MSc Programmes in The School of the Built Environment
Programme Guide and Handbook 2018/19
The aim of this Programme Handbook is to provide specific information on MSc programmes in the School of the Built Environment. The handbook explains how we support our degree programmes and provides other sources of important information. More general information about the University and key academic policies and procedures can be found in “Essentials” (student.reading.ac.uk/essentials).

The MSc Programmes in The School of the Built Environment are devoted to discovery and creative thinking, designed to question and challenge conventional wisdom in the built environment. In a fast-moving and changing market for professional skills, fresh ideas are needed. Our MSc programmes are focused on ensuring an excellent student experience. The aim is to engage postgraduate students in the co-creation of new knowledge and understanding about complex and difficult problems.

The School of the Built Environment is one of the world's leading university departments dealing with the built environment. Our reputation is based on the recruitment of successful students from all over the world and on the authority of our academic staff, who have extensive experience as advisors, consultants and visiting lecturers to commercial organisations, governments and universities throughout the world. We are truly multi-disciplinary with over 30 members of full-time academic staff, including 10 professors. This wide range of expertise and international experience contributes directly to the quality of our degree programmes and research activities.

It is the responsibility of students to familiarise themselves with the Programme Handbook and with the content of Essentials, and to use them as a reference when required. It is particularly important that you read (or familiarise yourself with) the key academic policies and procedures listed in the Overview of ‘Essentials’ and Key Academic Policies and Procedures later in this handbook, since they govern important aspects of your programme and may therefore have a significant impact on your studies and the successful completion of your degree.

Formal Ordinances and Regulations are given in the University Calendar1 and programme requirements in the Programme Specification2 and in relevant module descriptions; should there be, or appear to be, any conflict between statements in this handbook and the Ordinances, Regulations, Programme Specifications or module descriptions, the latter shall prevail.

Although the information in this Handbook is accurate at the time of publication, aspects of the programme and of School practice may be subject to modification and revision. The University reserves the right to modify the programme to reflect best practice and academic developments for the benefit of the students, to improve the programme and your experience of it, to meet the requirements of external or accrediting bodies, as a result of staff changes or changes to the law. In such circumstances, revised information will be issued. Information provided by the School during your programme should, therefore, be regarded, where appropriate, as superseding the information contained in the handbook.

Please keep this handbook in a safe place as you will need to refer to it throughout your programme. This handbook is for students commencing the programme in 2018-19.

The material in this handbook can be provided in alternative media. Please discuss your requirements with the School (email sbepostgrad@reading.ac.uk).

---

1 http://www.reading.ac.uk/internal/Calendar/
2 http://www.reading.ac.uk/prospectus/
3 http://www.info.reading.ac.uk/module/
## Contents

**Programme information** ........................................................................................................... 1
  MSc Construction Cost Management ......................................................................................... 4
  MSc Construction Management ................................................................................................. 7
  MSc Design and Management of Sustainable Built Environments ........................................... 10
  MSc Construction in Emerging Economies ............................................................................... 13
  MSc Information Management for Design Construction and Operation .............................. 16
  MSc Project Management ........................................................................................................ 19
  MSc Renewable Energy: Technology and Sustainability ......................................................... 22

**Allocation of 20 and 40-credit modules to programmes** ......................................................... 25

**Allocation of 10-credit modules to programmes** .................................................................. 26

**Module summaries** ................................................................................................................ 27
  CEM10A Research Skills (20) ................................................................................................. 27
  CEM10B Research Dissertation (40) .................................................................................... 27
  CEM102 Business of Construction (40) ................................................................................ 27
  CEM12A Business of Construction A (20) .......................................................................... 27
  CEM12B Business of Construction B (20) .......................................................................... 27
  CEM103 Principles and Practice of Project Management (40) ............................................. 28
  CEM13A Principles and Practice of Project Management A (20) ...................................... 28
  CEM13B Principles and Practice of Project Management B (20) ...................................... 28
  CEM104 Construction Cost Management Principles and Practice (40) ............................ 29
  CEM14A Construction Cost Management Principles and Practice (20) ............................ 29
  CEM14B Construction Cost Management Principles and Practice (20) ............................ 29
  CEM150 International Development in Construction (40) .................................................. 29
  CEM15A International Development in Construction (20) .................................................. 29
  CEM15B International Development in Construction (20) .................................................. 29
  CEM160 Renewable Energy Systems (40) ........................................................................... 30
  CEM16A Renewable Energy Systems A (20) ...................................................................... 30
  CEM16B Renewable Energy Systems B (20) ...................................................................... 31
  CEM107 SDM Principles and Practice (40) ......................................................................... 31
  CEM17A SDM Principles and Practice A (20) ...................................................................... 32
  CEM17B SDM Principles and Practice B (20) ...................................................................... 32
  CEM18A Engineering Research Skills (20) .......................................................................... 32
  CEM18B Engineering Dissertation (40) ............................................................................... 33
  CEM19A Energy Research Skills (20) .................................................................................. 33
  CEM19B Energy Research Dissertation (40) ...................................................................... 34
  CEM110 Collaboration Practice and Innovation (40) ............................................................ 34
  CEM111 Collaboration Practice and Innovation A (20) ....................................................... 34
  CEM11B Collaboration Practice and Innovation B (20) ....................................................... 34
  CEM201 An Introduction to Project Management (10) ......................................................... 35
  CEM202 Construction Project Management (10) ................................................................. 35
  CEM203 Financial and Management Accounting in Construction (10) ............................ 36
  CEM204 International Construction (10) ............................................................................. 36
  CEM205 Human Resource Management (10) ..................................................................... 37
  CEM206 Construction Contract Law (10) ............................................................................ 37
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM209</td>
<td>Managing Construction (10)</td>
<td>38</td>
</tr>
<tr>
<td>CEM210</td>
<td>People, Information and Technology (10)</td>
<td>38</td>
</tr>
<tr>
<td>CEM215</td>
<td>Infrastructure Development (10)</td>
<td>38</td>
</tr>
<tr>
<td>CEM216</td>
<td>International Construction Labour (10)</td>
<td>39</td>
</tr>
<tr>
<td>CEM217</td>
<td>Construction Sector Transition (10)</td>
<td>39</td>
</tr>
<tr>
<td>CEM220</td>
<td>Urban Sustainability (10)</td>
<td>40</td>
</tr>
<tr>
<td>CEM221</td>
<td>Energy in Buildings (10)</td>
<td>40</td>
</tr>
<tr>
<td>CEM222</td>
<td>Building Simulation (10)</td>
<td>41</td>
</tr>
<tr>
<td>CEM223</td>
<td>Urban Microclimates (10)</td>
<td>41</td>
</tr>
<tr>
<td>CEM224</td>
<td>Carbon Management (10)</td>
<td>41</td>
</tr>
<tr>
<td>CEM225</td>
<td>Building Information Modelling (10)</td>
<td>42</td>
</tr>
<tr>
<td>CEM226</td>
<td>ICT and Energy Management (10)</td>
<td>42</td>
</tr>
<tr>
<td>CEM228</td>
<td>Construction Economics (10)</td>
<td>43</td>
</tr>
<tr>
<td>CEM229</td>
<td>Green Building Assessment (10)</td>
<td>43</td>
</tr>
<tr>
<td>CEM230</td>
<td>Design Management (10)</td>
<td>43</td>
</tr>
<tr>
<td>CEM233</td>
<td>Urban Energy Systems (10)</td>
<td>44</td>
</tr>
<tr>
<td>CEM235</td>
<td>Engineering Project Management (10)</td>
<td>44</td>
</tr>
<tr>
<td>CEM237</td>
<td>Basic Measurement Principles (0)</td>
<td>45</td>
</tr>
<tr>
<td>CEM238</td>
<td>Construction Cost Engineering (10)</td>
<td>45</td>
</tr>
<tr>
<td>CEM241</td>
<td>Energy and the Environment</td>
<td>45</td>
</tr>
<tr>
<td>CEM242</td>
<td>Advanced Visualisation and Interactive Technologies (10)</td>
<td>46</td>
</tr>
<tr>
<td>CEM243</td>
<td>New Technology, Management and Change (10)</td>
<td>46</td>
</tr>
<tr>
<td>CEM244</td>
<td>Analysing Construction Processes (10)</td>
<td>47</td>
</tr>
<tr>
<td>CEM302</td>
<td>Strategic Management (10)</td>
<td>47</td>
</tr>
<tr>
<td>CEM303</td>
<td>Sustainable Design, Construction and Operation (10)</td>
<td>47</td>
</tr>
<tr>
<td>CEM319</td>
<td>Life Cycle Assessment (10)</td>
<td>48</td>
</tr>
<tr>
<td>CEM334</td>
<td>Innovative Developments in Construction (10)</td>
<td>48</td>
</tr>
<tr>
<td>CEM335</td>
<td>Real estate Development: Analysis &amp; Appraisal (10)</td>
<td>49</td>
</tr>
</tbody>
</table>

**How to get a good degree in this subject**

How to get a good degree in this subject

Working with academic integrity .......................................................... 50
Reading lists ......................................................................................... 50
Developing good learning practices ....................................................... 51
Effective reading leads to higher grades ............................................... 52
Effective writing leads to higher grades ................................................ 53
References and citations ....................................................................... 54
Dissertation advice .............................................................................. 55
Developing learning practices ............................................................... 56
Research training .................................................................................. 56
Feedback and marks ............................................................................... 56

**How we support students**

University support for students and their learning ................................ 58
Academic tutors .................................................................................... 58
Students studying part-time ................................................................. 59
Support Centres ................................................................................... 59
Books .................................................................................................... 60
Software ............................................................................................... 60
School accommodation .......................................................................... 61
Programme information

We offer seven MSc programmes. Each can be taken as a one-year full-time programme or as a flexible-modular programme. In this University, flexible-modular is a term used to describe a specific type of part-time programme that provides students with the choice about how many years to spread their period of study, usually between two and five years. MSc candidates must complete 180 credits to satisfy the requirements of the programme. Several intensive one-week modules take place, often with students from other MSc programmes in the School. Ten credits represent about 100 hours of study, most of which is not in class.

Structure

All our programmes share a common structure. At the heart of each programme are important modules relating to research skills, dissertations and integrating studies. First, the dissertation involves a sustained piece of supervised research and writing throughout the period of study, supported by supervision and a separate module in research skills. Second, each programme has an integrating core module in which the material from the taught modules is integrated and applied through case studies or other applied work (for flexible-modular students, the integrating module is split into two modules of 20 credits each, one for each of the two years of study). Outside these key modules, the learning is achieved in one-week modules spread throughout the programme with assignments and coursework. Each ten-credit module is taught completely and exclusively within an intensive week of classes, with the assessment to be submitted some weeks after the module. There are optional modules in every programme, enabling a flexible programme tailored to individual student needs.¹

Each MSc programme involves a specific set of core modules and some optional modules. The outlines of each MSc programme are given in the following pages. The subsequent section provides summaries of each module to help students choose their options.²

Each of the module weeks consists of a mix of formal lectures, participative activities and study/research time. Between the module weeks, students will study for dissertations and assignment work from the modules. Full-time students may be involved with lectures and talks from guest speakers as well as site visits and field trips between the module weeks. All students are supported in their learning using the on-line system, Blackboard, accessed with your University username and password. Most modules are opened to students only when there is some content in them. It is quite usual for content to be unavailable until just before a module is taught.

At the beginning of your period of study, you will be asked to provide information about which optional modules you wish to choose. We need an early indication of module choices so that we can book appropriate rooms and schedule sufficient resources. However, you may change your options within reason, but not later than two weeks before an option is

¹ Please be aware that there are some timetabling constraints that preclude certain combinations of modules.
² Throughout this document, numbers in brackets after module names indicate the number of credits in each module. All MSc programmes must add up to 180 credits.
time-tabled to run. Programme Directors and module convenors are happy to advise on module content and choice.

Please note that, while every effort has been made to ensure that the syllabus is accurate, the University reserves the right to amend the content as necessary and appropriate. The research-led philosophy of the programme often means that new topics are introduced at short notice. This is always done in the best interests of the students.

Please note: this handbook is for explanatory purposes. The formal programme specification is available at [www.reading.ac.uk/progspecs](http://www.reading.ac.uk/progspecs) and the formal module descriptions are available at [www.reading.ac.uk/modules](http://www.reading.ac.uk/modules). You can access your further programme information by logging onto the RISIS Portal:

(i) Selecting the “information” tab.
(ii) Select “programme and modules” from the drop-down list.

From here you will then be able to access the further programme information by clicking on the “Further Programme Information for 2018/9” link.

**Flexibility**

All our MSc programmes are offered as a one-year full-time programme, starting in September each year, or twc-year flexible-modular programme, starting in January or September each year. (Please note that a January start will involve a period of study that is nine months longer than a September start.)

The modular structure of the programmes allows students (whether full-time or flexible-modular) to select subjects that meet their own needs and interests, while developing a core set of knowledge and skills. In addition to the underlying theoretical principles, there is also a strong focus on the development of critical thinking ability together with the practical skills that are needed to make a difference in practice.

For flexible-modular mode of study, our expectation is that the programme will be completed in two years, although it may cover up to five years of study. Every module has a defined schedule and, once started, must be completed on time. However, the integrating module for flexible-modular students has been split into two halves, each of which is taken in a separate year. The research skills module in each programme is intended to be taken in the first year of study, while the dissertation module in the second or subsequent year. This avoids the need to spread single, large modules over multiple years. Finally, the optional modules can be spread out during the period of study, since they all run every year. Teaching typically takes place in one-week modules, Monday to Friday, usually commencing Monday at 14:00 and concluding 12:30 on Friday, with all other times as 09:00-17:30. Please be aware that a few modules do not follow this timing, so it is advisable to check in advance if you need to make arrangements, such as child-care of work, in order to attend classes.

**Assessment**

Assessment of student work is done with a range of different methods, mostly by written assignments but also with some modules using on-line tests, group work, presentations, and so on. A few modules have formal examinations. Each ten-credit module is contained within
a single timetabled week focused solely on that module, with the assessments being scheduled in relation to the particular module week.

Full details of assessment requirements for the programme and the modules are given in programme specifications (see next paragraph). Details of how modules are allocated to programmes can be found on pages 25-26 of this document.

Programme specifications

The formal programme specifications are available at www.reading.ac.uk/progspecs. These are important as they form the basis of the University’s obligation to its students.

Module enrolment

At the beginning of each year of your programme, or at the beginning of the programme for full-time students, you will be asked to choose your optional modules. It is possible to change your choices if you notify the administrative team at least two weeks before a module is due to run. Once a module starts, you cannot subsequently de-enrol yourself. You will be committed to the assessment for the module. If you are having difficulties attending a module, you must discuss this with your Programme Director with a view to submitting an Extenuating Circumstances Form via the on-line system in RISIS.

Additional costs of studying

During your time studying at Reading, you may encounter some additional costs, for example field trips, text books, or stationery. It is prudent to budget appropriately for these costs, and the Advice Service in the Students’ Union can help you with this, either by email of personally. You can also visit their money advice website for more generic information. More specific information can be given by your Department or School.
MSc Construction Cost Management

Overview

MSc Construction Cost Management is for graduates of any discipline who are interested in a career in construction cost management or quantity surveying. Cost management comprises every aspect of a project from concept through design, production and occupancy. It involves new projects, refurbishment projects, heritage restoration and the maintenance of all built facilities. Students will develop a broad understanding of management principles, cost, time, and quality management, with the legal and contractual aspects of project delivery. The programme has an international perspective and is open to applicants who are considering a career in cost management with public and private sector clients, consultants or contractors in the building and civil engineering sectors, including oil and gas. This programme is accredited by the RICS and CIOB.

**Core modules for full-time students**

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Module Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM10A</td>
<td>Research Skills (20)</td>
</tr>
<tr>
<td>CEM10B</td>
<td>Research Dissertation (40)</td>
</tr>
<tr>
<td>CEM104</td>
<td>Construction Cost Management Principles and Practice (40)</td>
</tr>
<tr>
<td>CEM202</td>
<td>Construction Project Management (10)</td>
</tr>
<tr>
<td>CEM206</td>
<td>Construction Contract Law (10)</td>
</tr>
<tr>
<td>CEM228</td>
<td>Construction Economics (10)</td>
</tr>
<tr>
<td>CEM237</td>
<td>Basic Measurement Principles (0) (Prereq. for CEM238)</td>
</tr>
<tr>
<td>CEM238</td>
<td>Construction Cost Engineering (10)</td>
</tr>
</tbody>
</table>

**Core modules for flexible-modular students**

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Module Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM10A</td>
<td>Research skills (20)</td>
</tr>
<tr>
<td>CEM10B</td>
<td>Research Dissertation (40)</td>
</tr>
<tr>
<td>CEM14A</td>
<td>Construction Cost Management Principles and Practice A (20)</td>
</tr>
<tr>
<td>CEM14B</td>
<td>Construction Cost Management Principles and Practice B (20)</td>
</tr>
<tr>
<td>CEM202</td>
<td>Construction Project Management (10)</td>
</tr>
<tr>
<td>CEM206</td>
<td>Construction Contract Law (10)</td>
</tr>
<tr>
<td>CEM228</td>
<td>Construction Economics (10)</td>
</tr>
<tr>
<td>CEM237</td>
<td>Basic Measurement Principles (0) (Prereq. for CEM238)</td>
</tr>
<tr>
<td>CEM238</td>
<td>Construction Cost Engineering (10)</td>
</tr>
</tbody>
</table>

**Optional modules for all students: Four from this list of optional modules**

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Module Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM203</td>
<td>Financial and Management Accounting in Construction (10)</td>
</tr>
<tr>
<td>CEM204</td>
<td>International Construction (10)</td>
</tr>
<tr>
<td>CEM205</td>
<td>Human Resources Management (10)</td>
</tr>
<tr>
<td>CEM210</td>
<td>People, Information and Technology (10)</td>
</tr>
<tr>
<td>CEM220</td>
<td>Urban Sustainability (10)</td>
</tr>
<tr>
<td>CEM225</td>
<td>Building Information Modelling (10)</td>
</tr>
<tr>
<td>CEM230</td>
<td>Design Management (10)</td>
</tr>
<tr>
<td>CEM242</td>
<td>Advanced Visualisation and Interactive Technologies (10)</td>
</tr>
<tr>
<td>CEM243</td>
<td>New Technology, Management and Change (10)</td>
</tr>
<tr>
<td>CEM244</td>
<td>Analysing Construction Processes (10)</td>
</tr>
<tr>
<td>CEM302</td>
<td>Strategic Management (10)</td>
</tr>
<tr>
<td>CEM303</td>
<td>Sustainable Design, Construction and Operation (10)</td>
</tr>
<tr>
<td>CEM334</td>
<td>Innovative Developments in Construction (10)</td>
</tr>
<tr>
<td>CEM335</td>
<td>Real Estate Development Analysis and Appraisal (10)</td>
</tr>
</tbody>
</table>

---

1 One option may be chosen from the full list of 10-credit MSc optional modules available in the School.
Focus

The distinctive focus of this programme is on the principles, tools and techniques of financial and cost management from inception of a project, through to design and construction.

Construction and property cost consultancy is a thriving business activity which is seeking to recruit ambitious graduates from all disciplines who wish to enter a career in which they will develop in a climate of self-management and progress by making their own career choices. Property and construction cost consultants provide services to clients of the construction and property industries through the professional application of economic, financial, engineering, design, management and communication skills.

