td>
<td>1/3</td>
<td>NH</td>
</tr>
<tr>
<td>ITS Design Exercise</td>
<td>Lectures 5-6</td>
<td>After lectures 19-20</td>
<td>End of April</td>
<td>2/3</td>
<td>FG/NH/WYO/AS</td>
</tr>
</tbody>
</table>
6.0 Recommended textbooks

Category as defined by Central Library:

C = Core, S = Supplementary

<table>
<thead>
<tr>
<th></th>
<th>S</th>
</tr>
</thead>
</table>

7.0 Subject threads

The table below shows how the themes of design, sustainability and health & safety risk management are embedded in the curriculum (as defined by the JBM degree guidelines).

Key: Primary (P), Secondary (S) and Contributory (C).

<table>
<thead>
<tr>
<th>Design</th>
<th>Health &amp; Safety Risk Management</th>
<th>Sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td></td>
<td>C</td>
</tr>
</tbody>
</table>
CI9-T-19 Design of Accessible Transport Systems

Course leader: Professor Nick Tyler
Other contributors: TBC
Module status: Elective
Pre- or co-requisites:
Term: Spring
Contact hours: 30
ECTS units: 6
FHEQ Level: 7
Assessment: Written examination

1.0 Aims

- To give a sound background to the philosophy, implementation and evaluation of the design of accessible transport systems. Making transport systems accessible is now a requirement of the UN Convention for the Rights of Persons' with disabilities so this is not only an issue for the UK, but one that affects how the UK can support emerging nations in this area of development.

2.0 Syllabus

- The course includes lecture components covering general principles for design, tools for assessing, legislation, planning and management.

<table>
<thead>
<tr>
<th>No.</th>
<th>Topic</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Basic principles of design and composition</td>
<td>NT</td>
</tr>
<tr>
<td>02</td>
<td>Person-Environment interactions</td>
<td>NT</td>
</tr>
<tr>
<td>03-04</td>
<td>Accessibility, capabilities and policy</td>
<td>NT</td>
</tr>
<tr>
<td>05-06</td>
<td>Locomotor issues for accessibility</td>
<td>NT</td>
</tr>
<tr>
<td>07-08</td>
<td>Sensorial issues for accessibility: Vision</td>
<td>NT</td>
</tr>
<tr>
<td>09-10</td>
<td>Sensorial issues for accessibility: Hearing</td>
<td>NT</td>
</tr>
<tr>
<td>11-12</td>
<td>Multisensorial issues for accessibility</td>
<td>NT</td>
</tr>
<tr>
<td>13-14</td>
<td>Cognitive issues for accessibility</td>
<td>NT</td>
</tr>
<tr>
<td>15</td>
<td>Integrating personal and societal needs</td>
<td>NT</td>
</tr>
<tr>
<td>16</td>
<td>Operating principles for accessibility</td>
<td>NT</td>
</tr>
<tr>
<td>17-18</td>
<td>Case study: London</td>
<td>NT</td>
</tr>
<tr>
<td>19-20</td>
<td>Presentations of group accessibility project</td>
<td>NT</td>
</tr>
<tr>
<td>Activity 1</td>
<td>Workshop: collecting and understanding data from people</td>
<td>NT</td>
</tr>
<tr>
<td>Activity 2</td>
<td>Workshop: conducting a street audit</td>
<td>NT</td>
</tr>
<tr>
<td>Activity 3</td>
<td>Group accessibility project site visit</td>
<td>London Borough</td>
</tr>
<tr>
<td>Activity 4</td>
<td>Group accessibility project site visit with people with disabilities</td>
<td>London Borough</td>
</tr>
<tr>
<td>Activity 5</td>
<td>Co-accessibility project site visit</td>
<td>NT</td>
</tr>
<tr>
<td>Activity 6</td>
<td>Co-created urban design</td>
<td>NT</td>
</tr>
</tbody>
</table>
3.0 Intended learning outcomes

On successfully completing this course unit, students will be able to:

- Explain the importance of accessible transport systems from the perspective of persons who are disabled.
- Quantify the health and social justice benefits of an accessibility intervention.
- Assess the accessibility of infrastructure projects from the legal, individual and societal perspectives, and apply solutions to make them accessible.
- Notice, understand and explain to a variety of stakeholders that the impact of inaccessible parts of the built environment have no different sections of society.
- Skills to map and measure accessibility.
- Understand and explain of the complexities of measuring accessibility, and be able to offer improvements to the measurement of accessibility.