Flexible-modular students January entry

There will be an induction day for January starters at the beginning of the Spring Term. The CEM10A and CEM14A modules will start in September of the first year. CEM10B and CEM14B will run until Summer of the third year of study. Therefore, January starts require the period of study to run for at least three academic years, aiming to graduate in December of the third calendar year.
## Programme timetable for Construction Cost Management (CC)

<table>
<thead>
<tr>
<th>Code</th>
<th>Core modules</th>
<th>Dates</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM104/14A</td>
<td>Welcome and Introduction</td>
<td>24–28 Sep 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM10A</td>
<td>Construction Cost Mgmt: Principles and Practice</td>
<td>01–05 Oct 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM2C2</td>
<td>Research Skills</td>
<td>08–12 Oct 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM1CA</td>
<td>Construction Project Management</td>
<td>05–09 Nov 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM104/14A</td>
<td>Construction Cost Mgmt: Principles and Practice</td>
<td>12–16 Nov 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM237</td>
<td>Basic Measurement Principles (prereq. for CEM238)</td>
<td>10–14 Dec 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM238</td>
<td>Construction Contract Law</td>
<td>04–08 Feb 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM228</td>
<td>Construction Economics</td>
<td>25 Feb–01 Mar 2019</td>
<td>Spring</td>
</tr>
</tbody>
</table>

**Optional modules (Four options from this list)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Core modules</th>
<th>Dates</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM225</td>
<td>Building Information Modelling</td>
<td>22–26 Oct 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM230</td>
<td>Design Management</td>
<td>19–23 Nov 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM203</td>
<td>Financial and Mgmt Accounting in Construction</td>
<td>26–30 Nov 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM242</td>
<td>Advanced Visualisation and Interactive Tech</td>
<td>03–07 Dec 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM243</td>
<td>New technology, management and change</td>
<td>14–18 Jan 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM220</td>
<td>Urban Sustainability</td>
<td>21–25 Jan 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM205</td>
<td>Human Resource Management</td>
<td>28 Jan 01 Feb 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM335</td>
<td>Real Estate Development: Analysis and Appraisal</td>
<td>11–15 Feb 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM204</td>
<td>International Construction</td>
<td>18–22 Feb 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM334</td>
<td>Innovative Developments in Construction</td>
<td>04–08 Mar 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM210</td>
<td>People, Information and Technology</td>
<td>25–29 Mar 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM303</td>
<td>Sustainable Design, Construction and Operation</td>
<td>29 Apr–03 May 2019</td>
<td>Summer</td>
</tr>
<tr>
<td>CEM302</td>
<td>Strategic Management</td>
<td>13–17 May 2019</td>
<td>Summer</td>
</tr>
<tr>
<td>CEM244</td>
<td>Analysing Construction Processes</td>
<td>20–24 May 2019</td>
<td>Summer</td>
</tr>
</tbody>
</table>

**Full-time programme:** These dates are firm. Modules will only be moved for unavoidable operational reasons.

**Flexible-modular programme:** Modules for students on the flexible-modular programme will be spread over two years (up to a maximum of five). We aim to run modules at the same time each year, although this cannot be guaranteed. Please discuss the timing of your core and optional modules with your Programme Director.

**CEM104/14A and CEM10A:** Please note that the teaching for these modules is spread over more than one week. You must attend both weeks in the sequence shown. They are not optional.

**Simultaneous optional modules:** Please note that some modules take place in the same week. This means if you choose one of these you cannot choose the other.

---

1 Part of a week completed by another module.

2 Part of a module that occurs in more than one week. Please note, all such weeks must be completed in the same academic year; these are not optional weeks.

3 One option may be chosen from the full list of 10-credit MSc optional modules available in the School.
MSc Construction Management

Overview

MSc Construction Management engages with both project and company management, with distinct international dimensions. Study involves advanced case studies around topical issues, facilitated team-work and an interesting programme of field trips and visits. Students graduating from this programme typically develop their careers in senior management positions in construction companies and the public sector all over the world. This programme is accredited by RICS and CIOB.

**Core modules for full-time students**
- CEM10A Research Skills (20)
- CEM10B Research Dissertation (40)
- CEM102 Business of Construction (40)
- CEM202 Construction Project Management (10)
- CEM204 International Construction (10)
- CEM206 Construction Contract Law (10)
- CEM209 Managing Construction (10)
- CEM210 People, Information and Technology (10)

**Core modules for flexible-modular students**
- CEM10A Research Skills (20)
- CEM10B Research Dissertation (40)
- CEM12A Business of Construction A (20)
- CEM12B Business of Construction B (20)
- CEM202 Construction Project Management (10)
- CEM204 International Construction (10)
- CEM206 Construction Contract Law (10)
- CEM209 Managing Construction (10)
- CEM210 People, Information and Technology (10)

**Optional modules for all students: Three from this list of optional modules**
- CEM203 Financial and Management Accounting in Construction (10)
- CEM205 Human Resource Management (10)
- CEM215 Infrastructure Development (10)
- CEM216 International Construction Labour (10)
- CEM217 Construction Sector Transition (10)
- CEM220 Urban Sustainability (10)
- CEM225 Building Information Modelling (10)
- CEM228 Construction Economics (10)
- CEM229 Green Building Assessment (10)
- CEM230 Design Management (10)
- CEM233 Urban Energy Systems (10)
- CEM237 Basic Measurement Principles (prereq. for CEM238) (0)
- CEM238 Construction Cost Engineering (10)
- CEM242 Advanced Visualisation and Interactive Technologies (10)
- CEM243 New Technology, Management and Change (10)
- CEM244 Analysing Construction Processes (10)
- CEM302 Strategic Management (10)
- CEM303 Sustainable Design, Construction and Operation (10)
- CEM319 Life Cycle Assessment (10)
- CEM334 Innovative Developments in Construction (10)
- CEM335 Real Estate Development: Analysis and Appraisal (10)

---

1 One option may be chosen from the full list of 10-credit MSc optional modules available in the School.
Focus

The distinctive focus is on the management of the construction firm, including finance, organisation, project procurement, contracts for design and construction, information and communication technologies in the construction sector and the expectations of clients, developers, financiers and investors in a project.

The programme suits those who have an interest in pursuing a career in the management of construction, whether on the supply side or the demand side. Graduates with professional experience will find this programme provides a strong grounding for promotion to more senior management positions. Graduates without experience will find this programme an excellent way to gain mastery of the topics relating to management in construction.

Flexible-modular students January entry

There will be an induction day for January starters at the beginning of the Spring Term. The CEM10A and CEM12A modules will start in September of the first year. CEM10B and CEM12B will run until Summer of the third year of study. Therefore, January starts require the period of study to run for at least three academic years, aiming to graduate in December of the third calendar year.
Programme timetable for Construction Management (CM)

<table>
<thead>
<tr>
<th>Code</th>
<th>Core modules</th>
<th>Dates</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM102/12A</td>
<td>Welcome and Introduction 1,2</td>
<td>24–28 Sep 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM1CA</td>
<td>Business of Construction 1,2</td>
<td>01–05 Oct 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM202</td>
<td>Construction Project Management</td>
<td>08–12 Oct 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM209</td>
<td>Managing Construction</td>
<td>29 Oct–03 Nov 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM1CA</td>
<td>Research Skills 1,2</td>
<td>05–09 Nov 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM102/12A</td>
<td>Business of Construction 1,2</td>
<td>18–22 Feb 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM204</td>
<td>International Construction</td>
<td>11–15 Mar 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM210</td>
<td>People, Information and Technology</td>
<td>25–29 Mar 2019</td>
<td>Spring</td>
</tr>
</tbody>
</table>

Optional modules (Three options³)

<table>
<thead>
<tr>
<th>Code</th>
<th>Modules</th>
<th>Dates</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM216</td>
<td>International Construction Labour</td>
<td>15–19 Oct 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM225</td>
<td>Building Information Modelling</td>
<td>22–26 Oct 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM237</td>
<td>Basic Measurement Principles (prereq. for CEM236)</td>
<td>12–16 Nov 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM230</td>
<td>Design Management</td>
<td>19–23 Nov 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM203</td>
<td>Financial and Mgmt Accounting in Construction</td>
<td>26–30 Nov 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM242</td>
<td>Advanced Visualisation and Interactive Tech</td>
<td>03–07 Dec 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM243</td>
<td>New technology, management and change</td>
<td>14–18 Jan 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM220</td>
<td>Urban Sustainability</td>
<td>21–25 Jan 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM205</td>
<td>Human Resource Management</td>
<td>28 Jan–1 Feb 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM238</td>
<td>Construction Cost Engineering</td>
<td>04–08 Feb 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM335</td>
<td>Real Estate Development: Analysis and Appraisal</td>
<td>11–15 Feb 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM228</td>
<td>Construction Economics</td>
<td>25 Feb–01 Mar 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM229</td>
<td>Green Building Assessment</td>
<td>04–08 Mar 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM334</td>
<td>Innovative Developments in Construction</td>
<td>04–08 Mar 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM217</td>
<td>Construction Sector Transition</td>
<td>18–22 Mar 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM303</td>
<td>Sustainable Design, Construction and Operation</td>
<td>29 Apr–03 May 2019</td>
<td>Summer</td>
</tr>
<tr>
<td>CEM319</td>
<td>Life Cycle Assessment</td>
<td>13–17 May 2019</td>
<td>Summer</td>
</tr>
<tr>
<td>CEM302</td>
<td>Strategic Management</td>
<td>13–17 May 2019</td>
<td>Summer</td>
</tr>
<tr>
<td>CEM215</td>
<td>Infrastructure Development</td>
<td>20–24 May 2019</td>
<td>Summer</td>
</tr>
<tr>
<td>CEM244</td>
<td>Analysing Construction Processes</td>
<td>20–24 May 2019</td>
<td>Summer</td>
</tr>
</tbody>
</table>

Full-time programme: These dates are firm. Modules will only be moved for unavoidable operational reasons.

Flexible-modular programme: Modules for students on the flexible-modular programme will be spread over two years (up to a maximum of five). We aim to run modules at the same time each year, although this cannot be guaranteed. Please discuss the timing of your core and optional modules with your Programme Director.

CEM102/12A and CEM10A: Please note that the teaching for these modules is spread over more than one week. You must attend both weeks. They are not optional.

Simultaneous optional modules: Please note that some modules take place in the same week. This means if you choose one of these you cannot choose the other.

---

1 Part of a week completed by another module.
2 Part of a module that occurs in more than one week. Please note, all such weeks must be completed in the same academic year; these are not optional weeks.
3 One option may be chosen from the full list of 10-credit MSc optional modules available in the School.
MSc Design and Management of Sustainable Built Environments

Overview

MSc Design and Management of Sustainable Built Environments is for candidates who wish to gain a broad interdisciplinary knowledge and an advanced understanding of the key subjects in both the design and operation stages of sustainable buildings and cities. The programme is run in association with the major UK Architecture and Building Engineering companies. Students graduating from this programme will typically develop their career in a technical leadership position, driving forward the sustainability agenda in the areas of architectural design, environmental engineering, facilities management, building energy operation and green building assessment.

**Core modules for full-time students**

<table>
<thead>
<tr>
<th>Code</th>
<th>Module</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM18A</td>
<td>Engineering Research Skills</td>
<td>20</td>
</tr>
<tr>
<td>CEM18B</td>
<td>Engineering Research Dissertation</td>
<td>40</td>
</tr>
<tr>
<td>CEM107</td>
<td>SDM Principles and Practice</td>
<td>40</td>
</tr>
<tr>
<td>CEM220</td>
<td>Urban Sustainability</td>
<td>10</td>
</tr>
<tr>
<td>CEM221</td>
<td>Energy in Buildings</td>
<td>10</td>
</tr>
<tr>
<td>CEM223</td>
<td>Urban Microclimates</td>
<td>10</td>
</tr>
<tr>
<td>CEM225</td>
<td>Building Information Modelling</td>
<td>10</td>
</tr>
<tr>
<td>CEM226</td>
<td>ICT and Energy Management</td>
<td>10</td>
</tr>
<tr>
<td>CEM229</td>
<td>Green Building Assessment</td>
<td>10</td>
</tr>
</tbody>
</table>

**Core modules for flexible-modular students**

<table>
<thead>
<tr>
<th>Code</th>
<th>Module</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM18A</td>
<td>Engineering Research Skills</td>
<td>20</td>
</tr>
<tr>
<td>CEM18B</td>
<td>Engineering Research Dissertation</td>
<td>40</td>
</tr>
<tr>
<td>CEM17A</td>
<td>SDM Principles and Practice A</td>
<td>20</td>
</tr>
<tr>
<td>CEM17B</td>
<td>SDM Principles and Practice B</td>
<td>20</td>
</tr>
<tr>
<td>CEM220</td>
<td>Urban Sustainability</td>
<td>10</td>
</tr>
<tr>
<td>CEM221</td>
<td>Energy in Buildings</td>
<td>10</td>
</tr>
<tr>
<td>CEM223</td>
<td>Urban Microclimates</td>
<td>10</td>
</tr>
<tr>
<td>CEM225</td>
<td>Building Information Modelling</td>
<td>10</td>
</tr>
<tr>
<td>CEM226</td>
<td>ICT and Energy Management</td>
<td>10</td>
</tr>
<tr>
<td>CEM229</td>
<td>Green Building Assessment</td>
<td>10</td>
</tr>
</tbody>
</table>

**Optional modules for all students: Two from this list of optional modules**

<table>
<thead>
<tr>
<th>Code</th>
<th>Module</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM224</td>
<td>Carbon Management</td>
<td>10</td>
</tr>
<tr>
<td>CEM235</td>
<td>Engineering Project Management</td>
<td>10</td>
</tr>
<tr>
<td>CEM242</td>
<td>Advanced Visualisation and Interactive Technologies</td>
<td>10</td>
</tr>
<tr>
<td>CEM243</td>
<td>New Technology, Management and Change</td>
<td>10</td>
</tr>
<tr>
<td>CEM319</td>
<td>Life Cycle Assessment</td>
<td>10</td>
</tr>
</tbody>
</table>

---

1 One option may be chosen from the full list of 10-credit MSc optional modules available in the School.
Focus

The distinctive focus is on a truly interdisciplinary approach to the design and operation of sustainable buildings and cities.

The aim of the programme is to provide a coherent framework for the discipline and practice of design and management. Each module includes sessions delivered by leading practitioners. The programme is continually informed not only by the latest developments in industry, but also by on-going international research. It is ideal for professionals in the built environment including urban planners, architects, building services engineers, facilities managers and performance assessors. The challenges include fragmentation of disciplines in built environments. We aim to prepare professionals to address these challenges through the acquisition of key practical skills of analysis and simulation in technical issues in environmental design, engineering and management.

Flexible-modular students January entry

There will be an induction day for January starters at the beginning of the Spring Term. The CEM18A and CEM17A modules will start in September of the first year. CEM18B and CEM17B will run until Summer of the third year of study. Therefore, January starts require the period of study to run for at least three academic years, aiming to graduate in December of the third calendar year.
Programme timetable for Design and Management of Sustainable Built Environments (DM)

<table>
<thead>
<tr>
<th>Code</th>
<th>Core modules</th>
<th>Dates</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM107/17A</td>
<td>SDM Principles and Practice&lt;sup&gt;1,2&lt;/sup&gt;</td>
<td>24-28 Sep 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM18A</td>
<td>Engineering Research Skills&lt;sup&gt;1,2&lt;/sup&gt;</td>
<td>01-05 Oct 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM225</td>
<td>Building Information Modelling</td>
<td>25-29 Sep 2017</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM226</td>
<td>ICT and Energy Management</td>
<td>05-09 Nov 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM107/17A</td>
<td>SDM Principles and Practice&lt;sup&gt;2&lt;/sup&gt;</td>
<td>22-26 Oct 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM227</td>
<td>Urban Microclimates</td>
<td>19-23 Nov 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM107/17A</td>
<td>SDM Principles and Practice&lt;sup&gt;2&lt;/sup&gt;</td>
<td>26-30 Nov 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM18A</td>
<td>Engineering Research Skills&lt;sup&gt;1,2&lt;/sup&gt;</td>
<td>13-17 Nov 2017</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM107/17A</td>
<td>SDM Principles and Practice&lt;sup&gt;2&lt;/sup&gt;</td>
<td>10-14 Dec 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM18A</td>
<td>Engineering Research Skills&lt;sup&gt;1,2&lt;/sup&gt;</td>
<td>21-25 Jan 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM220</td>
<td>Urban Sustainability</td>
<td>11-15 Feb 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM221</td>
<td>Energy in Buildings</td>
<td>18-22 Feb 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM107/17A</td>
<td>SDM Principles and Practice&lt;sup&gt;2&lt;/sup&gt;</td>
<td>04-08 Mar 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM222</td>
<td>Green Building Assessment</td>
<td>25-29 Mar 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM221</td>
<td>Examinations</td>
<td>22-26 Apr 2019</td>
<td>Summer</td>
</tr>
</tbody>
</table>

Optional modules (Two options from this list<sup>3</sup>)

<table>
<thead>
<tr>
<th>Code</th>
<th>Core modules</th>
<th>Dates</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM242</td>
<td>Advanced Visualisation and Interactive Tech</td>
<td>03-07 Dec 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM243</td>
<td>New technology, management and change</td>
<td>14-18 Jan 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM244</td>
<td>Carbon Management</td>
<td>04-08 Feb 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM235</td>
<td>Engineering Project Management</td>
<td>18-22 Mar 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM319</td>
<td>Life Cycle Assessment</td>
<td>13-17 May 2019</td>
<td>Summer</td>
</tr>
</tbody>
</table>

**Full-time programme:** These dates are firm. Modules will only be moved for unavoidable operational reasons.

**Flexible-modular programme:** Modules for students on the flexible-modular programme will be spread over two years (up to a maximum of five). We aim to run modules at the same time each year, although this cannot be guaranteed. Please discuss the timing of your core and optional modules with your Programme Director.

**CEM107/17A and CEM18A:** Please note that the teaching for these modules is spread over more than one week. You must attend all of those weeks in the sequence shown. They are not optional.

<sup>1</sup> Part of a week completed by another module.

<sup>2</sup> Part of a module that occurs in more than one week. Please note, all such weeks must be completed in the same academic year; these are not optional weeks.

<sup>3</sup> One option may be chosen from the full list of 10-credit MSc optional modules available in the School.
MSc Construction in Emerging Economies

Overview

MSc Construction in Emerging Economies is focused on countries undergoing rapid urbanisation, placing construction-related knowledge within the economic, social and developmental contexts in emerging economies. Case studies form a major part of the learning for this programme. They are based around the students’ interests and provide opportunities to develop skills and knowledge relevant to the country or region in which they seek to develop their career. Supervised dissertation research takes place in parallel with the modules and this continues throughout the year of study. Students graduating from this programme will typically be employed by government and international agencies, the humanitarian sector and in private sector firms.

**Core modules for full-time students**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Module Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM10A</td>
<td>Research Skills</td>
<td>20</td>
</tr>
<tr>
<td>CEM10B</td>
<td>Research Dissertation</td>
<td>40</td>
</tr>
<tr>
<td>CEM150</td>
<td>International Development in Construction</td>
<td>40</td>
</tr>
<tr>
<td>CEM215</td>
<td>Infrastructure Development</td>
<td>10</td>
</tr>
<tr>
<td>CEM216</td>
<td>International Construction Labour</td>
<td>10</td>
</tr>
<tr>
<td>CEM217</td>
<td>Construction Sector Transition</td>
<td>10</td>
</tr>
<tr>
<td>CEM220</td>
<td>Urban Sustainability</td>
<td>10</td>
</tr>
</tbody>
</table>

**Core modules for flexible-modular students**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Module Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM10A</td>
<td>Research Skills</td>
<td>20</td>
</tr>
<tr>
<td>CEM10B</td>
<td>Research Dissertation</td>
<td>40</td>
</tr>
<tr>
<td>CEM15A</td>
<td>International Development in Construction</td>
<td>20</td>
</tr>
<tr>
<td>CEM15B</td>
<td>International Development in Construction</td>
<td>20</td>
</tr>
<tr>
<td>CEM215</td>
<td>Infrastructure Development</td>
<td>10</td>
</tr>
<tr>
<td>CEM216</td>
<td>International Construction Labour</td>
<td>10</td>
</tr>
<tr>
<td>CEM217</td>
<td>Construction Sector Transition</td>
<td>10</td>
</tr>
<tr>
<td>CEM220</td>
<td>Urban Sustainability</td>
<td>10</td>
</tr>
</tbody>
</table>

**Optional modules for all students: Four from this list of optional modules**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Module Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM202</td>
<td>Construction Project Management</td>
<td>10</td>
</tr>
<tr>
<td>CEM203</td>
<td>Financial and Management Accounting in Construction</td>
<td>10</td>
</tr>
<tr>
<td>CEM204</td>
<td>International Construction</td>
<td>10</td>
</tr>
<tr>
<td>CEM205</td>
<td>Human Resource Management</td>
<td>10</td>
</tr>
<tr>
<td>CEM206</td>
<td>Construction Contract Law</td>
<td>10</td>
</tr>
<tr>
<td>CEM209</td>
<td>Managing Construction</td>
<td>10</td>
</tr>
<tr>
<td>CEM210</td>
<td>People, Information and Technology</td>
<td>10</td>
</tr>
<tr>
<td>CEM225</td>
<td>Building Information Modelling</td>
<td>10</td>
</tr>
<tr>
<td>CEM228</td>
<td>Construction Economics</td>
<td>10</td>
</tr>
<tr>
<td>CEM230</td>
<td>Design Management</td>
<td>10</td>
</tr>
<tr>
<td>CEM243</td>
<td>New Technology, Management and Change</td>
<td>10</td>
</tr>
<tr>
<td>CEM302</td>
<td>Strategic Management</td>
<td>10</td>
</tr>
<tr>
<td>CEM303</td>
<td>Sustainable Design, Construction and Operation</td>
<td>10</td>
</tr>
<tr>
<td>CEM334</td>
<td>Innovative Developments in Construction</td>
<td>10</td>
</tr>
<tr>
<td>CEM335</td>
<td>Real Estate Development: Analysis &amp; Appraisal</td>
<td></td>
</tr>
</tbody>
</table>

1 One option may be chosen from the full list of 10-credit MSc optional modules available in the School.
Focus

The distinctive focus is on countries undergoing rapid urbanisation, placing construction-related knowledge within the economic, social and developmental contexts in emerging economies.

The programme is aimed at early-to-mid-career professionals with an interest in the role of construction in emerging economies. The programme will appeal to those seeking to bring about practical changes in a range of different national contexts. It will also appeal to those working with international NGOs who require a better understanding of construction in a developmental context. The interdisciplinary character of our programmes matches the complexity of sustainable development.

Flexible-modular students January entry

There will be an induction day for January starters at the beginning of the Spring Term. The CEM10A and CEM15A modules will start in September of the first year. CEM10B and CEM15B will run until Summer of the third year of study. Therefore, January starts require the period of study to run for at least three academic years, aiming to graduate in December of the third calendar year.
## Programme timetable for Construction in Emerging Economies (EE)

<table>
<thead>
<tr>
<th>Code</th>
<th>Core modules</th>
<th>Dates</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM150/A</td>
<td>Emerging Economies Integrating Studies&lt;sup&gt;1,2&lt;/sup&gt;</td>
<td>24–28 Sep 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM10A</td>
<td>Research Skills&lt;sup&gt;1,2&lt;/sup&gt;</td>
<td>01–05 Oct 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM216</td>
<td>International Construction Labour</td>
<td>15–19 Oct 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM1CA</td>
<td>Research Skills&lt;sup&gt;1,2&lt;/sup&gt;</td>
<td>05–09 Nov 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM220</td>
<td>Urban Sustainability</td>
<td>21–25 Jan 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM217</td>
<td>Construction Sector Transition</td>
<td>18–22 Mar 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM215</td>
<td>Infrastructure Development</td>
<td>20–24 May 2019</td>
<td>Summer</td>
</tr>
</tbody>
</table>

### Optional modules (Four options<sup>3</sup>)

<table>
<thead>
<tr>
<th>Code</th>
<th>Module</th>
<th>Dates</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM225</td>
<td>Building Information Modelling</td>
<td>22–26 Oct 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM209</td>
<td>Managing Construction</td>
<td>29 Oct–03 Nov 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM230</td>
<td>Design Management</td>
<td>19–23 Nov 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM203</td>
<td>Financial and Mgmt Accounting in Construction</td>
<td>26–30 Nov 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM243</td>
<td>New technology, management and change</td>
<td>14–18 Jan 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM205</td>
<td>Human Resource Management</td>
<td>28 Jan–01 Feb 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM335</td>
<td>Real Estate Development: Analysis and Appraisal</td>
<td>11–15 Feb 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM204</td>
<td>International Construction</td>
<td>18–22 Feb 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM228</td>
<td>Construction Economics</td>
<td>25 Feb–01 Mar 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM334</td>
<td>Innovative Developments in Construction</td>
<td>04–08 Mar 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM206</td>
<td>Construction Contract Law</td>
<td>11–15 Mar 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM210</td>
<td>People, Information and Technology</td>
<td>25–29 Mar 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM303</td>
<td>Sustainable Design, Construction and Operation</td>
<td>29 Apr–03 May 2019</td>
<td>Summer</td>
</tr>
<tr>
<td>CEM302</td>
<td>Strategic Management</td>
<td>13–17 May 2019</td>
<td>Summer</td>
</tr>
</tbody>
</table>

### Full-time programme:
These dates are firm. Modules will only be moved for unavoidable operational reasons.

### Flexible-modular programme:
Modules for students on the flexible-modular programme will be spread over two years (up to a maximum of five). Please discuss the timing of your core and optional modules with your Programme Director.

**CEM150/15A and CEM10A:** Please note that the teaching for these modules is spread over more than one week. You must attend both weeks in the sequence shown. They are not optional.

**Simultaneous optional modules:** Please note that some modules take place in the same week. This means if you choose one of these you cannot choose the other.

---

<sup>1</sup> Part of a week completed by another module.

<sup>2</sup> Part of a module that occurs in more than one week. Please note, all such weeks must be completed in the same academic year; these are not optional weeks.

<sup>3</sup> One option may be chosen from the full list of 10-credit MSc optional modules available in the School.
MSc Information Management for Design Construction and Operation

Overview

MSc Information Management for Design, Construction and Operation is focused on developing specialist expertise and skills in building information modelling and in the use and implementation of information management systems, tools and processes in architecture, engineering, construction and operations. Graduates will be ideally placed to be employed in construction information management, BIM and CAD management, design management, document management etc. Graduates may also follow careers in a wide range of traditional construction-related vocations such as architectural and engineering design, project management, construction management, general business management, and in the public sector or client organisations.

Core modules for full-time students

CEM10A  Research Skills (20)
CEM10B  Research Dissertation (40)
CEM110  Collaboration Practice and Innovation (40)
CEM210  People, Information and Technology (10)
CEM225  Building Information Modelling (10)
CEM242  Advanced Visualisation and Interactive Technologies (10)
CEM243  New Technology Management and Change (10)
CEM244  Analysing Construction Processes (10)

Core modules for flexible-modular students

CEM10A  Research Skills (20)
CEM10B  Research Dissertation (40)
CEM11A  Collaboration Practice and Innovation A (20)
CEM11B  Collaboration Practice and Innovation B (20)
CEM210  People, Information and Technology (10)
CEM225  Building Information Modelling (10)
CEM242  Advanced Visualisation and Interactive Technologies (10)
CEM243  New Technology Management and Change (10)
CEM244  Analysing Construction Processes (10)

Optional modules for all students: Three from this list of optional modules

CEM201  Introduction to Project Management (10)
CEM203  Financial and Management Accounting in Construction (10)
CEM204  International Construction (10)
CEM205  Human resource management (10)
CEM206  Construction Contract Law (10)
CEM209  Managing Construction (10)
CEM217  Construction Sector Transition (10)
CEM228  Construction Economics (10)
CEM230  Design Management (10)
CEM233  Urban Energy Systems (10)
CEM235  Engineering Project Management (10)
CEM237  Basic Measurement Principles (0) (*Prereq for CEM238)
CEM238  Construction Cost Engineering (10)
CEM302  Strategic Management (10)
CEM303  Sustainable Design, Construction and Operation (10)
CEM334  Innovative Developments in Construction (10)
CEM335  Real estate Development: Analysis and Appraisal (10)

1 One option may be chosen from the full list of 10-credit MSc optional modules available in the School.
Focus

The distinctive focus is on the implementation and use of digital technologies in the construction sector. Clients, both public and private, expect integrated and meaningful information to be delivered alongside the physical product. Built environment professionals need to be able to understand information requirements across the life cycle, to develop and implement project and organisational level information management processes, and to manage a diverse range of data and interfaces through the construction process.

Flexible-modular students January entry

There will be an induction day for January starters at the beginning of the Spring Term. The CEM10A and CEM11A modules will start in September of the first year. CEM10B and CEM11B will run until Summer of the third year of study. Therefore, January starts require the period of study to run for at least three academic years, aiming to graduate in December of the third calendar year.
## Programme timetable for Information Management for Design, Construction and Operation (IM)

<table>
<thead>
<tr>
<th>Code</th>
<th>Core modules</th>
<th>Dates</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM110/A</td>
<td>Collaboration Practice and Innovation&lt;sup&gt;1,2&lt;/sup&gt;</td>
<td>24–28 Sep 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM10A</td>
<td>Dissertation and Research Skills&lt;sup&gt;1,2&lt;/sup&gt;</td>
<td>01–05 Oct 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM225</td>
<td>Building Information Modelling</td>
<td>22–26 Oct 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM1CA</td>
<td>Dissertation and Research Skills&lt;sup&gt;1,2&lt;/sup&gt;</td>
<td>05–09 Nov 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM110/A</td>
<td>Collaboration Practice and Innovation&lt;sup&gt;1,2&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM242</td>
<td>Advanced Visualisation</td>
<td>03–07 Dec 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM243</td>
<td>New technology, management and change</td>
<td>14–18 Jan 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM210</td>
<td>People, Information and Technology</td>
<td>25–29 Mar 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM244</td>
<td>Analysing Construction Processes</td>
<td>20–24 May 2019</td>
<td>Summer</td>
</tr>
</tbody>
</table>

### Optional modules (Three options)

<table>
<thead>
<tr>
<th>Code</th>
<th>Module Description</th>
<th>Dates</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM201</td>
<td>An Introduction to Project Management</td>
<td>15–19 Oct 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM209</td>
<td>Managing Construction</td>
<td>29 Oct–03 Nov 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM237</td>
<td>Basic Measurement Principles&lt;sup&gt;1&lt;/sup&gt; (Prereq. for CEM158)</td>
<td>12–16 Nov 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM230</td>
<td>Design Management</td>
<td>19–23 Nov 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM203</td>
<td>Financial and Mgmt Accounting in Construction</td>
<td>26–30 Nov 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM205</td>
<td>Human Resource Management</td>
<td>28 Jan–01 Feb 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM238</td>
<td>Construction Cost Engineering</td>
<td>04–08 Feb 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM335</td>
<td>Real Estate Development: Analysis and Appraisal</td>
<td>11–15 Feb 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM204</td>
<td>International Construction</td>
<td>18–22 Feb 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM228</td>
<td>Construction Economics</td>
<td>25 Feb–01 Mar 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM334</td>
<td>Innovative Developments in Construction</td>
<td>04–08 Mar 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM206</td>
<td>Construction Contract Law</td>
<td>11–15 Mar 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM217</td>
<td>Construction Sector Transition</td>
<td>18–22 Mar 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM235</td>
<td>Engineering Project Management</td>
<td>18–22 Mar 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM303</td>
<td>Sustainable Design, Construction and Operation</td>
<td>29 Apr–03 May 2019</td>
<td>Summer</td>
</tr>
<tr>
<td>CEM302</td>
<td>Strategic Management</td>
<td>13–17 May 2019</td>
<td>Summer</td>
</tr>
</tbody>
</table>

**Full-time programme**: These dates are firm. Modules will only be moved for unavoidable operational reasons.

**Flexible-modular programme**: Modules for students on the flexible-modular programme will be spread over two years (up to a maximum of five). Please discuss the timing of your core and optional modules with your Programme Director.

**CEM10A and CEM110/A**: Please note that the teaching for these modules is spread over more than one week. You must attend both weeks in the sequence shown. They are not optional.

**Simultaneous optional modules**: Please note that some modules take place in the same week. This means if you choose one of these you cannot choose the other.

---

<sup>1</sup> Part of a week completed by another module.

<sup>2</sup> Part of a module that occurs in more than one week. Please note, all such weeks must be completed in the same academic year; these are not optional weeks.

<sup>3</sup> One option may be chosen from the full list of 10-credit MSc optional modules available in the School.
MSc Project Management

Overview

MSc Project Management focuses on the strategic management of projects, programmes and portfolios. Students graduating from this programme typically develop their careers in senior leadership positions in construction and other project-based organisations with responsibilities for developing integrated approaches to organising teams around projects, programmes and portfolios. This programme is accredited by RICS, CIOB and APM.

**Core modules for full-time students**

<table>
<thead>
<tr>
<th>Module</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM10A</td>
<td>Research Skills (20)</td>
</tr>
<tr>
<td>CEM10B</td>
<td>Research Dissertation (40)</td>
</tr>
<tr>
<td>CEM103</td>
<td>Principles and Practice of Project Mgmt. (40)</td>
</tr>
<tr>
<td>CEM201</td>
<td>Introduction to Project Management (10)</td>
</tr>
<tr>
<td>CEM205</td>
<td>Human Resource Management (10)</td>
</tr>
<tr>
<td>CEM206</td>
<td>Construction Contract Law (10)</td>
</tr>
<tr>
<td>CEM230</td>
<td>Design Management (10)</td>
</tr>
</tbody>
</table>

**Core modules for flexible-modular students**

<table>
<thead>
<tr>
<th>Module</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM10A</td>
<td>Research Skills (20)</td>
</tr>
<tr>
<td>CEM10B</td>
<td>Research Dissertation (40)</td>
</tr>
<tr>
<td>CEM13A</td>
<td>Principles and Practice of Project Management A (20)</td>
</tr>
<tr>
<td>CEM13B</td>
<td>Principles and Practice of Project Management B (20)</td>
</tr>
<tr>
<td>CEM201</td>
<td>Introduction to Project Management (10)</td>
</tr>
<tr>
<td>CEM205</td>
<td>Human Resource Management (10)</td>
</tr>
<tr>
<td>CEM206</td>
<td>Construction Contract Law (10)</td>
</tr>
<tr>
<td>CEM230</td>
<td>Design Management (10)</td>
</tr>
</tbody>
</table>

**Optional modules for all students: Four from this list of optional modules**

<table>
<thead>
<tr>
<th>Module</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM203</td>
<td>Financial and Management Accounting in Construction (10)</td>
</tr>
<tr>
<td>CEM204</td>
<td>International Construction (10)</td>
</tr>
<tr>
<td>CEM210</td>
<td>People, Information and Technology (10)</td>
</tr>
<tr>
<td>CEM220</td>
<td>Urban Sustainability (10)</td>
</tr>
<tr>
<td>CEM225</td>
<td>Building Information Modelling (10)</td>
</tr>
<tr>
<td>CEM228</td>
<td>Construction Economics (10)</td>
</tr>
<tr>
<td>CEM229</td>
<td>Green Building Assessment</td>
</tr>
<tr>
<td>CEM237</td>
<td>Basic Measurement Principles (0) (Prereq. for CEM238)</td>
</tr>
<tr>
<td>CEM238</td>
<td>Construction Cost Engineering (10)</td>
</tr>
<tr>
<td>CEM242</td>
<td>Advanced Visualisation and Interactive Technologies (10)</td>
</tr>
<tr>
<td>CEM243</td>
<td>New Technology, Management and Change (10)</td>
</tr>
<tr>
<td>CEM244</td>
<td>Analysing Construction Processes (10)</td>
</tr>
<tr>
<td>CEM302</td>
<td>Strategic Management (10)</td>
</tr>
<tr>
<td>CEM303</td>
<td>Sustainable Design, Construction and Operation (10)</td>
</tr>
<tr>
<td>CEM334</td>
<td>Innovative Developments in Construction (10)</td>
</tr>
<tr>
<td>CEM335</td>
<td>Real estate Development: Analysis and Appraisal (10)</td>
</tr>
</tbody>
</table>
Focus

The distinctive focus is on the strategic management of projects, programmes and portfolios.

The aim of the programme is to provide a coherent framework for the discipline and practice of project management. Each module includes sessions delivered by leading practitioners. The programme is continually informed not only by the latest developments in industry, but also by on-going international research. A recurring theme throughout the programme concerns the dynamic nature of construction projects. Not only is it necessary to set clear objectives at the beginning of a project, it is also important to update them continually as the project unfolds. A further theme is the need for project managers to provide leadership. This requires a high level of interpersonal skills to motivate diverse team members towards the realisation of project success. Effective project management requires a sound knowledge of tools and techniques. It also requires an ability to think strategically. Traditional notions of command and control must be matched with an ability to manage 'soft' issues. People management is central to the art of project management.

Flexible-modular students January entry

There will be an induction day for January starters at the beginning of the Spring Term. The CEM10A and CEM13A modules will start in September of the first year. CEM10B and CEM13B will run until Summer of the third year of study. January starts involve spreading the period of study over three academic years, with a view to graduating in December of the third year.
## Programme Timetable for Project Management (PM)

<table>
<thead>
<tr>
<th>Code</th>
<th>Core modules</th>
<th>Dates</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM103/13A</td>
<td>Welcome and Introduction</td>
<td>24–28 Sep 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM10A</td>
<td>Project Management: Principles and Practice</td>
<td>01–05 Oct 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM201</td>
<td>Research Skills</td>
<td>15–19 Oct 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM10A</td>
<td>An Introduction to Project Management</td>
<td>05–09 Nov 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM103/13A</td>
<td>Research Skills(^1)(^2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM230</td>
<td>Design Management</td>
<td>19–23 Nov 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM205</td>
<td>Human Resource Management</td>
<td>28 Jan–01 Feb 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM206</td>
<td>Construction Contract Law</td>
<td>11–15 Mar 2019</td>
<td>Spring</td>
</tr>
</tbody>
</table>

### Optional modules (Four options from this list only)

<table>
<thead>
<tr>
<th>Code</th>
<th>Core modules</th>
<th>Dates</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM225</td>
<td>Building Information Modelling</td>
<td>22–26 Oct 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM237</td>
<td>Basic Measurement Principles (prereq. for CEM238)</td>
<td>12–16 Nov 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM203</td>
<td>Financial and Mgmt Accounting in Construction</td>
<td>26–30 Nov 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM242</td>
<td>Advanced Visualisation and Interactive Tech</td>
<td>03–07 Dec 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM243</td>
<td>New technology, management and change</td>
<td>14–18 Jan 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM220</td>
<td>Urban Sustainability</td>
<td>21–25 Jan 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM238</td>
<td>Construction Cost Engineering</td>
<td>04–08 Feb 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM335</td>
<td>Real Estate Development: Analysis and Appraisal</td>
<td>11–15 Feb 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM204</td>
<td>International Construction</td>
<td>18–22 Feb 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM228</td>
<td>Construction Economics</td>
<td>25 Feb–01 Mar 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM229</td>
<td>Green Building Assessment</td>
<td>04–08 Mar 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM334</td>
<td>Innovative Developments in Construction</td>
<td>04–08 Mar 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM210</td>
<td>People, Information and Technology</td>
<td>25–29 Mar 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM303</td>
<td>Sustainable Design, Construction and Operation</td>
<td>29 Apr–03 May 2019</td>
<td>Summer</td>
</tr>
<tr>
<td>CEM302</td>
<td>Strategic Management</td>
<td>13–17 May 2019</td>
<td>Summer</td>
</tr>
<tr>
<td>CEM244</td>
<td>Analysing Construction Processes</td>
<td>20–24 May 2019</td>
<td>Summer</td>
</tr>
</tbody>
</table>

**Full-time programme:** These dates are firm. Modules will only be moved for unavoidable operational reasons.

**Flexible-modular programme:** Modules for students on the flexible-modular programme will be spread over two years (up to a maximum of five). Please discuss the timing of your core and optional modules with your Programme Director.

**CEM103/13A and CEM10A:** Please note that the teaching for these modules is spread over more than one week. You must attend both weeks in the sequence shown. They are not optional.

**Simultaneous optional modules:** Please note that some modules take place in the same week. This means if you choose one of these you cannot choose the other.

---

\(^1\) Part of a week completed by another module.

\(^2\) Part of a module that occurs in more than one week. Please note, all such weeks must be completed in the same academic year; these are not optional weeks.
MSc Renewable Energy: Technology and Sustainability

Overview

MSc in Renewable Energy: Technology and Sustainability provides students with an understanding of renewable energy and sustainable technologies, as well as carbon management and energy use in the built environment. The programme covers rapidly evolving fields that are vitally relevant to how society develops in the 21st Century. Supervised dissertation research takes place during the last four months of the programme. Students graduating from this programme will typically be employed by the energy industry, consultancies, local government and various private sector companies.

**Core modules for full-time students**

- CEM19A Energy Research Skills (20)
- CEM19B Energy Research Dissertation (40)
- CEM160 Renewable Energy Systems (40)
- CEM224 Carbon Management (10)
- CEM233 Urban Energy Systems (10)
- CEM241 Energy and the Environment (10)
- CEM235 Engineering Project Management (10)

**Core modules for flexible-modular students**

- CEM19A Energy Research Skills (20)
- CEM19B Energy Research Dissertation (40)
- CEM16A Renewable Energy Systems A (20)
- CEM16B Renewable Energy Systems A (20)
- CEM224 Carbon Management (10)
- CEM233 Urban Energy Systems (10)
- CEM241 Energy and the Environment (10)
- CEM235 Engineering Project Management (10)

**Optional modules for all students: Three from this list of optional modules**

- CEM220 Urban Sustainability (10)
- CEM221 Energy in Buildings (10)
- CEM222 Building Simulation (10)
- CEM223 Urban Microclimates (10)
- CEM225 Building Information Modelling (10)
- CEM226 ICT and Energy Management (10)
- CEM229 Green Building Assessment (10)
- CEM242 Advanced Visualisation and Interactive Technologies (10)
- CEM319 Life Cycle Assessment (10)

---

1 One option may be chosen from the full list of 10-credit MSc optional modules available in the School.
Focus

The distinctive focus is on renewable energy and sustainable technologies, as well as carbon management and energy use in the built environment.

There is international concern about the environmental damage associated with the conversion of energy from all sources. Renewable energy sources can make a significant contribution to the reduction of pollution, if used in a sustainable way. Renewable fuels and energy systems can also offer protection against future shortages and price increases of conventional energy and can provide energy supplies in remote areas.