4.0 Teaching methods

The lectures are complemented by a series of workshop study sessions in which these issues are applied. These sessions will be conducted in laboratory conditions and involve practical applications. These sessions are interspersed with a number of speakers who are experts on a number of accessibility improvement projects and will support the group projects. Students will use the obtained knowledge in the project in which students evaluate the accessibility of an area and give a presentation on it.

5.0 Assessment

The examination format for the above module is a written paper. Five questions are set, of which you are required to answer three.

6.0 Recommended textbooks

Category as defined by Central Library:

C = Core, S = Supplementary

7.0 Subject threads

The table below shows how the themes of design, sustainability and health & safety risk management are embedded in the curriculum (as defined by the JBM degree guidelines).

Key: Primary (P), Secondary (S) and Contributory (C).

<table>
<thead>
<tr>
<th>Design</th>
<th>Health &amp; Safety Risk Management</th>
<th>Sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>C</td>
<td>S</td>
</tr>
</tbody>
</table>

CI9-T-20 Freight Transport

Course leader: Dr Ke Han
Other contributors: Dr Panagiotis Angeloudis
Module status: Elective
Pre- or co-requisites: CI9-T-24
Term: Spring
Contact hours: 20
ECTS units: 6 (MSc)
FHEQ Level: 7
Assessment: Written examination

1.0 Aims

- The impact of recent trends in logistics and supply chain management on freight transport.
- Presentations on the strategic, tactical and operational levels of freight transport.
- Routing and scheduling methods used in tour and load planning.
- The developing field of mobile communication in freight transport.
- City logistics: the problems and solutions for freight transport in cities.
- The specialist fields of port logistics, construction logistics and hazardous material transport.
- Freight flow modelling techniques as used in national, regional and urban planning.

2.0 Syllabus

<table>
<thead>
<tr>
<th>Session</th>
<th>Topic</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture 1</td>
<td>Introduction to freight transport</td>
<td>KH</td>
</tr>
<tr>
<td>Lecture 2</td>
<td>Infrastructure and modes, UK trends, and case studies</td>
<td>KH</td>
</tr>
<tr>
<td>Lecture 3</td>
<td>Logistics concepts</td>
<td>KH</td>
</tr>
<tr>
<td></td>
<td><strong>Tutorial 1: Introduction to Matlab</strong></td>
<td></td>
</tr>
<tr>
<td>Lecture 4</td>
<td>Outsourcing, Freight Planning part I</td>
<td>KH</td>
</tr>
<tr>
<td>Lecture 5</td>
<td>Freight Planning part II</td>
<td>KH</td>
</tr>
<tr>
<td></td>
<td><strong>Tutorial 2: Shortest path algorithm</strong></td>
<td></td>
</tr>
<tr>
<td>Lecture 6</td>
<td>Routing and scheduling</td>
<td>KH</td>
</tr>
<tr>
<td></td>
<td><strong>Tutorial 3: Tour planning</strong></td>
<td></td>
</tr>
<tr>
<td>Lecture 7</td>
<td>Construction logistics</td>
<td>KH</td>
</tr>
<tr>
<td>Lecture 8</td>
<td>Mobile communication and positioning, city logistics</td>
<td>KH</td>
</tr>
<tr>
<td>Lecture 9</td>
<td>Port logistics</td>
<td>PA</td>
</tr>
</tbody>
</table>
3.0 Intended learning outcomes

On successfully completing this module, students will possess a good understanding of freight transport, know fundamental concepts and principles in logistics, and acquire basic quantitative skills in freight planning.

4.0 Teaching methods

This module includes ten two-hour lecture sessions, three tutorial sessions where basic quantitative methods in freight planning will be exercised, and two pieces of coursework.

5.0 Assessment

<table>
<thead>
<tr>
<th>Assignment Title</th>
<th>Date Set</th>
<th>Date Due</th>
<th>Return Date</th>
<th>Coursework Weighting</th>
<th>Set by</th>
</tr>
</thead>
<tbody>
<tr>
<td>CW1: N/A</td>
<td>Week 5</td>
<td>Week 7 (after lecture)</td>
<td>Week 9</td>
<td>50%</td>
<td>KH</td>
</tr>
<tr>
<td>CW2: N/A</td>
<td>Week 7</td>
<td>Week 9 (after lecture)</td>
<td>Week 11</td>
<td>50%</td>
<td>KH</td>
</tr>
</tbody>
</table>

6.0 Recommended textbooks

Category as defined by Central Library:

C = Core, S = Supplementary

X None recommended

7.0 Subject threads

The table below shows how the themes of design, sustainability and health & safety risk management are embedded in the curriculum (as defined by the JBM degree guidelines).

Key: Primary (P), Secondary (S) and Contributory (C).
CI9-T-23 Air Traffic Management

<table>
<thead>
<tr>
<th>Course leader:</th>
<th>Professor Washington Ochieng</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other contributors:</td>
<td>Dr Arnab Majumdar, Dr Marc Stettler, Professor Andrew Evans</td>
</tr>
<tr>
<td>Module status:</td>
<td>Elective</td>
</tr>
<tr>
<td>Pre- or co-requisites:</td>
<td></td>
</tr>
<tr>
<td>Term:</td>
<td>Spring</td>
</tr>
<tr>
<td>Contact hours:</td>
<td>30</td>
</tr>
<tr>
<td>ECTS units:</td>
<td>6 (MSc)</td>
</tr>
<tr>
<td>FHEQ Level:</td>
<td>7</td>
</tr>
<tr>
<td>Assessment:</td>
<td>Written examination</td>
</tr>
</tbody>
</table>

1.0 Aims

- To introduce the functional elements of Air Traffic Management (ATM), ground and airborne.
- To understand the components of current and future ATM systems.
- To cover the constraints to the operation of ATM systems including: airspace capacity; operational airspace safety; environment and economics.

2.0 Syllabus

- The rapid increase in air traffic is creating congestion in the air traffic network with undesirable impacts, such as flight delays, increased safety risk levels, environmental pollution and noise. New technologies, procedures and organisational structures are seen as the only credible intervention mechanisms, and have begun to be implemented. Clearly the challenge is that such mechanisms should have the positive effect of increasing capacity, but not compromise safety and the environment. Given the complexity of the issues involved and potential impacts if unresolved, training on the fundamentals is necessary to generate the human resources required to deal with the situation.
- Through a mix of lectures, coursework and site visits, this module introduces students to the current and future ATM systems and the impacts of the key performance areas of capacity, safety, the environment and economics. A case study is undertaken based on Europe’s Single European (SES) initiative focusing on the SES ATM Research (SESAR) programme.
### Intended learning outcomes

On successfully completing this course unit, students will be able to:

- Understand the fundamentals of ATM, including its functional elements, technologies, the main organisations involved, and the main drivers of the constraints to the ATM system.

### Teaching methods

A combination of lectures, tutorials and progress tests.

### Assessment

<table>
<thead>
<tr>
<th>Assignment Title</th>
<th>Date Set</th>
<th>Date Due</th>
<th>Return Date</th>
<th>Coursework Weighting</th>
<th>Set by</th>
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</thead>
<tbody>
<tr>
<td>Coursework on capacity and safety</td>
<td>Lecture 10</td>
<td>Lecture 18</td>
<td>Lecture 20</td>
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<td>AM</td>
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</table>

### Recommended textbooks

Category as defined by Central Library:

C = Core, S = Supplementary
7.0 Subject threads

The table below shows how the themes of design, sustainability and health & safety risk management are embedded in the curriculum (as defined by the JBM degree guidelines).