Flexible-modular students January entry

There will be an induction day for January starters at the beginning of the Spring Term. Our expectation is that CEM109 will start in September of the first year and run until Summer of the third year of study. January starts involve spreading the period of study over three academic years, with a view to graduating in December of the third year.
### Programme Timetable for Renewable Energy: Technology and Sustainability  (RE)

<table>
<thead>
<tr>
<th>Code</th>
<th>Core modules</th>
<th>Dates</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM241</td>
<td>Welcome and Introduction</td>
<td>24-28 Sep 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM109/19A</td>
<td>Energy and the Environment</td>
<td>01-05 Oct 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM106/16A/B</td>
<td>Energy Research Skills</td>
<td>08-12 Oct 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM106/16A/B</td>
<td>Renewable Energy Systems¹</td>
<td>29 Oct–03 Nov 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM106/16A/B</td>
<td>Renewable Energy Systems¹</td>
<td>12-16 Nov 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM106/16A/B</td>
<td>Renewable Energy Systems¹</td>
<td>10-14 Dec 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM224</td>
<td>Carbon Management</td>
<td>04-08 Feb 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM235</td>
<td>Engineering Project Management</td>
<td>18-22 Mar 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM224</td>
<td>Exams</td>
<td>22-26 Apr 2019</td>
<td>Summer</td>
</tr>
</tbody>
</table>

### Optional modules (Four options²)

<table>
<thead>
<tr>
<th>Code</th>
<th>Core modules</th>
<th>Dates</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM223</td>
<td>Urban Microclimates</td>
<td>05-09 Nov 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM225</td>
<td>Building Information Modelling</td>
<td>22-26 Oct 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM226</td>
<td>ICT and Energy Management</td>
<td>19-23 Nov 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM242</td>
<td>Advanced Visualisation and Interactive Tech</td>
<td>03-07 Dec 2018</td>
<td>Autumn</td>
</tr>
<tr>
<td>CEM220</td>
<td>Urban Sustainability</td>
<td>21-25 Jan 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM221</td>
<td>Energy in Buildings</td>
<td>11-15 Feb 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM222</td>
<td>Building Simulation</td>
<td>18-22 Feb 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM229</td>
<td>Green Building Assessment</td>
<td>04-08 Mar 2019</td>
<td>Spring</td>
</tr>
<tr>
<td>CEM221</td>
<td>Examinations</td>
<td>22-26 Apr 2019</td>
<td>Summer</td>
</tr>
<tr>
<td>CEM319</td>
<td>Life Cycle Assessment</td>
<td>13-17 May 2019</td>
<td>Summer</td>
</tr>
</tbody>
</table>

**Full-time programme:** These dates are firm.

**Flexible-modular programme:** Modules for students on the flexible-modular programme will be spread over two years (up to a maximum of five). CEM109 will be studied over two consecutive years, without a break, with classes only in the first year of the modules. We aim to run modules at the same time each year, although this cannot be guaranteed. Please discuss the timing of your core and optional modules with your Programme Director.

**CEM106:** Please note that the teaching for this module is spread over more than one week. You must attend all such weeks in the sequence shown. They are not optional.

**Simultaneous optional modules:** Please note that CEM213 and CEM221 take place in the same week. This means if you choose one of these you cannot choose the other.

---

¹ Part of a module that occurs in more than one week. Please note, all such weeks must be completed in the same academic year; these are not optional weeks.

² One option may be chosen from the full list of 10-credit MSc optional modules available in the School.
### Allocation of 20 and 40-credit modules to programmes

(C = core; 0 = Optional; - = Excluded)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>*</th>
<th>CC</th>
<th>CM</th>
<th>DM</th>
<th>EE</th>
<th>IM</th>
<th>PM</th>
<th>RE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM10A</td>
<td>Research Skills (20)</td>
<td></td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CEM10B</td>
<td>Research Dissertation (40)</td>
<td></td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CEM102</td>
<td>Business of Construction (40)</td>
<td>F</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CEM12A</td>
<td>Business of Construction A (20)</td>
<td>M</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CEM12B</td>
<td>Business of Construction B (20)</td>
<td>M</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CEM103</td>
<td>Principles and Practice of Project Mgmt. (40)</td>
<td>F</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CEM13A</td>
<td>Principles and Practice of Project Mgmt. A (20)</td>
<td>M</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CEM13B</td>
<td>Principles and Practice of Project Mgmt. B (20)</td>
<td>M</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CEM104</td>
<td>CCM Principles and Practice (40)</td>
<td>M</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CEM14A</td>
<td>CCM Principles and Practice A (20)</td>
<td>M</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CEM14B</td>
<td>CCM Principles and Practice B (20)</td>
<td>M</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CEM150</td>
<td>International Development in Construction (40)</td>
<td>F</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CEM15A</td>
<td>International Development in Construction A (20)</td>
<td>M</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CEM15B</td>
<td>International Development in Construction B (20)</td>
<td>M</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CEM160</td>
<td>Renewable Energy Systems (40)</td>
<td>M</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CEM16A</td>
<td>Renewable Energy Systems A (20)</td>
<td>M</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CEM16B</td>
<td>Renewable Energy Systems B (20)</td>
<td>M</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CEM107</td>
<td>SDM Principles and Practice (40)</td>
<td>M</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CEM17A</td>
<td>SDM Principles and Practice A (20)</td>
<td>M</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CEM17B</td>
<td>SDM Principles and Practice B (20)</td>
<td>M</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CEM18A</td>
<td>Engineering Research Skills (20)</td>
<td>M</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CEM18B</td>
<td>Engineering Research Dissertation (40)</td>
<td>M</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CEM19A</td>
<td>Energy Research Skills (20)</td>
<td>M</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CEM19B</td>
<td>Energy Research Dissertation (40)</td>
<td>M</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CEM110</td>
<td>Collaboration Practice and Innovation (40)</td>
<td>M</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CEM11A</td>
<td>Collaboration Practice and Innovation A (20)</td>
<td>M</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CEM11B</td>
<td>Collaboration Practice and Innovation B (20)</td>
<td>M</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
</tbody>
</table>

* Mode of study: Blank=Both, M=Flexible-Modular only, F=Full-time only
Allocation of 10-credit modules to programmes

(C = core; o = Optional; - = Excluded)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>CC</th>
<th>CM</th>
<th>DM</th>
<th>EE</th>
<th>IM</th>
<th>PM</th>
<th>RE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM201</td>
<td>Introduction to Project Management (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM202</td>
<td>Construction Project Management (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM203</td>
<td>Financial and Management Accounting in Const. (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM204</td>
<td>International Construction (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM205</td>
<td>Human Resource Management (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM206</td>
<td>Construction Contract Law (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM209</td>
<td>Managing Construction (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM210</td>
<td>People, Information and Technology (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM215</td>
<td>Infrastructure Development (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM216</td>
<td>International Construction Labour (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM217</td>
<td>Construction Sector Transition (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM220</td>
<td>Urban Sustainability (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM221</td>
<td>Energy in Buildings (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM222</td>
<td>Building Simulation (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM223</td>
<td>Urban Microclimates (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM224</td>
<td>Carbon Management (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM225</td>
<td>Building Information Modelling (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM226</td>
<td>ICT and Energy Management (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM228</td>
<td>Construction Economics (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM229</td>
<td>Green Building Assessment (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM230</td>
<td>Design Management (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM233</td>
<td>Urban Energy Systems (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM235</td>
<td>Engineering Project Management (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM237</td>
<td>Basic Measurement Principles (0) (Prereq. for CEM238)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM238</td>
<td>Construction Cost Engineering (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM241</td>
<td>Energy and the Environment (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM242</td>
<td>Advanced Visualisation and Interactive Tech. (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM243</td>
<td>New Technology, Management and Change (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM244</td>
<td>Analysing Construction Processes (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM302</td>
<td>Strategic Management (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM303</td>
<td>Sustainable Design, Construction and Operation (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM319</td>
<td>Life Cycle Assessment (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM334</td>
<td>Innovative Developments in Construction (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEM335</td>
<td>Real estate Development: Analysis &amp; Appraisal (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Module summaries

Throughout this section, the number in brackets next to each module name represents the number of credits in that module. A total of 180 credits is needed for an MSc. For each module, a basic description and the aims are provided, along with a single reading per module that is intended to characterize what the module is about. In many cases this is not the set text book, simply an example that helps to illustrate the focus of the module.

CEM10A Research Skills (20)

Convenor: Dr Shu-Ling Lu

Description: Students are provided with research skills classes to support their dissertation research and writing on a topic of their choice.

Aims: The aim is to equip students with the necessary understanding, knowledge and skills to formulate research problems, develop and apply appropriate investigative approaches, interpret data and present findings. The knowledge and skills developed will provide broad-based support for students to engage in reflexive scholarship in all their taught modules. This module has a specific emphasis on preparing students to prepare a research proposal for their dissertation.


CEM10B Research Dissertation (40)

Convenor: Dr Shu-Ling Lu

Description: Students are provided with research skills classes and academic supervision to support their dissertation research and writing on a topic of their choice.

Aims: The aim is equip students with the necessary understanding, knowledge and skills to produce a dissertation including all parts of a research project.


CEM102 Business of Construction (40)

CEM12A Business of Construction A (20)

CEM12B Business of Construction B (20)

Convenor: Prof Will Hughes

Description: This is the key integrating module for the MSc Construction Management programme. It is based on the idea of integrating learning from core programme modules into a personal, coherent view of the discipline of construction management. We will investigate the diverse perspectives that different modules bring to the study of construction management through two continuous pieces of work running in parallel throughout the programme. First, through the use of reflective writing based on observations of practice
and lessons from core modules connected to a recognized professional skills framework. Second, the application of learning from core modules to a case study building project.

Please note that there are three matching module description forms: CEM102, CEM12A and CEM12B. This is because the A and B versions are the flexible-modular equivalent of the full-time version. The flexible-modular equivalent runs over two years. The only difference between full-time and flexible-modular in relation to assessment is that the assignments for the 40-credit version are split across two years for flexible-modular students in two 20-credit versions. The differences in contact hours for these modules relate to the class contact hours.

**Aims:** The aim is to explore the changing nature of knowledge and practice in the management of construction projects and the environments in which they are undertaken. These changes bring new opportunities and new challenges for construction managers. We seek to apply the lessons from the core modules to a case study project and also to empower students to have ownership of their own professional development through reflective writing. This involves reflections on translating theory into practice and provides an opportunity for students to understand their own learning.


**CEM103 Principles and Practice of Project Management (40)**  
**CEM13A Principles and Practice of Project Management A (20)**  
**CEM13B Principles and Practice of Project Management B (20)**

**Convenor:** Dr Shu-Ling Lu

**Description:** This is the key integration module for the MSc Project Management programme. A series of exercises and case studies will be undertaken to explore and integrate the application of related programme modules, in particular the four core 10-credit programme modules.

Please note that there are three matching module description forms: CEM103 Principles and Practice of Project Management, CEM13A Principles and Practice of Project Management A and CEM13B Principles and Practice of Project Management B. This is because the A and B versions are the flexible-modular equivalent of the full-time version. The flexible-modular equivalent runs over two years. The only difference between full-time and flexible-modular in relation to assessment is that the assignments for the 40-credit version are split across two years for flexible-modular students in two 20-credit versions. The differences in contact hours for these modules relate to the class contact hours.

**Aims:** The aims are to explore the changing nature of knowledge and practice in the management of project environments and construction organisations (e.g. new procurement methods) and how these changes bring new opportunities and new challenges for project managers.

CEM104 Construction Cost Management Principles and Practice (40)
CEM14A Construction Cost Management Principles and Practice (20)
CEM14B Construction Cost Management Principles and Practice (20)

Convenor: Dr Florence Phua

**Description:** This is the key integrating module for the MSc Construction Cost Management programme. It is based on the idea of integrating learning from core programme modules into a personal, coherent view of the discipline of construction management. We will investigate the diverse perspectives that different modules bring to the study of construction management through two continuous pieces of work running in parallel throughout the programme. First, through the use of reflective writing based on observations of practice and lessons from core modules connected to a recognised professional skills framework. Second, the application of learning from core modules to a case study building project. An introduction to Construction Cost Management is provided at the beginning of the programme in the week before the start of the autumn term, primarily for non-cognate students.

Please note that there are three matching module description forms: CEM104, CEM14A and CEM14B. This is because the A and B versions are the flexible-modular equivalent of the full-time version. The flexible-modular equivalent runs over two years. The only difference between full-time and flexible-modular in relation to assessment is that the assignments for the 40-credit version are split across two years for flexible-modular students in two 20-credit versions. The differences in contact hours for these modules relate to the class contact hours.

**Aims:** The aim is to explore the changing nature of knowledge and practice in the cost management of construction development projects and the environments in which they are undertaken. These changes bring new opportunities and new challenges for construction cost managers. We seek to apply the lessons from the core modules to a case study project and also to empower students to have ownership of their own professional development through reflective writing. This involves reflections on translating theory into practice and provides an opportunity for students to understand their own learning.


CEM150 International Development in Construction (40)
CEM15A International Development in Construction (20)
CEM15B International Development in Construction (20)

Convenor: Dr Tabarak Ballal

**Description:** This is the key integrating module for the MSc Construction in Emerging Economies programme. It is based on the idea of integrating learning from core programme modules into a personal, coherent view of international development in construction. We will investigate the diverse perspectives that different modules bring to this study through two continuous pieces of work running in parallel throughout the programme. First, through the use of reflective writing based on observations of practice and lessons from
core modules connected to a recognised professional skills framework. Second, the application of learning from core modules to a case study that explores specific issues in one geographical location of your choice, usually your home country.

Please note that there are three matching module description forms: CEM150, CEM15A and CEM15B. This is because the A and B versions are the flexible-modular equivalent of the full-time version. The flexible-modular equivalent runs over two years. The only difference between full-time and flexible-modular in relation to assessment is that the assignments for the 40-credit version are split across two years for flexible-modular students in two 20-credit versions. The differences in contact hours for these modules relate to the class contact hours.

**Aims:** The aim is to explore the changing nature of knowledge and practice in the management, policy and environment of the construction sector in relation to international development. These changes bring new opportunities and new challenges for the construction sector. We seek to apply the lessons from the core modules to a case study of one location and also to empower students to have ownership of their own professional development through reflective writing. This involves reflections on translating theory into practice and provides an opportunity for students to understand their own learning.


**CEM160 Renewable Energy Systems (40)**

**Convenor:** Dr Maria Vahdati

**Description:** This module is concerned with renewable energy technologies. These include biomass, solar, wind, hydro and marine energy. Technical, environmental and social issues are considered. Technical and non-technical barriers and issues limiting wide spread use of renewable energy are discussed. Assessment through laboratory work, use of energy software and group activities gives students an opportunity to examine and analyse data as well as to investigate issues concerned with the use of renewable energy.

**Aims:** To provide the student with a knowledge of the technical, environmental and social issues associated with a range of renewable energy technologies.


**CEM16A Renewable Energy Systems A (20)**

**Convenor:** Dr Maria Vahdati

**Description:** This module is concerned with renewable energy technologies. In CEM16A, these include two of the following technologies: biomass, solar, wind and hydro (including marine energy). Technical, environmental and social issues are considered. Technical and non-technical barriers and issues limiting widespread use of renewable energy are discussed. Assessment through laboratory work, use of energy software and group activities give students an opportunity to examine and analyse data as well as to investigate issues concerned with the use of renewable energy.

**Aims:** To provide the student with a knowledge of the technical, environmental and social issues associated with a range of renewable energy technologies.
CEM16B Renewable Energy Systems B (20)

Convenor: Dr Maria Vahdati

Description: This module is concerned with renewable energy technologies. In CEM16B, these include two of the following technologies: biomass, solar, wind and hydro (including marine energy). Technical, environmental and social issues are considered. Technical and non-technical barriers and issues limiting widespread use of renewable energy are discussed. Assessment through laboratory work, use of energy software and group activities give students an opportunity to examine and analyse data as well as to investigate issues concerned with the use of renewable energy.

Aims: To provide the student with a knowledge of the technical, environmental and social issues associated with a range of renewable energy technologies.

CEM107 SDM Principles and Practice (40)

Convenor: Prof Runming Yao

Description: This module provides the knowledge and understanding necessary for students to assess building passive and active systems in terms of their environmental performance and impact. The module will introduce the role of building site impact, building façade design, building services engineering systems, construction materials, facilities management and system controls in moderating the internal building environment and an understanding of the energy implications for each. Building users’ need will also be addressed. The module will provide knowledge of heat transfer, building simulations and hands-on skills of simulation using software packages such as, the integrated energy design tool LT, lighting design tool DIAL, integrated environmental solutions (IES) and energy assessment procedures. The module will also provide experimental practice.

Please note that there are three matching module description forms: CEM107, CEM17A and CEM17B. This is because the A and B versions are the flexible-modular equivalent of the full-time version. The flexible-modular equivalent runs over two years. The only difference between full-time and flexible-modular in relation to assessment is that the assignments and teaching for the 40-credit version are split across two years for flexible-modular students in two 20-credit versions. The differences in contact hours for these modules relate to the class contact hours.

Aims: The aim is to provide holistic approach to deliver sustainable buildings. The integrated process of design, operation and management will be the core of this module. Students will also be trained in hands-on computer simulation skills and experimental skills.

CEM17A SDM Principles and Practice A (20)

Convenor: Prof Runming Yao

Description: This module provides the knowledge and understanding necessary for students to perform environmental design and assess the performance of building passive and active systems in terms of their environmental impact. The module will introduce the role of building site impact, building facade design, building services engineering systems, construction materials, facilities management and system controls in moderating the internal building environment and an understanding of the energy implications for each. Building users’ need and indoor environmental quality will also be addressed. The module will provide knowledge of heat transfer, building simulations and hands-on skills of simulation using software packages such as lighting design tool DIAL, integrated environmental solutions (IES) and energy assessment procedures. The module will also provide experimental practice.

Aims: The aim is to provide holistic approach to deliver sustainable buildings. The integrated process of design, operation and management will be the core of this module. Students will also be trained in hands-on computer simulation skills and experimental skills.


CEM17B SDM Principles and Practice B (20)

Convenor: Prof Runming Yao

Description: This module provides the learning opportunities through site visits and seminar provided by external speakers. The module will provide knowledge of heat transfer, building simulations and hands-on skills of simulation using software packages such as the integrated environmental solutions (IES) and energy assessment procedures. Health and safety issues will be included in the module contents.

Aims: The aim is to provide holistic approach to deliver sustainable buildings. Students will also be trained in hands-on computer simulation skills and experimental skills. Students will be required to grasp the knowledge of health and safety issues in engineering practice.


CEM18A Engineering Research Skills (20)

Convenor: Prof Runming Yao

Description: The module will introduce students to the basic skills for carrying out their dissertation research including sourcing literatures; critical reviewing literatures; identifying knowledge gaps; choosing a research topic and writing research proposal for the dissertation.

Aims: The module will introduce students to the basic skills for carrying out research, including the ability to develop a clear research question and subsequent research proposal; critically assessing relevant literature; identifying appropriate methods to address the posed question; and robust analysis of results. These elements of research will be introduced in
lectures, before the students embark on their projects. The aims are: to provide students with experience of undertaking a major, MSc level research project; to provide students with experience of presenting their work to a professional audience in a formal setting; to provide students the opportunity to experience and become familiar with specialist skills in an area of energy efficient building design, environmental system design, energy management, building performance assessment and relevant area which interest them and for which expertise exists within the University.


**CEM18B Engineering Dissertation (40)**

**Convenor: Prof Runming Yao**

**Description:** Students are provided with academic supervision to support their dissertation research and writing on a topic of their choice.

**Aims:** By the end of the module, it is expected that the student will be able to demonstrate ability in the following areas: Conduct and communicate research in a relevant field at a postgraduate taught level; Select and use appropriate research methods and methodologies, including how to formulate research problems and an appreciation of alternative approaches to research; Use appropriate library resources and bibliographic aids to support research activity; Apply recognised research strategies and techniques, and to produce a sustained and logical argument on a specific research topic; Develop clear and concise dissertation writing and organisation of written material.


**CEM19A Energy Research Skills (20)**

**Convenor: Dr Maria Vahdati**

**Description:** Students are provided with research skills classes to support their dissertation research and writing on a topic of their choice.

**Aims:** The aim is to equip students with the necessary understanding, knowledge and skills to formulate research problems, develop and apply appropriate investigative approaches, interpret data and present findings. The knowledge and skills developed will provide broad-based support for students to engage in reflexive scholarship in all of their taught modules. This module has a specific emphasis on preparing students to prepare a research proposal for their dissertation.

CEM19B Energy Research Dissertation (40)

Convenor: Dr Maria Vahdati

Description: Students are provided with academic supervision to support their dissertation research and writing on a topic of their choice.

Aims: The aim is equip students with the necessary understanding, knowledge and skills to produce a dissertation including all parts of a research project.