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<table>
<thead>
<tr>
<th>Design</th>
<th>Health &amp; Safety Risk Management</th>
<th>Sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>S</td>
<td>P</td>
</tr>
</tbody>
</table>
CI9-T-24 Ports and Maritime Transport

<table>
<thead>
<tr>
<th>Course leader:</th>
<th>Dr Panagiotis Angeloudis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other contributors:</td>
<td>Dr Khalid Bichou, Dr Dimitris Pachakis, Dr Thalis Zis</td>
</tr>
<tr>
<td>Module status:</td>
<td>Elective</td>
</tr>
<tr>
<td>Pre- or co-requisites:</td>
<td>CI9-T-20</td>
</tr>
<tr>
<td>Term:</td>
<td>Spring</td>
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<tr>
<td>Contact hours:</td>
<td>20</td>
</tr>
<tr>
<td>ECTS units:</td>
<td>6 (MSc)</td>
</tr>
<tr>
<td>FHEQ Level:</td>
<td>7</td>
</tr>
<tr>
<td>Assessment:</td>
<td>Written examination</td>
</tr>
</tbody>
</table>

1.0 Aims

- To familiarise the students with the history, characteristics and evolution of maritime trade, elements of maritime economics, and the current regulatory and legal framework.
- To appreciate the complexity of ship operations and their implications to service network design.
- To understand the basics behind the design and operation of container terminals, including inland container depots and terminal automation.

2.0 Syllabus

- Ports and maritime transport constitute key links in global supply chains and the main characteristics of the seaborne trade.
- Container and bulk (dry/liquid) maritime transport.
- The life cycle of ships, ship building, ownership, operation and insurance, and finally ship breaking.
- Deep sea shipping will then be contrasted with short sea shipping and roro (roll on-roll off) with lolo (load on-load off) operation.
- Particular attention is given to the design and operation of container terminals, including inland container depots.
- Ports are, however, nodes in competing supply chains serving distinct or overlapping hinterlands. Key aspects of port choice will be reviewed.
- Finally, the national and international regulation of ports and maritime transport, security and environmental impact will be covered.

<table>
<thead>
<tr>
<th>No.</th>
<th>Topic</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Introduction, world seaborne trade</td>
<td>PA</td>
</tr>
<tr>
<td>02</td>
<td>Types of maritime transport (Container, LNG, Bulk)</td>
<td>PA</td>
</tr>
<tr>
<td>03</td>
<td>Principles of maritime economics</td>
<td>PA</td>
</tr>
<tr>
<td>04</td>
<td>Ship building, ownership, operation and scrapping</td>
<td>PA</td>
</tr>
</tbody>
</table>
3.0 Intended learning outcomes

On successfully completing this course unit, students will be able to:

- Obtain a thorough understanding of ports and maritime transport in the context of global supply chains.
- Carry out strategic design of intermodal supply chains that involve maritime transport legs.
- Prepare design master plans for new port facilities.

4.0 Teaching methods

The module will be delivered over the course of 10 weeks, through a combination of lectures, tutorials and invited lectures by industrial experts.

5.0 Assessment

<table>
<thead>
<tr>
<th>Assignment Title</th>
<th>Date Set</th>
<th>Date Due</th>
<th>Return Date</th>
<th>Coursework Weighting</th>
<th>Set by</th>
</tr>
</thead>
<tbody>
<tr>
<td>CW1 – Group Project on Maritime Industry</td>
<td>Lecture 1</td>
<td>Late February</td>
<td>Early March</td>
<td>50%</td>
<td>PA</td>
</tr>
<tr>
<td>CW2 – Design Assignment</td>
<td>Lecture 6</td>
<td>Late March</td>
<td>Early April</td>
<td>50%</td>
<td>KB</td>
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</table>

6.0 Recommended textbooks

Category as defined by Central Library:

C = Core, S = Supplementary

7.0 Subject threads

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<thead>
<tr>
<th>Design</th>
<th>Health &amp; Safety Risk Management</th>
<th>Sustainability</th>
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</thead>
<tbody>
<tr>
<td>S</td>
<td>-</td>
<td>-</td>
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</tbody>
</table>
**CI9-T-26 Urban Street Planning and Design**

<table>
<thead>
<tr>
<th>Course leader:</th>
<th>Dr Tom Cohen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other contributors:</td>
<td>Professor Peter Jones, Dr Taku Fujiyama</td>
</tr>
<tr>
<td>Module status:</td>
<td>Elective</td>
</tr>
<tr>
<td>Pre- or co-requisites:</td>
<td></td>
</tr>
<tr>
<td>Term:</td>
<td>Spring</td>
</tr>
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<td>Contact hours:</td>
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<tr>
<td>ECTS units:</td>
<td>6 (MSc)</td>
</tr>
<tr>
<td>FHEQ Level:</td>
<td>7</td>
</tr>
<tr>
<td>Assessment:</td>
<td>Coursework, written examination</td>
</tr>
</tbody>
</table>