CEM110 Collaboration Practice and Innovation (40)
CEM11A Collaboration Practice and Innovation A (20)
CEM11B Collaboration Practice and Innovation B (20)

Convenor: Dr Dragana Nikolic

Description: This is the key integrating module for the MSc Information Management for Design Construction and Operation programme. It is based on the idea of integrating learning from core programme modules into a personal, coherent view of information management in construction and the built environment. We will investigate the diverse perspectives that different modules bring to the study of information management in construction through two continuous pieces of work running in parallel throughout the programme. First, through the use of reflective writing based on observations of practice and lessons from core modules. Second, the application of learning from core modules to a group case study that explores specific issues in information management and information systems implementation.

Please note that there are three matching module description forms: CEM110, CEM11A and CEM11B. This is because the A and B versions are the flexible-modular equivalent of the full-time version. The flexible-modular equivalent runs over two years. The only difference between full-time and flexible-modular in relation to assessment is that the assignments for the 40-credit version are split across two years for flexible-modular students in two 20-credit versions. The differences in contact hours for these modules relate to the class contact hours.

Aims: The aim is to explore the changing nature of knowledge and practice in the management, policy and environment of construction information management. These changes bring new opportunities and new challenges for the construction sector. We seek to apply the lessons from the core modules to a group case study of an information management system implementation and also to empower students to have ownership of their own professional development through reflective writing. This involves reflections on translating theory into practice and provides an opportunity for students to understand their own learning.

CEM201 An Introduction to Project Management (10)

Convenor: Prof Stuart Green

Description: The construction industry is primarily a project-based industry and this module addresses the key principles that characterise projects. The principles of project management are applicable at all levels of the project hierarchy, ranging from individual work packages through to the provision of a single point of responsibility on behalf of the client. Effective project management is central not only to project performance, but also to performance at the industry level. The last few decades have seen significant changes in the way that projects are managed. Traditionally fragmented approaches have given way to the provision of an integrated project management approach that delivers construction projects to required standards of time, cost and quality. The technical complexities of modern buildings and the demands of client organisations require an increasingly sophisticated service from project managers.

Aims: The main aim of is to address the core principles, different techniques and skills that are applicable at different levels of project management. At the work package level, the emphasis is in ensuring on-site production within specified constraints of time and cost, and with the view to achieve the highest possible quality. At the strategic level, on managing the evolving interfaces between the client and the project. Irrespective of the level of application, effective project management depends upon a blend of advanced behavioural skills and appropriate techniques. The project manager who manages the project on behalf of the client must be able to co-ordinate teams of designers and specialists from diverse backgrounds. Leadership skills are therefore of vital importance, coupled with an ability to structure problems at the conceptual level.


CEM202 Construction Project Management (10)

Convenor: Dr Shabnam Kabiri

Description: The construction sector provides infrastructure and facilities to all other economic sectors. In this module we address the key principles of managing the supply side of this provision. Construction work is typically oriented around projects and the supply chain is extensive. In this kind of business environment, a key requirement is to manage the delivery of specific obligations within the parameters of specific objectives. Moreover, the success of the business depends on the ability to manage the demands of a variety of simultaneous projects. Effective project management is essential to business success. Managing a number of projects, in sequence and in parallel, especially so. Thus, the focus in this module is on the interface between delivering successful projects and managing the flow and balance between projects in order to maintain a successful business.

Aims: To provide an explanation of basic project management techniques and an understanding of how construction businesses manage their resources within and between projects. At the work package level, the emphasis is on achieving delivery within specified targets relating to cost, time and quality. At the tactical level, the emphasis is on maintaining and developing the businesses whose income is derived from projects.
CEM203 Financial and Management Accounting in Construction (10)

Convenors: Prof Will Hughes and John Aston

Description: A general introduction to financial accounting is provided in the context of the construction sector. Construction firms, in common with all firms, have to undertake corporate financial accounting. This requires an understanding of the basic concepts and the technical language of the discipline, as well as understanding of the principles and practice of financial accounting. Management accounting is about the provision of financial data and advice to a company for use in the organization and development of its business. It relates to organisational decision-making, financial planning, financial control and the evaluation of the financial performance of firms.

Aims: To introduce the way that financial and management accounting are used as key tools of management for a construction firm; To provide an appreciation of key financial and management accounting concepts and the role financial information plays in planning, controlling and decision making by managers. Gain appreciation of the differences and the link between financial and management accounting and the roles played by each in the management of a construction firm; Understand key concepts in financial and management accounting as necessary tools for managing an enterprise; Prepare and interpret financial statements such as a cash flow statement, an income statement, a balance sheet and a profit and loss account; Gain awareness of investment appraisal methods as decision making tools; Appreciate the different approaches to the costing of a product and the importance of costing to profitability.


CEM204 International Construction (10)

Convenor: Prof Roger Flanagan

Description: The module gives an overview of the scale and scope of design, engineering, and construction work in the global construction market. Consideration is given to the structure of the different construction markets and the influence of culture, climate, geology, the regulatory framework of codes and standards, compliance and ethical behaviour. Different approaches approaches to the procurement of professional services and construction work are considered. Examining how international construction companies operate in the global construction market and how they manage risks in project delivery.

Aims: Having an understanding of the size and characteristics of the global construction market, and the drivers and issues shaping the market. Awareness of the organisational structure and strategy of the construction and consulting companies operating internationally. Understanding the importance of global standards, governance, and codes of practice used on international projects.

CEM205 Human Resource Management (10)

Convenor: Dr Florence Phua

Description: Effective human resource management (HRM) contributes significantly to overall organizational performance. The module will cover the essential elements of HRM and their implementation in the UK construction industry. It draws on current HRM concepts, theories and practices from different industries to facilitate understanding of the human resources issues that are faced by both construction and non-construction firms. It will explain how an informed, well-structured and participative approach to HRM can deliver substantial benefits to all stakeholders: employers and employees as well as their shareholders and clients.

Aims: To provide students with an appreciation of the characteristics and practices of the construction industry and the role of HRM in both project- and non-project based organizations; To introduce students to current perspectives on key HRM concepts; To provide students with an understanding of the theories and practical considerations of HRM and its implications for construction firm performance and strategic positioning.


CEM206 Construction Contract Law (10)

Convenor: Prof Will Hughes

Description: The procurement of construction work takes place within specific legislative frameworks. Contracts result from agreements between businesses for all forms of consultancy and construction work, whether they are formally written or not. New developments in statutes, court cases and standard form contracting have a significant impact on the kinds of deals that take place in the construction industry. Also, new business processes promote new ways of working and collaborative business arrangements that require a deeper understanding of the way that business participants interact in the construction process. The construction industry is characterised by the way that each participant typically works for a different practice or firm, and they are all expected to work together, usually under the terms of business contracts (formal or informal) within the statutory framework that prevails. This module seeks to explain the statutory and contractual context of contracts in construction, in order that the students will be able to recognise and confront the kinds of problem that can get in the way of successful contract management.

Aims: To understand and interpret contractual relationships in construction projects. Lessons from research and practice are used side-by-side with the teaching to provide robust explanations and help to develop a deep understanding of the consequences of how construction contracts are drafted, chosen and managed.

CEM209 Managing Construction (10)

Convenor: Prof Roger Flanagan

Description: The management of construction work requires a broad overview of management and organisational theories applied to the construction sector. While most of the work in the construction sector takes place in projects, the people who contribute to projects work in firms and other organisations. Construction firms may have local, national and international dimensions. The interfaces between various levels in construction organisations are made more complex because the work is done through projects. This module enables students to explore the complex interfaces in the management and organisation of construction work.

Aims: To provide a range of tools and techniques for understanding and managing organisations and projects in construction. The focus is on the application of ideas to real-world situations.


CEM210 People, Information and Technology (10)

Convenor: Dr Ian Ewart

Description: The proliferation of digital data, and the rapid development of tools and technologies to collect, analyse and disseminate it, are opening up new opportunities for the Architecture Engineering and Construction sectors (AEC). However, this is set against the need for information that is relevant, accessible and useful at a human scale. Balancing developments in digital technologies with specific user requirements, forces us to think about why and how data is collected, and how it can be presented in useable ways. Blending social science methods with modern digital technologies, we will examine the relationship between people and the information that circulates in an AEC setting. Students will learn about and use digital tools and technologies to produce models and representations of the built environment, whilst also engaging with the built environment as perceptive human beings.

Aims: To gain a basic experience of using a range of modern digital tools, and processing the data produced. To learn how to analyse the built environment from a human perspective, using approaches from anthropology and sociology. To consider how these two perspectives compliment and complicate the construction of useful information.


CEM215 Infrastructure Development (10)

Convenor: Dr Tabarak Ballal

Description: To meet the challenges of rapidly growing urban communities and cities, infrastructure development projects need to be responsive, inclusive and sustainable. It is therefore essential to understand the planning, finance and delivery of these projects and
the challenges associated with meeting development goals in increasingly complex and uncertain contexts. Decision-making processes of infrastructure projects must respond to the specifics of the local context (including local knowledge, culture, legal and institutional frameworks, industry characteristics, funding models, procurement methods and so on).

**Aims:** The main aim of this module is to explore the role of infrastructure in development and explain theoretical frameworks that underpin the processes of design, construction and implementation of infrastructure development projects. It primarily focuses on the challenges of delivering infrastructure projects and the impact of these on achieving developmental goals.


**CEM216 International Construction Labour (10)**

**Convenor:** Dr Dylan Tutt

**Description:** To meet the challenges of rapidly growing urban communities and cities, infrastructure development projects need to be responsive, inclusive and sustainable. It is therefore essential to understand the planning, finance and delivery of these projects and the challenges associated with meeting development goals in increasingly complex and uncertain contexts. Decision-making processes of infrastructure projects must respond to the specifics of the local context (including local knowledge, culture, legal and institutional frameworks, industry characteristics, funding models, procurement methods and so on).

**Aims:** The main aim of this module is to explore the role of infrastructure in development and explain theoretical frameworks that underpin the processes of design, construction and implementation of infrastructure development projects. It primarily focuses on the challenges of delivering infrastructure projects and the impact of these on achieving developmental goals.


**CEM217 Construction Sector Transition (10)**

**Convenor:** Dr Shu-Ling Lu

**Description:** This module equips students with leading-edge knowledge and practices on transition management approaches to bring about successful construction reform in a country. The module demonstrates how construction sector policies, company strategies and new technologies are all closely interconnected and the profound transition management challenges these complex interactions create. Throughout the module, detailed cases studies are used to bring key issues to life. The cases are drawn from research projects being undertaken by members of the module delivery team in the transition management area.

**Aims:** The construction sector in all economies has a potentially powerful catalytic role in enhancing wealth generation and quality of life. However, construction sectoral characteristics in such economies often significantly constrain this potential. These
characteristics may include deeply entrenched structures, practices and workforce capabilities which work against innovation and change, especially uncertain government construction sector policies and regulations, unskilled workforces, low productivity, poor infrastructure, fraudulent practices and inadequate contract law provision and enforcement. The focus of this module is to understand construction industry reform from a transition management, multi-level perspective. Construction sector reform involves mutually coherent and progressive transitions that need to change and connect improvements across higher level policy, regulation and societal values and norms, right the way through to the incorporation in construction companies and projects of new technologies and practices.


**CEM220 Urban Sustainability (10)**

**Convenor:** Prof Tim Dixon

**Description:** This module develops an awareness and knowledge of how the principles of sustainable development can be applied in an integrated and holistic way at city level.

**Aims:** The urban sustainability module places sustainable development (SD) within a city-level context but also highlights the importance of integrating SD across building, neighbourhood and city levels to ensure sustainable outcomes. The module explores the different ways in which new cities (e.g. eco-cities and smart cities) and existing cities may be viewed through a range of conceptual frameworks which include ‘metabolic systems’ and ‘complex adaptive’ systems. The overall role of urban planning is also explored in shaping and producing sustainable outcomes in a variety of cities with a key emphasis on sustainable transport. Consideration is also given to the challenges of retrofitting and re-engineering cities to 2050, and the ways in which futures studies can not only help shape city visions, but also help cities plan and monitor energy, water and waste targets. The module also explores the concept of ‘sustainable cities’ and the ways in which the sustainability of cities may be measured, and how key technologies at city level are deployed (for example urban water drainage and urban waste management). The module compares and contrasts approaches to urban sustainability through a comparison of approaches in the developed and developing world (and with a particular emphasis on emerging economies).


**CEM221 Energy in Buildings (10)**

**Convenor:** Dr Mehdi Shahrestani

**Description:** A comprehensive overview of energy use in buildings will be overviewed. The module will introduce measures of improving energy efficiency in buildings including environmental architectural design, environmental systems operation and renewable energy technologies.
Aims: To provide students with comprehensive understanding of energy usage in buildings and methods of improving energy efficiency.


CEM222 Building Simulation (10)

Convenor: Dr Emmanuel Essah

Description: This module briefly introduces theory of heat transfer, overview of building simulations and train students with skills of computer simulations.

Aims: To provide knowledge of building simulations and hands-on practice of simulation using commercial software packages such as Integrated Environmental Solutions (IES).


CEM223 Urban Microclimates (10)

Convenor: Dr Vincent Luo

Description: The module introduces the basic physics as well as the up-to-date advances on urban microclimates including urban fluid mechanics, energy balance, solar radiation, acoustic etc, and evaluates how the urban surroundings interact with buildings. It will also address the application of urban microclimate principles to guide and assess urban climatic design and planning.

Aims: The aim is to develop comprehensive knowledge of urban microclimates and the impact of built form and texture on urban climate and building performance. We cover the fundamental physics behind urban microclimates and explore urban climate simulation tools to assist urban climate planning. We will develop in-depth understanding of how: Urban microclimates are formed and operate; Climate change impacts on urban climates; Urban heat island phenomena operates and its impact on building energy consumptions; Urban texture and form impacts on microclimates; Sustainable urban design has evolved and operated; Urban ventilation should be designed and encouraged; Urban environments and buildings interact.


CEM224 Carbon Management (10)

Convenor: Dr Michael Peters

Description: Climate change presents a pressing and complex global challenge, which can be addressed through some combination of adapting human systems to withstand future impacts and mitigating the worst effects of climate change by reducing emissions of greenhouse gases. This module concentrates on the role of carbon management for countries, businesses and individuals in responding to the need for climate change mitigation. Attention is given to the level of certainty in climate science and the implications
this has for global and local action. Policy tools for achieving carbon reduction and the role of the energy supply system are considered, alongside technological options for carbon sequestration.

**Aims:** To frame the need for carbon management against the scientific understanding of climate change, noting how clear understanding of scientific uncertainty is fundamental in developing appropriate carbon management policy and actions. To explore political, economic and technological responses to climate change, recognising how these are/can be implemented across a range of scales from global/regional agreements, through national policy approaches, down to actions taken by businesses and individuals.


**CEM225 Building Information Modelling (10)**

**Convenor:** Dr Laura Maftei

**Description:** The module introduces and explores Building Information Modelling (BIM) as sets of standard processes for managing information across delivery, operations and handover. The module addresses BIM as a collaborative process, supported by a range of technologies, and introduces concepts of structured collaboration, data exchange, interoperability, and life cycle information management, in lectures and through group work. Emphasis is placed on the UK BS / PAS 1192 suite of standards as an example of a BIM process, although international alternatives are discussed.

**Aims:** To understand the rationale and role of BIM processes in professional work across design, construction and operation. To recognise the range of processes, standards and approaches which can constitute BIM.


**CEM226 ICT and Energy Management (10)**

**Convenor:** Prof Li Shao

**Description:** The substantial gap between design and in-use performances affects a wide range of newbuild and retrofit projects as well individual energy technologies. Against this background, energy monitoring and management offers major energy saving potential. Based on ICT and sensor technologies, energy monitoring and management integrates the optimisation of building energy systems with the engagement of users and FM in the process. This module will address these technology and user issues in a systematic way.

**Aims:** This module focuses on people-centered energy efficiency in the operation phase (versus design, construction and handover phases) of the building life cycle using ICT-based approaches for monitoring and managing energy consumption in buildings. The module will address information and building energy technologies and their application to inform, engage and empower users to achieve substantial energy savings at modest costs.

CEM228 Construction Economics (10)

Convenor: Prof John Connaughton

Description: This module covers construction economics at three broad levels: Macro, dealing with the role of the construction industry in the national economy and the impact of macro-economic policies and developments on the property and construction sectors; Meso, focusing specifically on the size, structure and performance of the construction industry, and how it compares to other sectors; and Micro, covering the economic performance and behaviour of construction firms and the economics of construction projects, in their respective markets.

Aims: To provide participants with an understanding of how the conceptual framework of economic analysis can help to address a wide range of practical problems and questions encountered in the modern construction industry.


CEM229 Green Building Assessment (10)

Convenor: Dr Vincent Luo

Description: This module integrates the BREEAM Accredited Graduate (AG) program into the module design. It covers assessment methodology, Internalional GBA scheme such as BREEAM, and GBA case studies. The major teaching approaches are lectures, workshops and tutorials. Students will be trained to be able to evaluate 'green performance' of a real building using green building assessment tools. Students will be expected to obtain BREEAM AG certificate after studying this module and passing the exams.

Aims: The aim of this module is to provide a comprehensive knowledge of the green building concept and specifications of the existing green building assessment tools. This module will develop students' in-depth understanding of: the concept of green buildings; carbon emission reduction targets and measures to achieve; the mechanism of measuring and rating sustainability of buildings; green building assessment methods/rating tools; international standards; resource conservation in construction (materials, energy, water etc).


CEM230 Design Management (10)

Convenor: Prof John Connaughton

Description: This module is designed to develop an understanding of current and developing approaches to design management. Participants will gain an appreciation of the management of design processes and the essential conflict between creative design and the need for control. The module will introduce a range of practical measures for effective design management.
Aims: To develop robust understanding of the organisation of design processes; To appreciate differences between the management of design and the management of construction; To gain important insight into the complex nature of project briefing; To benefit from practical insights into briefing and design management processes, as applied on projects.


**CEM233 Urban Energy Systems (10)**

**Convenor: Dr Phil Coker**

**Description:** Emerging technologies, especially alternative vehicles and electricity based heating systems, have potential to bring a rapid change in demand on urban energy systems. Such changes need to be understood at district and city scales and may also be best managed at these scales. This module will consider the possible impacts of such changes and appropriate mitigation approaches, including the emergence of smarter energy grids. A particular focus is given to the rapidly changing role of energy distribution networks. Consideration of urban energy systems is used to introduce wider systems thinking approaches that offer new insights and currently have an evolving place in energy and sustainability research. Wider aspects of urban sustainability specifically related to energy use are also addressed.

Aims: To develop skills in analysing energy systems at an urban scale; as well as to introduce specific issues from the sustainability agenda that are more problematic in urban areas and closely linked with energy use.


**CEM235 Engineering Project Management (10)**

**Convenor: Dr Colm Lundrigan**

**Description:** Engineering projects have a financial and management context. From the standpoint of management, this module introduces a project management conceptual framework, defining what is meant by a “project” and what comprises the discipline of “project management”. From the financial standpoint two well-known techniques are introduced. First, capital budgeting, which is a technique usually implemented at the beginning of a project to assess its economic feasibility. Second, earned value management, whose main aim is to monitor project progress during the execution phase.

Aims: To understand and be familiar with the main concepts of the Project Management Body of Knowledge® and to be able to implement and adapt to the particular circumstances of a renewable energy project, two quantitative techniques; capital budgeting and earned value management.

CEM237 Basic Measurement Principles (0)

Convenor: Dr Lawrence Mbugua

The basic principles and techniques of quantification and measurement of construction work are introduced. This includes techniques that may be carried out using computer software and/or technology. The purpose is to introduce the basics of measurement and construction technology. This module is related to CEM238 Construction Cost Engineering. There is need for basic knowledge and skills to take the study of this topic to MSc level. Those students who may already have learned this material on an earlier qualification may be exempted from the requirement to attend this module if they can prove that they have achieved the relevant level of understanding with a recognised qualification. This exemption is subject to approval by the Programme Director.

Aims: To provide a basic, initial skill in the fundamental techniques which underpin the techniques of quantification of construction work, that is, the mensuration, definition and quantification of items of construction work for the purposes of early-stage estimates of cost and preparation of contract documentation. To provide knowledge and understanding of IT applications used for these techniques and to give practical experience in the use of the technology.

CEM238 Construction Cost Engineering (10)

Convenor: Dr Lawrence Mbugua

Description: The module builds on CEM237 Basic Measurement Principles and covers more advanced / complex aspects of quantification and measurement of construction work.

Aims: Buildings and related facilities are expensive to construct, maintain, refurbish and operate. Meeting these costs requires significant expenditure and investment by the developer, building owner or the occupier. It is therefore important that these costs are accurately estimated and budgeted for before construction work starts; controlled and planned for during construction as well as forecasted for the operational life of the building. The aim is to equip the students with the skills and knowledge to estimate, plan, manage, control and engineer building costs across all stages of the development process: from financial feasibility appraisal, design, construction procurement, construction operations, commissioning, maintenance, refurbishment to demolition.