1.0 Aims

Street planning and design in the UK urban areas is undergoing a radical transformation, with the growing recognition that urban streets have become too traffic-dominated and that they need to facilitate a variety of other functions. This makes street planning and design a much broader and more complex process, and requires more trade-offs among competing pressures. Crucially, this broader view of streets is now endorsed by the UK Department for Transport, as well as many professional bodies.

These issues are relevant in many other countries too. The New Urbanism movement in the US is challenging traditional methods of urban street planning and design and within Europe the UK is now seen as a leader in this area. Interest has also been expressed in Australia and New Zealand, and one of the core books on the reading list has been translated into Chinese.

The module equips students with the knowledge and skills to address the following issues:

- Determining the functions of different parts of the urban street network.
- Systematically applying a Link/Movement & Place classification to the whole of an urban street network.
- Identifying the user needs of the various street user groups, and how these translate into design requirements.
- Developing context-sensitive street design options balancing the needs of all user groups.
- Methods to engage the public in street planning and design.
- How to appraise design options.

2.0 Syllabus

- This course provides students with an awareness of the multi-functional nature of urban streets and the wide range of competing demands from the large number of street user groups.
- It provides them with concepts and tools to classify and plan for a variety of city streets with different Movement and Place functions, and teaches them how to design different types of street.
It shows how street classification contributes to all aspects of street space allocation, asset management and highway operation.

It exposes them to the various controversies regarding design concepts such as ‘shared space’, and the role of cycle segregation.

The following list of lectures and activities is provisional and subject to alteration

<table>
<thead>
<tr>
<th>No.</th>
<th>Topic</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Urban street planning in its historical context</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>Urban streets today: perspective and challenges</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>Road and street hierarchies</td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>Street users and their design requirements</td>
<td></td>
</tr>
<tr>
<td>05</td>
<td>Design concepts – balancing competing demands</td>
<td></td>
</tr>
<tr>
<td>06</td>
<td>The pedestrian environment</td>
<td></td>
</tr>
<tr>
<td>07</td>
<td>Catering for groups with restricted mobility</td>
<td></td>
</tr>
<tr>
<td>08</td>
<td>Freight movement and servicing activities</td>
<td></td>
</tr>
<tr>
<td>09</td>
<td>Cycling and motorcycling – the neglected modes</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Buses and trams</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Addressing road safety problems</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Crime and personal security</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Designing residential streets</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Designing busy street</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>The shared space controversy</td>
<td></td>
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<tr>
<td>16</td>
<td>Street design appraisal</td>
<td></td>
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<tr>
<td>17</td>
<td>Assessing street performance – I &amp; II</td>
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<tr>
<td>18</td>
<td>Assessing street performance – I &amp; II</td>
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<tr>
<td>19</td>
<td>Stakeholder engagement – I &amp; II</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Stakeholder engagement – I &amp; II</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Activity 1</strong> Three seminars with outside speakers (DfT, TFL and consultant)</td>
<td>To be confirmed</td>
</tr>
<tr>
<td></td>
<td><strong>Activity 2</strong> Site visit to a street reconstruction scheme</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Activity 3</strong> General essay on street design issues</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Activity 4</strong> Group design exercise</td>
<td></td>
</tr>
</tbody>
</table>

3.0 Intended learning outcomes

On successfully completing this course unit, students will be able to:

- Understand this new environment, both at the levels of principle and practice. This ranges from strategic planning of urban streets to detailed physical street design issues, both in relation to existing urban street networks and the construction of new communities.
- It also addresses more controversial issues such as the role and relevance of shared space designs on different kinds of urban streets.
4.0  Teaching methods
A combination of lectures, seminars and exercises.