CEM241 Energy and the Environment

Convenor: Dr Maria Vahdati

Description: Energy underpins our current standard of living and economic development. The environmental impact of energy use and transition to a lower carbon economy presents significant challenges. This module is concerned with the technical, environmental, economic and social issues associated with the production of energy. It includes an overview of energy production and consumption trends, traditional means of energy
production, renewable energy, sustainability, environmental issues and political and economic concepts in energy. Students are able to explore a range of energy related issues through conducting research for one assessed report.

**Aims:** To provide a multi-disciplinary, integrated introduction to technical, environmental, economic and social issues associated with energy production, including the consideration of the practical constraints that limit the extent to which negative impacts can be ameliorated.

### CEM242 Advanced Visualisation and Interactive Technologies (10)

**Convenor:** Dr Dragana Nikolic

**Description:** Practitioners in the architecture, engineering and construction (ACE) disciplines often find that no single drawing, graphic or tool best represents a given idea, concept or project. However, to evaluate a project at any stage, engineers, designers and stakeholders need to visualize project progress in a way that allows them to easily interact with, understand, critique and revise the work. One of these methods, virtual prototyping, tailors information representation for users and affords a level of interactivity that can assist the decision-making process at any point in the design and construction process (e.g. conceptual design diagrams for initial project phases or photorealistic representation at final phases). The purpose of this module is to introduce students to different interactive virtual prototyping tools and technologies used in the architecture, construction and engineering fields, particularly those related to building information modelling (BIM) and visualisation. Through a review of current research and applications of virtual reality and interactive technologies, the goal is to discern and evaluate the rationale for their use, and further explore methods to apply innovative approaches to support users in a given context of use.

**Aims:** To introduce students to the range of advanced and innovative visualisation and interaction approaches for facility design and construction; to review and evaluate existing initiatives in research and practice; to identify potential uses in a given context, and propose a method, prototype, or a process to visualise and interact with relevant project information.


### CEM243 New Technology, Management and Change (10)

**Convenor:** Dr Martin Green

**Description:** The module is structured around the concept of socio-technical systems. We cover distinct analytical and theoretical approaches to understanding socio-technical systems - their research base, points of difference and where they complement each other, their advantages and disadvantages. This involves the application of theoretical approaches to realistic case studies in construction in oral presentation and written writing.

**Aims:** To gain an understanding of major theoretical approaches to socio-technical systems and to their use in understanding and implementing systems and change in the contexts of built environment and infrastructure teams, projects, firms and the construction sector.

**CEM244 Analysing Construction Processes (10)**

**Convenor: Dr Ruth Dowsett**

**Description:** There is a wide range of methods for researching, analysing and formally representing processes and data in design construction and operations. These are formalised through construction industry data codes and standards, which will be covered in the module. We shall examine problems related to human-computer interaction in construction, hybrid practices and task analysis in computer-supported collaborative work.

**Aims:** To gain relevant knowledge and skills to analyse construction processes and structures and develop abstracted and systemic forms of representation and understanding.


**CEM302 Strategic Management (10)**

**Convenor: Prof Roger Flanagan**

**Description:** This module is designed to study strategic management in construction organisations. Strategic management is the process for producing strategies within an organisational infrastructure responding to an environmental context.

**Aims:** The module aims to explain the role of corporate strategic management within the construction industry. It examines the evolution of strategic management concepts from the 1960s to the present day. These concepts are then related to current research and thinking about the creation, culture and context of strategy.


**CEM303 Sustainable Design, Construction and Operation (10)**

**Convenor: Dr Katherine Hyde**

**Description:** Buildings consume large amounts of energy and water and produce pollution and waste during construction and operation. Sustainable design via green approaches can reduce these impacts substantially and also decrease carbon dioxide emissions. Sustainability is the optimum and clean use of resources for healthy working and living conditions for the present and future generations. Sustainable development is the planning, designing and caring for buildings and systems which are adaptive to changes brought about by climate and everyday needs of occupants while being sustainable over the long term.

**Aims:** To deliver an integrated, systemic and holistic understanding of sustainability and sustainable development; To inspire and excite participants in their role with the
opportunities that sustainable practices can present; To engender an understanding of the
difference between cost and value in the area of climate change; To understand their
environmental, social and economic dimensions; To consider relevant policy, legislation
and governance nationally and internationally; To be familiar with the latest evidence and
thinking on climate change, energy, water, pollution, waste, biodiversity, and efficient use
of materials; To broaden the understanding of the social benefits of a more sustainable built
environment from the level of the individual to the level of community; To learn about
whole life value which takes into account whole life costing and quality; To learn about
modern and traditional approaches; To understand the influence of human behaviour on
patterns of consumption and production; To understand the significance of implementing a
solutions-oriented approach with the judicious use of innovation.

Carbon Trust (2009) *Building the future today*. Available at:
https://www.carbontrust.com/resources/reports/technology/building-the-future

**CEM319 Life Cycle Assessment (10)**

**Convenor: Dr Eugene Mohareb**

**Description:** This module introduces the concept of life cycle assessment (LCA),
methodological approaches for completing an LCA study, reviews prominent studies and
provides students with the opportunity to critically review an LCA study of their choosing.

**Aims:** To provide an understanding of the concept of LCA and its value in assessing the
environmental impacts of products or services. Students will explore key LCA concepts,
structures, methodological approaches, and the implications of these approaches. At the
end of the course, students will have the ability to understand and critically review an LCA
study. To develop LCA knowledge and skill from a suitable level of analytical enquiry-based
challenges.


**CEM334 Innovative Developments in Construction (10)**

**Convenor: Dr Tabarak Ballal**

**Description:** Over the past few decades, the UK construction industry has developed a
notorious reputation due to lack of efficiency, effectiveness but most of all as a result of a
perception of its inability to innovate and be creative in its practices and management
processes. This module: reviews the current status of the industry; provides evidences of
some of these misconceptions whilst challenging others; presents an overview of innovative
practices and developments in construction and examines all of these issues within the light
of the latest theoretical frameworks and thinking which pertain to design, construction and
management of projects.

**Aims:** This module aims to provoke a critique of the construction industry through
investigating the extent to which current practices enable or hinder innovative
developments in design, construction, operation and management of construction projects
and the potential for the industry to rapidly evolve in response to challenging and varying
technical, environmental and economic landscapes. Participants will benefit by being better
equipped to question and challenge current routines within their own organisations and being in a position to promote innovative developments, thinking and practices in their specific areas of expertise.


CEM335 Real estate Development: Analysis & Appraisal (10)

Convenor: Dr Ed Shepherd

Description: Real estate development encompasses a range of skills and knowledge derived from a number of disciplines. Several techniques are used to undertake financial analysis of development opportunities and critically evaluate different techniques for the pricing and appraisal of development opportunities with a particular emphasis on risk management.

Aims: The aim is to develop a conceptual understanding of the key elements of the real estate development process and a comprehensive understanding of the key techniques for evaluating the various aspects of the feasibility of real estate development. The roles of the various participants involved in the development are critically reviewed to develop insights into the elements of the process such as planning consent and finance, procuring construction services and design.

How to get a good degree in this subject

Working with academic integrity

‘Academic integrity’ describes the values held to be essential in university study in the UK. The five core values we work to are:

- **Accuracy** – making sure that your work is free from errors.
- **Honesty** – being truthful about which ideas are your own and which are derived from others, and about the methods and results of your research.
- **Fairness** – not trying to gain an advantage by unfair means; for instance, by passing off others’ work as your own.
- **Responsibility** – taking an active role in your own learning; for instance, by seeking out the information you need to study effectively.
- **Respect** – for your fellow students, your tutors, and the work of other scholars.

(Adapted from International Center for Academic Integrity (1999), *The Fundamental Values of Academic Integrity*, online at [https://goo.gl/NGk1sM](https://goo.gl/NGk1sM), accessed 8 Aug 2018.)

What does this mean for my academic writing?

You practise academic integrity in your academic writing by working with the five values in mind, and particularly by using correct and accurate referencing. This shows that you can: be **accurate** in transcribing details; be **honest** about which ideas were derived from others; act **fairly** by not taking credit for others’ work; take **responsibility** by finding out what is required of you and how you should carry it out; and show **respect** for others by acknowledging the part they have played in building your knowledge and understanding.

How does this differ from what I did at school/college?

You may have used a simplified referencing system at school or college, with only direct quotes given citations, or no in-text citations but only a bibliography. At university, you need to give a citation whenever you refer to an idea that you derived from a source. This is the case whether you use a direct quote, a paraphrase, or just a mention. There are many different styles of referencing, and you will need to find out which one is used in your department and how to set out your citations and bibliographies. You will need to learn how to cite a variety of sources correctly and get into the habit of doing this accurately and with attention to detail.

I have not studied in the UK before; how might this differ from my previous experience?

In the UK, critical analysis and building new knowledge are key aims of academic study at university. This means you will be expected to read widely to gather a range of ideas, be critical by questioning everything you read and hear, and draw your own conclusions. You then need to support these in your writing by reference to what you have read, and to acknowledge the sources with correct citations.
Reading lists

Each module has a specific reading list. These can be found in our online reading list software, Talis, at reading.rl.talis.com and in the Blackboard area for each module. At any time, whether you are enrolled on a module or not, you can see the reading list for a module. All you need is the code. For example, for CEM206 Construction Contract Law, simply enter CEM206 into the search box and click search. When you are looking at a module in Blackboard, and you access the reading list there, it picks up the same data from Talis as if you were in Talis. Please, in every module, use the reading lists to guide you into the literature.

Core reading is generally crucial to developing an understanding of each topic. It is not possible to make adequate progression without reading. And it is very difficult to read anything without writing while you read: make notes. Try to avoid merely summarising, though. Note down questions that occur to you and things that the reading puts you in mind of. Think not simply about what they wrote, but also what they did that enabled them to write it. What kind of research was done? What methods were used to carry out the research? Where was it carried out and when? Everything you read has a context and limits of applicability. Use these to help inform your note-taking. Never read without making notes. As well as referring to text books, it is essential to be aware of the latest research papers in each topic. Please see the subject guide at http://libguides.reading.ac.uk/construction. There is also some general information at http://libguides.reading.ac.uk/reading-lists/students.

Developing good learning practices

It is very important to develop a reflective and critical approach to your learning. We do not expect your written work to simply relate what you have been taught. Instead, we expect you to use that as a basis for developing your own thinking and weighing up alternative views.

Organise your time. One way to do this is to look at the number of credits in each module. The module description form will tell you how many hours of study we expect a module to occupy. You will see that the bulk of your study time is not in classes. Allow time for preparing assignments that is proportional to the number of credits each assignment will earn you.

Maintain your interest in the subject by reading widely, taking note of developments reported in the news and on-line. Develop networks of contacts through Linked-In and other networking sites.

There is no substitute for a healthy diet, regular exercise and drinking plenty of water. These factors can have an enormous impact on your capacity to study and learn.

Group work

A lot of the modules in these programmes involve group work of one kind or another. Various aims are fulfilled through group work. It would help you to be aware of what these aims are, so that you can make the most of the opportunities afforded to you.
Working in groups with students from diverse backgrounds is immensely challenging. There are differences between students in terms of levels of experience, educational attainment, language skills and culture. The first thing about this cultural diversity is that most professional institutions require evidence of experience in diversity, inclusion and team-working attributes.

Sometimes, students are invited to put themselves into groups. But, quite often, you will be assigned to a group. It may be that the module convenor wants to ensure that there is a good spread of students in each group, whether by nationality, mode of study or simply by random allocation. There are reasons why different module convenors do this in different ways and we encourage them to explore the use of group work as they see fit.

Whichever criteria are used for allocating students to groups, it is going to be stressful and difficult to achieve the aims of group work because of the differences in background and experience. We are aware of these difficulties. They are good practice for future working in industry, where you never get to select who you are working with but have an overriding imperative to work together and deliver the required outputs. The university environment is a good place to rehearse these skills.

In any group work situation, you will probably need to get to know each other before starting the work. This is not only to do with getting to know each other’s names and origins, but also an initial assessment of skills, strengths and weaknesses. You will need to split up the tasks and allocate them. Sometimes, the group work is such that it makes no sense for each group member to do part of the whole task. Simply sharing the work out so that you all must exercise the same skills is one way of doing it. Another way is to think about roles in the group, so that each person takes on a distinct task. Therefore, it is useful to think about the skill set of each group member. Be prepared for this by getting to know your own strengths and weaknesses in group work. When allocating work and setting milestones for managing progress, allow for time slippage and think about tactics for dealing with non-performers. The whole team must work together. This may mean providing support to someone who is struggling to understand what is needed or struggling to make timely progress. A group that works together and helps each other is going to achieve a lot more than a group that seeks to blame poor performance on each other.

**Effective reading leads to higher grades**

Whenever you are reading anything, especially if you are thinking of relying on it, ask yourself who wrote it. How credible is the source? Think about what it is about the item that is persuasive. Just because something has been written and published, does it mean that it is absolutely and permanently correct? Is it applicable in all circumstances and places? Is the author someone who is well-known in the field and often cited by others? Is the item in a peer-reviewed publication that has been vetted by independent experts in the field? It is not easy to establish the credibility of source when you are new to studying but it is extremely important. For a simple rule of thumb, do not use websites as authoritative sources. The processes of formal publication involve more checks than writing something for the web.

Having ensured that the source is credible, it is then important to focus on the conclusions of a paper. What were the assumptions that they started with? What were the questions they were dealing with and do they match the question that you are dealing with? What methods did they use in carrying out their work? What did they actually do in their work that enabled them to draw the conclusions that you find so persuasive? What do you think of the quality...
Effective writing leads to higher grades

It is extremely important to put your ideas across clearly. There are many good books about effective writing. They are generally an enjoyable read, because they are written so well. One good example is Turk, C. and Kirkman, J. (1989) Effective Writing: Improving Scientific, Technical and Business Communication, 2nd ed. Taylor & Francis, London. This is available in electronic form in the library.

If you want to get a flavour of what it means to think about style when it comes to writing, have a look at George Orwell’s essay, Politics and the English Language, from 1946. Much of this still holds true, and there is plenty of excellent advice in there.

Effective writing is achieved through developing a style that makes your writing informative and interesting. One of George Orwell’s suggestions is particularly relevant; that good writing should be about choosing the right words to fit the ideas, rather than stringing together a series of stock phrases. Too many writers string phrases together, often riddled with worn out clichés and inappropriate idioms. Writing should be about choosing words, rather than phrases.

Here are some rules of thumb that may help with the task of putting your thoughts together. But these rules are not sacrosanct, merely suggestions:

- The first thing, and an extremely common fault, is punctuation, especially apostrophes, commas, colons and full-stops. It seems that many people do not know how to use apostrophes. Basically, never use an apostrophe to make a plural, e.g. cars, roads, 1960s, etc. Always use one if the s is being added to indicate possession, e.g. John’s sensitivity, the client’s requirements, several clients’ requirements. As you can see, if the possessive case is singular, the apostrophe is placed before the s, if it is plural, the apostrophe is placed at the end of the word. Commas should be used to separate elements and clauses in a sentence, or items in a list. They are not “breath marks”. Colons and semi-colons are often mixed up. The former introduces a list or an idea; the latter separates closely related independent clauses. Most people know how to use full-stops, they just don’t use enough of them. Short sentences are easier to compose and understand than long ones.
- Long words are more difficult to understand than short ones. They may be more difficult to translate, too. Generally, never use a long word where a short one will do. For example, change “utilize” to “use”. Avoid fashionable terms and jargon, unless you can be specific about the meaning.

1 http://www.orwell.ru/library/essays/politics/english/e_polit
• Sentence length should be variable. For example, this sentence and the next illustrate how some sentences can be quite long, preparing the reader for a point that is about to be made by setting out information that forms the context for the point. Others don’t. Thus, a two-word sentence can be used to great effect, if the preceding sentence has done the work. If in doubt, stick to one idea per sentence. Avoid long sentences.

• Sentences are usually grouped into paragraphs, each of which represents a particular idea or step in the argument. Avoid single-sentence paragraphs. Such writing ignores the important distinction between sentences and paragraphs. If a paragraph should have a beginning, a middle and an end, it is extremely unlikely that all three functions can be fulfilled by one lone sentence.

• Similarly, a series of paragraphs is grouped together under a sub-sub-heading and so on, up to the main headings. Try not to use more than three levels of heading, sub-heading and sub-sub-heading otherwise you will confuse your reader.

Using these rules of thumb helps to make your writing understandable. Split the argument into headings, then each heading into sub-headings, then each sub-heading into sub-sub-headings, then you can write the sentences and the text will flow with ease. One final tip: although PowerPoint is designed for making business presentations, it is extremely useful for getting the initial structure of a paper sorted out into headings, sub-headings and sub-sub-headings.

**Editorial and proof-reading services**

Students who feel that they need assistance in writing appropriate English should, in the first instance, seek guidance from their School, which should discuss with the student their difficulties and, where appropriate, refer the student to the University’s Study Advisors. Students whose first language is not English should check the resources at [http://www.reading.ac.uk/islc-in-sessional-introduction.aspx](http://www.reading.ac.uk/islc-in-sessional-introduction.aspx).

Students who use software for assistance with proof-reading or with editing their work, or who seek assistance with proof-reading or with editing from third parties, should be alert to the major risks associated with such intervention, including the distortion of intended meaning and the failure to use technical terms appropriately. However, it is a good idea to seek help if your English needs to be improved.

Students are warned that any use of third-party proof-reading or editing services must not compromise their authorship of the work submitted. You must ensure that the substance of work is your own. Students are also warned that they will be held responsible for work which they submit, and that the use of third-party services will not be accepted as mitigation for any deficiencies in the work. The use of any third-party proof-reading or editing must be acknowledged in a written statement included in the submitted work.

**References and citations**

There are many systematic techniques for citing your references. In this School, our convention is to use the Harvard System\(^1\). It is an important professional skill to be able to cite references correctly. Many assignments include the correct formatting of references as part of the assessment criteria. Even when they do not, you are expected to be able to

\(^1\) [http://libguides.reading.ac.uk/citing-references](http://libguides.reading.ac.uk/citing-references)
demonstrate your skills in citing references as a routine part of your professional approach to submitting formal assignments.

Even if you have experience of referencing and using citations in your previous educational experience, you will still need to read carefully the following advice. Do not assume that your previous experience will be adequate. Different conventions apply at different places and for different reasons. As well as the mechanical aspects of compiling lists of references at the end of your work, it is useful to pay attention to the way that you mobilise contrasting views and interesting research.

In many assignments, we are keen to ensure that students engage with ongoing debates in the research literature and that relevant work is cited and critiqued. We would like you to ensure that you have dealt with relevant previous papers that have been published in the key journals of the field. Not all journal papers agree with each other, and it is important to bring out the areas of controversy, if there are any. Therefore, include citation and critique of research papers that develop the underlying science and/or approach in your research. This can be particularly problematic in an applied field like ours. Researchers sometimes seem to assume that the construction sector is not part of the same world that the rest of us inhabit and, therefore, set out to re-invent the wheel. For guidance on how to undertake a critical review of a research paper, please see http://wp.me/p1J7za-eJ.

The citation of past research needs careful attention. When constructing an argument, it is common to use citations to other significant researchers as means of short-hand, because certain methodological stances, or particular approaches, or specific ideas, are strongly linked to particular authors’ names, and a passing citation to the seminal work in which that idea, approach or stance was definitively mentioned is a routine part of setting out an argument. But this kind of academic short-hand should not be confused with a critical review of past research upon which a research paper seeks to build. There will be citations in your paper that require more comment because of their importance to the work you have reported. In these cases, use a sentence or two to explain what these people did to get them to the conclusions that you cite.

It is not very useful to pepper the text with arbitrary citations without making a specific connection to the construction of your argument. Avoid long lists of author names in brackets. Unless it is just a form of academic short-hand, explain why the work you cite is important. At the very least, your phrasing should make clear whether you are citing past research, guidance documents or polemical arguments, for example. It is useful to focus on the conclusions in a paper, rather than passing observations or introductory comments that an author has included to contextualise the work.

**Dissertation advice**

The most significant piece of work in your MSc programme is your dissertation. It contributes significantly to your final assessment. It is a good idea to begin work in this at the earliest possible opportunity. There are classes to provide you with the basic skills, but fundamentally this is your opportunity to carry out a self-directed piece of research, under close academic supervision, in a topic that interests you. Talk to the lecturers and professors on the programme, read journal and conference papers to discover topical issues. Comprehensive dissertation guidance is provided in the Blackboard site for your programme. Classes in research skills are provided in your programme.
Developing learning practices

Starting a postgraduate programme means meeting high academic standards. This can involve a steep learning curve for both home and international students. The University’s Study Advisers can help with every aspect of postgraduate study, so please feel free to consult them on:

- Writing assignments at an appropriate level
- Managing your dissertation
- Advanced referencing
- Coping with lots of material and a fast pace of learning
- Using academic theories to support your writing
- Adjusting to new academic expectations and culture
- Time management
- Research methods

Taking time to address any study concerns now can really save time later, allowing you to develop your study practices before beginning a long piece of research or a dissertation.

The Study Advisers offer confidential one-to-one advice sessions which usually last 30 minutes. They are very happy to book one-hour sessions for postgraduate students, because there is often longer and more complex work to discuss. If you would like a one-hour session, then please mention this when you book. Appointments are available every day during term-time and most days during vacations. Details of how to book an appointment with the Study Skills Advisors are available at: www.reading.ac.uk/studyadvice. Alternatively, send an email message to studyadvice@reading.ac.uk with your details including a phone number and they will get back to you.

Workshops, online study guides and paper study guides are available. See the website for study guides and more information on workshops: www.reading.ac.uk/studyadvice/. They also offer advice, support and assessments for specific learning disabilities (including dyslexia, dyspraxia, AD(H)D. To discuss any of these, please book an appointment.

The Reading Student Charter explains our expectations of each other, please see Appendix A, page 85.

Research training

The research skills and dissertation modules in each programme are specifically focused on research training. In these modules, students learn about independent study, including how to define a research question, carry out a literature review, research design and empirical work. Further details can be found in the module summary for the relevant dissertation module at the beginning of this handbook.

Feedback and marks

Each module will be assessed through assignment work. (There are one or two modules that involve an examination in the Summer Term. This is made clear in the Module Description Form). Assessment may differ between modules. Some examples may illustrate the variety:

- A single written assignment to be submitted some weeks after the module classes.
• A main assignment to be submitted some weeks after the module classes, with a short assignment submitted within the module week.
• A main assignment plus some on-line tests, all to be submitted some weeks after the module classes.
• A main assignment to be submitted some weeks after the module classes with a smaller assignment or some on-line tests submitted very soon after the module classes.

Where the main assignment is said to be “some weeks” after the module classes, this is generally five weeks for full-time students and eight weeks for flexible-modular students. Vacation weeks are generally not included in this period. Some modules, especially at the beginning of the programme, may have a shorter submission period. Extra time is added in the case of dates that cross the Christmas break and Easter breaks and Bank Holidays. There are sometimes needs for module convenors to depart from this convention, but please feel free to ask about submission dates at the time you are informed of them. For your convenience, there is an online calculator that can be used to find out likely submission and feedback dates at https://willhughes.work/dates.

In all cases, except for dissertation, we will endeavour to return marks and feedback 15 working days after submission. This excludes bank holidays and university closure days. This 15-day target is important to us although, sometimes, for operational or other reasons, it may prove impossible to achieve. In these cases, we will endeavour to keep you informed of our progress.

We welcome students from a wide variety of backgrounds, with very different experiences of education. For example, many students who come to study here are have experienced of education systems where they have routinely received marks of 90% or more for excellent work. It can be a bit of a shock to receive a mark of 70% for a piece of work in which you feel you have excelled. Please be aware that in these programmes, we see 65% as a very good mark, and anything above 70% as excellent. If you are getting marks in the 60s and 70s, you are doing well. It is not useful to be comparing your marks to those you received at school or at an undergraduate level in another country. The pass mark in MSc programmes here is 50%, but you do not have to pass every module (please see page 70).
How we support students

The University is committed to inclusivity, which includes ensuring our teaching and learning practices are accessible to all, as set out in the Curriculum Framework. Our Policy on Inclusive Practice in Teaching & Learning provides greater clarity and emphasis to our commitment to an inclusive approach. Find out more on Essentials - Accessible teaching and learning materials.

University support for students and their learning

Learning support and guidance is provided by a wide array of services across the University, including: Academic Tutors, the University Library, the Careers Centre, the Academic English Programme, Study Advice, the Mathematics Support Centre and IT Services. There are language laboratory facilities both for those students studying on a language degree and for those taking modules offered by the Institution-wide Language Programme.

Student welfare support and guidance are provided by Support Centres, alongside our range of specialist support services including Student Welfare Officers, the Students’ Union Advice Team, the Medical Practice, Counselling and Wellbeing and the Disability Advisory Service. Student Services also offer advice and support in several areas, including finance and academic issues such as withdrawals and suspensions. For more information, see student.reading.ac.uk/essentials.

There is an administrative disability representative for each School within the Support Centres; in most Schools there are also academic disability representatives. For the School of the Built Environment, your administrative disability representative is Suzanne Mellor (s.mellor@reading.ac.uk or 0118 378 6735). The disability representatives support the Disability Advisory Service to implement recommended reasonable adjustments for students in relation to programme delivery and assessment, for example, regarding special arrangements for in-class tests, green stickers for hard copy assignments or to arrange a personal emergency evacuation plan.

Academic tutors

We are launching a new Academic Tutor System, with effect from September 2018. The Academic Tutor System replaces the previous Personal Tutor System and has been designed following extensive consultation with staff and students, as well as research into similar systems at other UK universities.

Every student will be allocated an Academic Tutor – a member of academic staff in your School (if you are a returning student, this will usually be the same member of staff who was your Personal Tutor previously). Because the numbers of postgraduates are often smaller than undergraduate numbers, the programme director fulfils this role. If you come across any guidance that tells you to contact or refer to your Academic Tutor (or Personal Tutor), please interpret this as a reference to your programme director. Academic Tutors work in partnership with students and our wider support services to support their academic, personal and professional development. For example, Academic Tutors help students to:

- Make decisions in relation to their course.
- Formulate plans to support their academic, personal and professional development.
• Connect with other academics in their field of study.
• Make the most of the development opportunities on offer at Reading.
• Connect with other support services as appropriate.

Like the previous Personal Tutor System, you should meet with your Academic Tutor at least once a term to discuss your academic progress and development. For further information about how to make the most of your Academic Tutor, and other support services available at the University, please visit the Academic Tutors’ webpage.

Students studying part-time

Any of our MSc programmes may be taken on a full-time or a flexible-modular basis. To facilitate this, all of the teaching is in block weeks, so that full-time and flexible-modular students are study together. Time is given after the module for submission of assignments. More time is given to flexible-modular students, since they are assumed to be in full-time work while studying part-time. The expectation is that flexible-modular students will complete their studies in two years. But the maximum period for registration for flexible-modular students is 63 months, enabling them to pace their studies along with their other responsibilities. There is an option for flexible-modular students to enrol in January each year, but January starters need three years minimum to complete their programme of study.

Site visits that take place when a module is not running are generally designed for full-time students. We assume that flexible-modular are already working in a job that provides regular opportunities to visit sites. If a site visit is an essential feature of a specific module, it will take place during the module week.

In the case of flexible-modular students, programme directors are happy to hold meetings over Skype or telephone. It is important to maintain contact.

Support Centres

Your Student Support Coordinators in the Support Centres are dedicated to helping you with any queries you may have about your programme or other aspects of student life. You can visit your Student Support Coordinator for support on all teaching, learning and wellbeing issues. They can assist you with a range of things - from submitting essays, to help with changing a module or completing an extenuating circumstances application on-line.

Support Centres are open weekdays 8.30am - 5pm during term time and weekdays 9am - 4pm outside of term-time. No need to book an appointment, simply come by and your Student Support Coordinator will be happy to help.

Each School has a dedicated Student Support Coordinator; details are available online: http://student.reading.ac.uk/essentials/support-and-wellbeing/support-arrangements/student-support.aspx. Students can visit any Support Centre for general advice.

You will also be able to arrange to meet with Placement Coordinators and Timetabling Officers by contacting your Support Centre or via the details online:

Placements: http://student.reading.ac.uk/essentials/careers_and_professional_development/grow/placements.aspx

Timetabling: http://www.reading.ac.uk/internal/crbi/crbi-timetabling/crbi-studenttimetabling/crbi-student-timetabling.aspx
Office locations and contact details are listed in the table below.

<table>
<thead>
<tr>
<th>Support Centre location</th>
<th>Phone number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edith Morley</td>
<td>0118 378 4243</td>
</tr>
<tr>
<td>JJ Thompson</td>
<td>0118 378 4101</td>
</tr>
<tr>
<td>Earley Gate</td>
<td>0118 378 8020</td>
</tr>
<tr>
<td>Foxhill House</td>
<td>0118 378 6568</td>
</tr>
<tr>
<td>London Road</td>
<td>0118 378 2608</td>
</tr>
<tr>
<td></td>
<td>0118 378 2611</td>
</tr>
</tbody>
</table>

If you are unable to visit in person, you can call the Support Centre or ask a question online via the 'Questions' button on the Me@Reading student portal.

**Books**

A recommended reading list will be issued during each module and be available on Blackboard and in Talis (see page 51). Further recommendations may be made by individual lecturers. The Blackwell Bookshop in the Students' Union stocks many books on your reading lists and can help you get hold of others for your course. In addition, follow the link below to a more detailed guide on buying books:

[www.reading.ac.uk/lib-buying-books.asp](http://www.reading.ac.uk/lib-buying-books.asp)

All module reading lists are available in the Talis software without the need for a login at [https://reading.rl.talis.com](https://reading.rl.talis.com). You just need a module code or module name to search on.

**Software**

There is information about software and other services available to you at the following links:

- [http://www.reading.ac.uk/student/](http://www.reading.ac.uk/student/)
- [http://student.reading.ac.uk/essentials](http://student.reading.ac.uk/essentials)

You may find that you need software for your research. In this case, log into the IT self-service portal using the link below and your university username and password via this link: [https://uor.topdesk.net/tas/public/index.jsp](https://uor.topdesk.net/tas/public/index.jsp)

- Select 'New Request'
- Select 'Software'
- Select software required e.g. 'NVivo'
- Complete the form
- Click Send

Please check with your dissertation supervisor or programme director before engaging with complex software that may require a lot of training. Time on the programme is limited, and there may be easier ways to get to the answer you need for your work.
School accommodation

While our accommodation is being refurbished, Construction Management and Engineering will be housed in the Chancellor’s Building on Chancellor’s Way.

The University seeks to make the most of the teaching spaces, so your classes could be in a range of different buildings. In your first few weeks at the campus, you will probably need to consult the campus maps available at www.reading.ac.uk/maps.

Library

You will be issued with a library card, given details of borrowing rights and guides to the locations of subjects and to the use of the computer catalogue, the Enterprise catalogue. The reference librarians on each floor will be pleased to assist you if you experience any difficulty in finding what you want. If the library does not stock a particular book or journal, there is an Inter-Library Loans desk through which you may request books and articles in journals held elsewhere. This is a particularly useful service when researching for your dissertation.

The library also houses several photocopiers, including colour, on the ground floor. Payment is made by cash or by a prepaid card available at the Issues desk.

Opening hours vary depending on the time of year can be viewed at http://www.reading.ac.uk/library/using/hours/lib-hours.aspx. The issue desks close 15 minutes before the Library does.

The Main Library information desk can be reached on (0118) 931 8770. A useful link for help and information and be found on the website: www.reading.ac.uk/library

Safety

For those students whose programmes include laboratory work, an introduction to laboratory use, procedures and safety will be held early in the first term, and before commencement of laboratory practical work. Information about safety procedures, the specific responsibilities of students, and the Health and Safety at Work Act will be issued at this session.

Student maternity policy

Please see this link for the University’s Student Maternity Policy: www.reading.ac.uk/web/files/staffportal/URTLStudentMaternityPolicy.pdf

Opportunities to develop skills for the future

The University provides a wide range of opportunities for students to gain new skills or enhance existing skills. You will have the opportunity to develop transferable skills (such as written and spoken communication, use of IT, information handling, interpersonal skills, etc.) through your programme of study. Details of skills within programmes are given in module descriptions and programme specifications.
Recognising and rewarding skills development

The Reading Experience and Development (RED) Award is a University scheme that rewards students for undertaking extracurricular activities as well as helping students to develop employability skills and personal attributes. You can choose to take part in a wide range of activities, including volunteering, work experience and paid work as well as taking part in training and development sessions that really help to make you stand out from the crowd.

The experiences you undertake as part of the Award will allow you to gain additional skills to those you learn within your academic programme. Why is this important? Employers are looking for applicants who recognise their own abilities and ambitions and who can articulate those effectively. The RED Award will help you to do just this; by taking part in the scheme early on in your University career, you will soon gain confidence with managing your future career.

Students with physical disabilities, disabling conditions or specific learning difficulties (such as dyslexia)

The University of Reading welcomes students with disabilities, specific learning difficulties, mental health difficulties and disabling medical conditions, and has a dedicated Disability Advisory Service (DAS). This service offers advice and guidance to prospective and current students and coordinates a range of support and services to enable all students to participate fully in University life.

The University approach is to embed inclusive practice into its policies, procedures and curriculum design. We work in partnership with individual students to tailor our provision to meet specific, individual requirements. Students and applicants are encouraged and given ample and appropriate opportunities to disclose their disabilities, disabling conditions and specific learning difficulties. We highlight the potential means of support available to
them, for example application to the Disabled Students Allowance (for UK Students). Any information on a student or applicant’s disability may, with the student’s permission, be passed on to the Disability Advisory Service (DAS). Students and applicants will also be given contact details for the School or Departmental Disability Representative. DAS can advise on applying for Disabled Students Allowances; assist with arranging specialised support workers such as note-takers and mentors. This service can provide advice for students and applicants who have enquiries relating to physical and sensory disabilities, specific learning difficulties, mental health and long-term health conditions. The service acts as a link between students, academic staff, support services and Student Finance England to help make sure needs are met.

Contact DAS: disability@reading.ac.uk or (0118) 378 8921. Further information can be found at www.reading.ac.uk/disability/

The Medical Centre can be contacted on (0118) 975 1823. www.reading.ac.uk/internal/personaltutor/Directory/pt-medicalpractice.aspx

### Student counselling and well-being services

The University Counselling and Well-being Service offers short-term counselling and support for all currently-registered students free of charge. You can contact the service by going to the office in the Carrington Building, room 106 or by calling on (0118) 378 4216, or by email counselling@reading.ac.uk. Also see: www.reading.ac.uk/internal/counselling.

The University Counselling and Well-being Service also provides the following sources of support:

- Peer Support: a friendly, informal and confidential service provided by students, for students: www.reading.ac.uk/internal/peersupport/peer-homepage.aspx
- A series of talks designed to provide information on a range of topics such as understanding emotions, increasing concentration, managing stress, getting things done and managing transitions: www.reading.ac.uk/internal/counselling/training/coun-groupsandtraining.aspx

### Additional costs of studying

During your time studying at Reading, you may encounter some additional costs, for example field trips, text books, or stationery. Many MSc students, for example, need a pair of safety boots for site visits. These must fulfil the requirements for health and safety legislation. If you do not have appropriate boots, you will be denied access to building sites. This strict requirement may be unfamiliar to those new to the UK construction industry.

It is prudent to budget appropriately for these costs, and the Student Advice Team in the Students’ Union or at stu.adv@reading.ac.uk can help you personally with this. You can also visit www.rusu.co.uk/advice/money_advice/ for more generic information. More specific information is given in your Programme Specification (www.reading.ac.uk/progspecs).
Complaints procedures

A student who has a complaint about his or her programme should, in the first instance, talk to his or her Programme Director about the problem. Most difficulties are solvable at this level. If the student is not satisfied, the problem should next be discussed with the Head of School. A student who is unable or unwilling for good reason to take a complaint by this route should see the Associate Dean (Teaching and Learning). If none of these avenues of complaint yield a satisfactory response, the student should write to the Director of Student Services.

You can find the University’s Student Complaints Procedures at: http://goo.gl/I4BNMP

Further information

Further information about general facilities in the University can be found at Appendix F, page 92.
Programme practices

We have developed procedures for managing the quality of the programmes and supporting communication between the School and the students.

Quality assurance procedures

The continued quality of the MSc Programmes in The School of the Built Environment is ensured by several mechanisms. The prime responsibility rests in the first instance with the Programme Director, who reports to the School’s Board of Studies for Postgraduate Programmes. This reports to the School Board of Teaching and Learning, which, in turn, reports to the University Board for Teaching and Learning. More details are available online: http://www.reading.ac.uk/web/files/qualitysupport/qualityoverview.pdf.

At a practical level, an important component of quality assurance is the collection of feedback from students. This requires students to evaluate the content and presentation of the module. The results are analysed, and action taken where appropriate. The summary evaluation for each module is presented to the Postgraduate Board of Studies. The feedback for each module is considered in the context of the educational objectives. Students are encouraged to participate fully in the quality assurance programme and are reminded that they have a role not only in passively assessing the quality of the lectures, but also in positively contributing to the quality of the learning experience.

The aims and objectives of the programmes are set out at Appendix B, page 88.

Student contribution to evaluations of the programme

Student input into programme design and management is welcomed. Each module is evaluated on completion of the classes by asking every student to complete an evaluation form. These will be distributed during the classes and collected at the end of a module week by a Student Representative, who then returns them for analysis. Summary reports of these evaluations should be published in the relevant Blackboard module and module convenors are asked to report on the action they have taken in light of the comments and evaluations made by students.

Evaluation is also enabled through a Staff-Student Liaison Committee (SSLC) and a Boards of Studies. The SSLC reports to the Board of Studies. The SSLC enables students to provide feedback to the School about any programme or module or, indeed, about any aspect of the School. The committee is constituted of both School staff and student representatives from each programme, with the primary aim of resolving problems or queries with current courses and feeding comments of all kinds into the continuous development of our programmes and student support. Anyone bringing an issue to our attention will be treated fairly and you may remain anonymous if you wish. We welcome feedback, both positive and negative, because it helps to improve the course to better meet the needs and expectations of students.

There are also opportunities to represent student interests at University level. For all Student Representative roles, the Reading University Students Union provides full training.
and support. For further information on opportunities for representation, see http://www.reading.ac.uk/web/files/qualitysupport/studentreppolicy.pdf
For more information from RUSU, see www.rusu.co.uk/pgelections

Communication

The University provides all students with a University email account and email is used regularly in the University as the default form of official communications between staff and students.

You must use your University email account for your University correspondence; do not use a ‘private’ email account. This is because:

- the University guarantees that this account will be available to you for the entire duration of your studies;
- the University guarantees that suitable, supported email software will be available to you for the entire duration of your studies;
- the University offers an email service to standards of availability, reliability, performance and security which it determines, and which are under its own control.
- email sent from non-university email accounts may often be classified as “spam” and hence not read.

Me@Reading Student portal

Current students have access to the Me@Reading Student portal which is an all-encompassing web platform, where you can access RISIS, Blackboard, university events, your inbox, tailored content and more.

What the portal does:

- Makes it easier for you to find interesting news, events and articles, relevant to you, from careers events to alumni stories. So you won’t miss out on the exciting stuff your department is doing, or the event you wouldn’t have known about otherwise.
- Keep everything you need in one place; no more opening multiple tabs for RISIS, Blackboard, or your inbox.

Find more information on the portal at student.reading.ac.uk/essentials.aspx.

Addressing academic staff

When writing an email to a member of academic or administrative staff, please always put your name at the end of your message, followed on a new line by your student number (not username) and then a third line with the name of your MSc programme, including ‘full-time’ or ‘flexible’ after the programme name. (You may find it convenient to set this up as one of your ‘signatures’ in your email software.) Here is an example:

Jane Doe
99996373
MSc Construction Management (full-time)

If you are emailing in relation to a specific module, please put the module code (all module codes in this School commence with three letters, CEM, and have six characters, no spaces)
as the first part of the subject line. Don’t forget to add a couple of words after the module code to indicate the topic of the email. This helps people with large volumes of email to relocate your email in the future.

When addressing a member of academic staff, it is customary in the UK academic practice to use forenames, as follows:

**Dear Roger**

However, if you wish to retain a level of formality, do not simply write ‘Dear Mr Roger’ or ‘Dear Professor Roger’. If you want to be formal, you should use the surname, not the forename, and the correct title (Mr, Ms, Dr, Prof), depending on whether they hold a PhD, a professorship or not. You may check the qualifications and titles of each member of staff in the School’s web page at [http://bit.ly/SCME-staff](http://bit.ly/SCME-staff). If you are unfamiliar with naming conventions in the UK, please note that the given name(s) comes first and the family name last. Your experience of names may be different, depending on which country you come from, so please pay particular attention to how names are presented. For further guidance on naming conventions, please see [https://en.wikipedia.org/wiki/Personal_name](https://en.wikipedia.org/wiki/Personal_name).

Please do not assume that staff are on holiday when there are no classes. Making such an assumption will often cause most academic staff to be a little bit offended. Staff do not get holidays when the students do. Never apologise for sending an email, since the person receiving it makes a conscious decision about whether they wish to access their emails or not.