5.0  Assessment - PROVISIONAL

<table>
<thead>
<tr>
<th>Assignment Title</th>
<th>Date Set</th>
<th>Date Due</th>
<th>Return Date</th>
<th>Coursework Weighting</th>
<th>Set by</th>
</tr>
</thead>
<tbody>
<tr>
<td>CW1: Street space allocation in cross section</td>
<td>TBC</td>
<td>TBC</td>
<td>TBC</td>
<td>25%</td>
<td>TC</td>
</tr>
<tr>
<td>CW2: Group street design exercise</td>
<td>TBC</td>
<td>TBC</td>
<td>TBC</td>
<td>75%</td>
<td>TC</td>
</tr>
</tbody>
</table>

6.0  Recommended textbooks

Category as defined by Central Library:

C = Core, S = Supplementary

S


7.0 Subject threads

The table below shows how the themes of design, sustainability and health & safety risk management are embedded in the curriculum (as defined by the JBM degree guidelines).

Key: Primary (P), Secondary (S) and Contributory (C).

<table>
<thead>
<tr>
<th>Design</th>
<th>Health &amp; Safety Risk Management</th>
<th>Sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>C</td>
<td>S</td>
</tr>
</tbody>
</table>
CI9-T-28 Railway Management, Operation and Engineering

Course leader: Taku Fujiyama (UCL)

Other contributors: Richard Anderson, Benjamin Condry, Arnab Majumdar, Nigel G. Harris, Richard Davies (Imperial)
Andy Chow, Robert Hutchison, Benjamin Heydecker (UCL)

Module status: Elective

Pre- or co-requisites:

Term: Spring

Contact hours:

ECTS units: 6 (MSc)

FHEQ Level: 7

Assessment: Examination and coursework

1.0 Aims

- Railways and their systems comprise many disciplines, such as planning, policies, management, and most branches of engineering. They are complex systems and it is often a challenge to have a broad view, not just considering relevant elements only. For those who are interested in and who wish to work in the industry it is important to have a broad view, seeing the railways as a whole system, whilst having a solid understanding of the complex system elements.
- This module aims to provide students with an understanding of railway planning, management, engineering and operations, both in the UK and worldwide. The lectures will cover the core elements of 1) Governance, 2) Demand and Marketing, 3) Operation Planning, 4) Safety, and 5) Assets. Examples are drawn from the UK and London’s railway systems, as well as the world’s urban metro and railway systems.

2.0 Syllabus

<table>
<thead>
<tr>
<th>No.</th>
<th>Topic</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture 1-2</td>
<td>Introduction (History of the UK Railway, Railway Economics, and the Rail’s Role in Society)</td>
<td>BC/TF</td>
</tr>
<tr>
<td>Lecture 3-4</td>
<td>Railway Governance: UK experience</td>
<td>RD</td>
</tr>
<tr>
<td>Lecture 5-6</td>
<td>Passenger Demand and Marketing</td>
<td>NGH</td>
</tr>
<tr>
<td>Lecture 7-8</td>
<td>Railway Operation Planning and Management</td>
<td>BC/TF</td>
</tr>
<tr>
<td>Lecture 9-10</td>
<td>Railway Safety: Accident Analysis</td>
<td>BGH</td>
</tr>
<tr>
<td>Lecture 11-12</td>
<td>Railway Safety Systems</td>
<td>TF</td>
</tr>
<tr>
<td>Lecture 13-14</td>
<td>Asset and system life cycles</td>
<td>RH</td>
</tr>
<tr>
<td>Lecture 15</td>
<td>Railway System 1: Rail Freight</td>
<td>TF</td>
</tr>
</tbody>
</table>
**Lecture 16** | Railway System 2: High Speed (TBC) | TF
---|---|---
**Lecture 17** | Railway System 3: Urban Rail | RA
**Lecture 18** | Railway System 4: Digital Railway | TF
**Lecture 19-20** | Presentation | TF

### 3.0 Intended learning outcomes

On successfully completing this course unit, students will be able to:

- Understand each core element of railway systems and the interfaces between them.
- Understand each of the main facets of the delivery and management of railways.

### 4.0 Teaching methods

This module is delivered through taught lectures. Students are also expected to attend the guest lectures by external people.

### 5.0 Assessment

A combination of exam and coursework. The coursework component consists as follows

<table>
<thead>
<tr>
<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Railway Governance</td>
<td>Lecture Session 1-2</td>
<td>Lecture Session 19-20</td>
<td>Term 2</td>
<td>100%</td>
<td>TF</td>
</tr>
</tbody>
</table>

### 6.0 Recommended textbooks

Category as defined by Central Library:

C = Core, S = Supplementary

7.0 Subject threads

**JBM Subject and Threads Matrices** (table). Includes: ECTS value per module, Threads (Design, Health & Safety Risk Management, and Sustainability) and whether they are a primary, secondary or contributory outcome for each module.

**Keys:**
- **P** = Primary Outcomes
- **S** = Secondary Outcomes
- **C** = Contributory

<table>
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<tbody>
<tr>
<td>C</td>
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</table>
CI9-T-29 Transport, Environmental Impacts and Safety

Course leader: Dr Marc Stettler
Other contributors: Dr Arnab Majumdar
Module status: Elective
Pre- or co-requisites: 
Term: Spring
Contact hours: 25
ECTS units: 6
FHEQ Level: 7
Assessment: Written examination paper and coursework

1.0 Aims

- To provide students with a thorough understanding of the principal environmental impacts and safety concerns of transport.
- To equip students with tools and techniques for evaluating air quality, noise and climate impacts of transport at local and global scales.
- To train students to understand and evaluate the principles of transport risk and safety specifically with respect to different transport modes and human factors.

2.0 Syllabus

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<tr>
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<tbody>
<tr>
<td>01</td>
<td>Safety theory: the principles of a safety management system (SMS)</td>
<td>AM</td>
</tr>
<tr>
<td>02</td>
<td>Accident and incident investigation</td>
<td>AM</td>
</tr>
<tr>
<td>03</td>
<td>System safety and details of the SMS</td>
<td>AM</td>
</tr>
<tr>
<td>04</td>
<td>Quantified Risk Assessment. Safety culture, safety climate and safety data</td>
<td>AM</td>
</tr>
<tr>
<td>05</td>
<td>Human elements of safety</td>
<td>AM</td>
</tr>
<tr>
<td>06</td>
<td>Transport, sustainability and energy</td>
<td>MS</td>
</tr>
<tr>
<td>07</td>
<td>Impacts of transport emissions: air pollution and greenhouse gases</td>
<td>MS</td>
</tr>
<tr>
<td>08</td>
<td>Noise impacts of transport</td>
<td>MS</td>
</tr>
<tr>
<td>09</td>
<td>Measurement and assessment of transport environmental impacts</td>
<td>MS</td>
</tr>
<tr>
<td>10</td>
<td>Innovations in transport technologies for reduced environmental impact</td>
<td>MS</td>
</tr>
</tbody>
</table>
3.0 Intended learning outcomes

On successfully completing this module, students will be able to:

- Describe the principle mechanisms by which different transport modes impact upon the environment, with specific consideration of air quality, climate and noise impacts.
- Evaluate these environmental impacts using a number of modelling tools and Environmental Impact Assessment (EIA) frameworks, and understand key impact measurement techniques.
- Understand environmental regulations on transport and describe innovations to reduce transport’s environmental impacts, including emissions control technologies.
- Analyse accidents and incidents in an appropriate framework and calculate transport risk.
- Explain and evaluate human risk factors and how risks are mitigated.

4.0 Teaching methods

This module is taught through a combination of lectures, tutorials and workshops. Lecture notes contain examples to guide independent learning and revision and solutions are provided on Blackboard.

5.0 Assessment

This module is assessed through a written examination paper and a group coursework assignment. For the coursework assignment, each group will have to develop an environmental and safety strategy for an organisation operating in the aviation sector.

6.0 Recommended textbooks

Category as defined by Central Library:

C = Core, S = Supplementary

<p>| | |</p>
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<tbody>
<tr>
<td>S</td>
<td>Sustainable Transport: A Sourcebook for Policy Makers in Developing Cities; GTZ Sustainable Urban Transport Project. Available free (with Registration) online via <a href="http://www.sutp.org">www.sutp.org</a> under “GTZ Sourcebook”.</td>
</tr>
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</table>
7.0 Subject threads

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