- **Use the subject line:** When you send an email to anyone about a specific issue, please always put a short description of the issue in the subject line of the email. This is no the place to insert your name or ID. If you are writing about a specific lecture course, use the code. If you are writing about a programme, give the name of the of the programme.
- **Greeting:** At the beginning of the email, begin with the addressee’s name. Emails are less formal than letters, so it is usually OK to begin with “Hi”, if you are not a named individual. If you are addressing a named individual, do not begin with “To whom it may concern”.
- **In composing your text, assume that your correspondent deals with many people other than yourself:** Many of my colleagues are involved with a wide variety of programmes, modules, courses, and cohorts of students. Not all students are studying the same thing. It is useful to spell out a little bit of detail in what you are asking, rather than assuming that your correspondent knows exactly who you are and what is on your mind. Get to the point quickly and avoid wasting words. What is your question? Why are you asking it? Use clear English. Are you using acronyms that only make sense in a specific context? Be accurate with ID codes and names. Be clear about what you are asking for.
- **Signature in email:** At the end of an email, after “Best wishes” or “Kind regards”, write three things, one per line. First, your name. Second, under your name, on a new line, add any personal identifying number that could be relevant. For example, if you are a student, you may have a student number (not your username, which may be a different thing). If you have previously enquired, you may have a reference number. Third, under your reference ID, write the name of the programme and, preferably, the cohort you commenced in, for example: MSc Construction Management (2016-17), or BSc Building Surveying (2018-19). If you are writing to apply for a place on a programme, name it in a similar way. If you are writing on behalf of an organization company, write the name of the organization here.
Accessing information on modules and programmes

Information is also provided electronically using the Blackboard Learn portal (www.bb.reading.ac.uk), where you can find detailed information on modules and School-specific information; the RISIS web portal (www.risisweb.reading.ac.uk), where you can find personal information; and Essentials (student.reading.ac.uk/essentials).

Teaching staff and students are expected to check their email accounts, Blackboard Learn portals and other electronic methods of communication on a daily basis during term-time and respond to messages as appropriate. Students are required to check their University email accounts at least once a week.

You may set up forwarding arrangements to automatically send email received in your University account to another email account of your choosing; however, you do so at your own risk and you should ensure that you forward to a valid and existing account. The University can only be held responsible for email reaching your University email account. If an email has been sent without apparent problem to your University account, the sender may reasonably assume that you will receive that email. If you do wish to forward email from your University account to a private account, you can do this by changing your email options: see www.reading.ac.uk/readingLive for information. It is advisable for a copy of the email to be delivered to (and stored in) your University account as well by including your University email address on a separate line under your personal email address in the mail options.

Unless otherwise instructed by your School, you should not submit coursework using email.

Term-time addresses and phone numbers

All students are required to maintain their student record via the RISISweb Portal (www.risisweb.reading.ac.uk). This includes entering up-to-date local contact address (i.e. your term-time address) and (where possible) mobile phone numbers. It is very important that we have these details in case of an emergency and to send, or forward, correspondence to you if needed.

Assignment brief issue dates

In some modules, assignment briefs may be issued at the beginning of the module. This can be useful to enable students to focus their learning while they have access to the lectures and tutors. However, this is neither appropriate not possible in all modules. It may happen that an assignment brief is issued at the end of a module. Sometimes, it is entirely appropriate to avoid issuing the brief at the beginning, whether to allow the module convenor to be responsive to the learning that took place in the particular week, or to cover the whole module in general terms before focusing on to the specifics of one topic within the module. Focusing directly and solely on the assignment can be quite counter-productive in the learning process. Therefore, we expect that there will be different practices in different modules for very good reasons.

Attendance at modules you are not enrolled on

Students may attend classes in modules for which they are not enrolled, subject to the agreement of the module convenor, the capacity of the room and by prior arrangement. It
may be possible to attend an entire module as a guest but there would be no opportunity to submit work for assessment. However, if you choose to attend an unenrolled module for personal development reasons, we will monitor attendance and we may be able to certify this on your final transcript (subject to changing policies in this area). This is something that you can then declare on your CV. Some students have found this a useful to response to the problem of there being too many interesting modules to choose from.

**Timetables published in Blackboard portal**

To enable all students to see all detailed MSc module timetables, the timetables should be published in the Blackboard PG Student portal, not in the module area. There are sometimes enrolment problems in Blackboard and using the portal for the timetable enables students to have access to the timetable before a module is opened for access.

Your timetable holds information on all the classes you need to attend as part of your programme. This includes lectures, seminars, workshops and any other events which form part of your programme. Information on how to access details of the room bookings and timings for your classes, syncing these to your phone, along with help and support can be found on the Essentials website at [http://student.reading.ac.uk/essentials/_study/your-timetable.aspx](http://student.reading.ac.uk/essentials/_study/your-timetable.aspx)
Programme assessment

Requirements for award

MSc degrees may be awarded with the following classifications:

- Pass with Distinction
- Pass with Merit
- Pass

The Marking Criteria and Classification Framework for Taught Postgraduate Programmes may be found at: http://goo.gl/0551kQ. The details of this are explained in the programme specifications at www.reading.ac.uk/progspecs.

These explanatory notes are intended to explain the rules set out in the formal requirements for 2017-18. Students on earlier programmes must read their programme handbook carefully to check for differences. These guidance notes are to supplement and explain the rules, not to replace them. If there is a difference between these notes and the rules, then the rules will prevail.

“To obtain the Masters award a student must take 180 credits consisting of the ... compulsory core modules and ... optional modules. To pass, the MSc students must gain an average mark of 50 or more over 180 credits including a mark of 50 or more for the dissertation. In addition, the total credit value of all modules marked below 40 must not exceed 30 credits and the total credit value of all modules marked below 50 must not exceed 50 credits.

“Students who gain an average mark of 70 or more overall or an average mark of 68 or more and a mark of 70 or more in 90 credits, including a mark of 60 or more for the dissertation, and have no marks below 40 will be eligible for a Distinction. Those gaining an average mark of 60 or more overall or an average mark of 58 or more and a mark of 60 or more in 90 credits, including a mark of 50 or more for the dissertation, and have no mark below 40 will be awarded a Merit.”

This is somewhat dense text. The following seeks to unpack it for the sake of clarity.

MSc Pass

- 50% or more for dissertation.
- An overall weighted average of 50% or more.
- 50% or more in 130 credits (i.e. it is acceptable to have marks in the range of 40-49 in up to 50 credits, provided that the overall weighted average is 50% or more).
- 40% or more in 150 credits (i.e. it is acceptable to have marks in the range of 0-39 in up to 30 credits, provided that the overall weighted average is 50% or more).

MSc Merit

- 50% or more for dissertation.
- An overall weighted average of 60% or more. (Alternatively an overall weighted average of 58 or more with 90 or more credits at 60% or more.)
• 60% or more in 130 credits (i.e. it is acceptable to have marks in the range of 50-59 in up to 50 credits, provided that the overall weighted average is 60% or more).
• No mark below 40%.

**MSc Distinction**

• 60% or more for dissertation.
• An overall weighted average of 70% or more. (Alternatively an overall weighted average of 68 or more with 90 or more credits at 70% or more.)
• No mark below 40%.

In the event that the marks do not warrant the award of an MSc, a Diploma or Certificate may be possible.

**Diploma award**

“To obtain the Postgraduate Diploma a student must take 120 credits including at least three compulsory core modules (not including the 6C-credit dissertation or 4C-credit integrating module). To pass the Diploma students must gain an average mark of 50 or more over the 120 credits. In addition the total credit value of all modules marked below 40 must not exceed 30 credits and the total credit value of all modules marked below 50 must not exceed 50 credits.

Students who gain an average mark of 70 or more over 120 credits or an average mark of 68 or more over 120 credits and a mark of 70 or more in 60 credits, and have no mark below 40 will be awarded a Distinction. Those gaining an average mark of 60 or more over 120 credits, or an average mark of 58 or more and a mark of 60 or more in 60 credits, and have no mark below 40 will be awarded a Merit.”

The formal text for setting out what has to be achieved for the award of a Diploma may be unpacked as follows:

• It is not necessary to pass the dissertation as part of the 120 credits.
• Three of the ten-credit core modules must be included in the calculation.
• Any combination of modules that totals 120 credits may be used in the calculation provided that three of the ten-credit modules are included.
• An overall weighted average of 50% or more over the 120 credits.
• 50% or more in 70 credits (i.e. it is acceptable to have marks in the range of 40-49 in up to 50 credits, provided that the overall weighted average is 50% or more).
• 40% or more in 90 credits (i.e. it is acceptable to have marks in the range of 0-39 in up to 30 credits, provided that the overall weighted average is 50% or more).

**Diploma with merit**

• It is not necessary to pass the dissertation as part of the 120 credits.
• Three of the ten-credit core modules must be included in the calculation.
• Any combination of modules that totals 120 credits may be used in the calculation provided that three of the ten-credit modules are included.
• An overall weighted average of 60% is required over the 120 credits. (Alternatively an overall weighted average of 58 or more with 60 or more credits at 60% or more.)
• No mark below 40.
Diploma with distinction

- It is not necessary to pass the dissertation as part of the 120 credits.
- Three of the ten-credit core modules must be included in the calculation.
- Any combination of modules that totals 120 credits may be used in the calculation provided that three of the ten-credit modules are included.
- An overall weighted average of 70% is required over the 120 credits. (Alternatively an overall weighted average of 68 or more with 60 or more credits at 70% or more.)
- No mark below 40.

Certificate award

“To obtain the Postgraduate Certificate a student must take 60 credits consisting of at least three compulsory core modules (not including the 60-credit dissertation or 4C-credit integrating module). To pass the Certificate students must gain an average mark of 50 or more over the 60 credits. In addition the total credit value of all modules marked below 40 must not exceed 10 credits.”

- It is not expected to pass the dissertation as part of the 120 credits.
- Three of the ten-credit core modules must be included in the calculation.
- Any combination of modules that totals 60 credits may be used in the calculation provided that three of the ten-credit modules are included.
- An overall weighted average of 50% is required over the 60 credits.
- 50% or more in 50 credits (i.e. it is acceptable to have marks in the range of 40-49 in up to 10 credits, provided that the overall weighted average is 50% or more).

Note: A module cannot be credited for more than one award.

In the case of finalists who have a debt of £50 or more to the University in respect of tuition-related charges (e.g. tuition fees, re-examination fees, field trip costs, and library fines; but not accommodation costs or parking fines), no recommended result will be submitted to the Senate. In such cases, the result will be recorded as ‘Result not yet available’. Students should discuss the situation with Student Services (undergraduate) or the appropriate Faculty Office (postgraduates). You should note that, if the debt has not been settled within 18 months of the decision that there be no recommendation, you will no longer be eligible for re-examination.

The assessment procedures for each module are given in the Module Descriptions at www.reading.ac.uk/module.

Further information about assessment is available at Appendix H, page 97.

External examiners

The external examining system is a key component of the University’s quality assurance and enhancement processes. It plays an important role in ensuring that our awards are maintained at an appropriate standard, that our assessment process measures student achievement rigorously and fairly, and that the academic standards and achievement of students are comparable with those on similar programmes in other UK universities. External examiners also assist the University in enhancing the quality of teaching, learning and assessment by advising on good practice.
The University appoints at least one external examiner for each of its award-bearing programmes. External examiners are normally drawn from other universities or, in the case of programmes with a strong professional dimension, from among relevant, suitably qualified professionals. They must meet rigorous criteria for appointment and be in a position to offer independent and impartial judgments. They are involved in scrutinising draft examination papers, moderating the marking of assessments, and determining the overall result for each student.

Each external examiner is required to produce a report on the programme(s) to which he or she has been appointed. External examiners’ reports are considered by Staff Student Liaison Committees and by Boards of Studies. The Board of Studies is responsible for determining the action to be taken in response to the reports, and for reporting onward to the Faculty and University Boards for Teaching and Learning on the reports and actions taken. The School is required to respond to their external examiners explaining how points raised are being addressed.

The name, position and institution of external examiners are published, for information only, on the Examinations Office website, following their approval by the University Board for Teaching and Learning in the Spring Term each year. You should note that students are strictly prohibited from contacting external examiners directly. External examiners’ reports are made available to students on the relevant programme, in accordance with arrangements to be specified on the Examination Office website in the Autumn Term.

The University’s policies and procedures for external examining are set out in the Code of Practice on the External Examining of Taught Programmes: (www.reading.ac.uk/exams/staff/lea-EE.aspx).

Submission of coursework

Coursework should be submitted by the due date in accordance with the arrangements specified by the lecturer who has set the work. Failure to submit the work by the due date will mean that a penalty is applied unless an extension to the date for submission has been granted or approval is given for removal of the normal penalty (please see the section below on extenuating circumstances).

All coursework should be submitted electronically through Blackboard and Turnitin according to the instructions found on Blackboard. Turnitin is a tool that can be used to help assessors check students’ work for improper citation and potential plagiarism. Work (assignments, reports or essays) entered into it will return an originality report, a review of textual similarity based on a comparison with online sources, an archive of previous submissions to Turnitin, and anything else in Turnitin's database. The report features a similarity index for the number of matches it has found during the comparison and can be examined for signs of intentional duplication or poor referencing practice. The similarity index is only an indication of the quantity of text that matches other sources. It is not expected that this will ever be zero, since cover sheets, assignment titles, direct quotation of passages of text and properly formatted references will all appear to the Turnitin system to be directly reproduced text. Staff are expected to interpret Turnitin reports carefully. Further information on potential academic misconduct appears on page 80.

We do not usually allow students to see their Turnitin score until after the submission date has passed. This is a deliberate policy because Turnitin scores are difficult to interpret and a
zero score is not the aim. We do not want student to focus on minimising their Turnitin scores. Instead, avoid plagiarism!

The University reserves the right to retain coursework for the purposes of programme review (both internal and external) although any confidentiality will be observed. The School is currently exploring and developing procedures for making selected pieces of successfully completed coursework available on-line to current and future students.

Feedback to students

It is the University's policy that you should receive timely, structured and appropriate feedback on work which has a primarily formative purpose. Feedback will be delivered in a number of ways and contain comments appropriate to the nature of the assignment and how it is assessed. These comments should provide the basis for you to improve and develop. The member of staff or the School responsible for the module will tell you, at the time when a piece of work is set, if not before, the date on which the work will be returned with feedback.

For all taught postgraduate programmes, the standard turnaround time for individual feedback and marks on coursework and in-class tests is a maximum of fifteen working days\(^1\) from the deadline for submission or date of the in-class test. The policy applies equally to work from full-time and flexible-modular students.

Some assessments may be exempt from the 15-working day turnaround time feedback requirement. The following assessments are exempt, subject to the proviso that work submitted in the Summer Term should be returned prior to graduation:

- Dissertations
- Assessments where there is input from a professional external body that might unavoidably delay the marking process
- Assessments where for logistical reasons there are staggered submission dates (e.g. practicals)

For more information see [www.reading.ac.uk/web/files/qualitysupport/feedbackonstudentperformance.pdf](http://www.reading.ac.uk/web/files/qualitysupport/feedbackonstudentperformance.pdf)

If you would like feedback on your overall progress, module providers will give you an indication of your progress in an individual module, while feedback on progress on your programme will normally be given by your programme director.

---

\(^1\) For the purposes of this policy, a working day is defined as excluding Saturday and Sunday. This definition applies to all students, regardless of location. Public/national holidays in the country where the relevant module is being delivered and University closure days are not normally considered to be working days. When setting deadlines for submission of coursework, module convenors should take into consideration public/national holidays in the country or countries where staff who will be responsible for marking and provision of feedback are located. For UK campuses, the University is normally closed on the 8 Public Holidays for England and Wales (New Year’s Day, Good Friday, Easter Monday, May Bank Holiday, Spring Bank Holiday, Summer Bank Holiday, Christmas Day and Boxing Day). It is also normally closed for a small number of additional days during the year, referred to as 'closure days', usually around the Christmas and Easter public holidays. Further details can be found at [www.reading.ac.uk/17/study/studytermdates.aspx](http://www.reading.ac.uk/17/study/studytermdates.aspx).
Publication of marks and grades

You should be aware that marks and grades given to you during your degree programme are provisional and subject to moderation by the external examiner and by the faculty board, who may recommend changes either to the marks of a particular student or to those of a whole group. Therefore, marks only reach their final form after they have been scrutinised and approved by the appropriate examiners’ meeting, which takes place at the end of the programme. Subsequent to this, there are further formal processes that have to take place because it is the University that awards degrees, not the School.

Transcripts of marks provide information on all the courses taken, grades achieved and the degree that has been conferred. Since marks are only confirmed after they have been scrutinised and approved by the appropriate examiners’ meeting, and ratified at higher levels of the University, full transcripts are not available until several weeks after the assessments are completed and examination boards have taken place. However, marks that have been entered into the student record system can be provided as a provisional record by the Student Support Co-ordinator in the Edith Morley Building. Further details, including contact details, are available on their website at www.rdg.ac.uk/stdserv-transcripts.aspx.

Students who need confirmation of their enrolment or confirmation of marks for the purposes of their APC assessment by the RICS should contact the Student Support Co-ordinator on ssc.sbe@reading.ac.uk stating what they need, and why. Transcripts of results can be sent directly from SSC to the RICS, provided you give clear guidance about what you need, keeping in mind that all marks are provisional until after being ratified in various University processes. It is advisable to allow time for such administrative processes to take place, as SSC are dealing with a lot of students and must prioritise and schedule their work.

Students who owe money to the University will not be able to access their results until the clear their debt fully. Please do not ask academic staff to release your results informally to you.

Penalties for late submission

The following penalties will be applied by the module convenor to coursework which is submitted after the deadline for submission:

- Where the piece of work is submitted after the original deadline (or any formally agreed extension to the deadline): 10% of the total marks available for that piece of work will be deducted from the mark for each day up to a total of five working days;
- Where the piece of work is submitted more than five working days after the original deadline (or any formally agreed extension to the deadline): a mark of zero will be recorded.
- In the case of some minor pieces of work, a mark of zero will be recorded for late submission, even if the work is submitted within five working days after the original deadline. You will be informed if a piece of work is subject to this provision.

You are strongly advised to ensure that coursework is submitted by the relevant deadline. You should note that it is better to submit work in an unfinished state rather than failing to submit work.
The maximum duration of the full-time programme is one year. For flexible programmes, it is 63 months, although the target completion time is 24 months. In exceptional cases, where extenuating circumstances exist, an extension request may be submitted via the Programme Director to the Faculty Director of Teaching and Learning.

The formal statement on penalties for late submission can be found at http://www.reading.ac.uk/web/FILES/qualitysupport/penaltiesforlatesubmission.pdf

**Formative assessment**

You may be set coursework as a formative assessment, which allows you to benefit from feedback but does not contribute to the mark for the module. If you fail to submit such work by the deadline for submission, you forfeit your right to any feedback; in this case, it is entirely at the discretion of the marker whether to provide feedback.

**Standard examination and assessment procedures**

Further information on assessment can be found in the Guide to Assessment for Taught Postgraduate Students (www.reading.ac.uk/internal/exams/student/exa-guidePG.aspx) and on the Examinations Office website (www.reading.ac.uk/exams/).

**University code of practice on the assessment of taught programmes**

The University's Code of Practice on the Assessment of Taught Programmes can be downloaded from the web at: www.reading.ac.uk/web/FILES/exams/CPATE-2011.pdf.

**Extenuating circumstances**

During your degree programme, you might be faced with personal, medical or family problems that are outside your control and negatively affect your academic performance. Such problems may fall into the category of 'extenuating circumstances'. The University has a policy for this - https://goo.gl/2oRjzq.

If you believe that what is happening to you is affecting your ability to study, prepare or participate, then it is your responsibility to let your School know what is happening to you.

In the first instance you should talk to your Programme Director or the PG Senior Tutor of the School. You can also contact your Student Support Coordinator (www.reading.ac.uk/student/SupportArrangements.aspx) or speak to the Advisory Service at RUSU (advice@rusu.co.uk) to discuss your situation.

If there are circumstances which you think might affect or have affected your performance in examinations or assessment, or if you wish to request an extension on the grounds of medical or other circumstances, you are required to complete the University’s notification of extenuating circumstances form (ECF) and inform the Student Support Coordinator who can also help with the completion of the on-line form, accessible via RISIS.

Students seeking an extension for written assignments/coursework should, as far as possible, submit the form before the deadline for coursework submission. If this is not possible, it is matter of priority that you submit the form as quickly as you can after the
deadline. Without the form or evidence, it is very difficult for the School to make any decision on your behalf.

It is your responsibility to submit by the relevant deadline an extenuating circumstances form in relation to any circumstances which you believe have affected your performance. If you do not submit an extenuating circumstances form by the relevant deadline, your circumstances will not normally be considered.

Extenuating Circumstances Forms submitted after the specified deadlines will only be considered if insurmountable circumstances prevented you from submitting the form (for example, hospitalisation, incarceration, or equivalent incapacity). If you submit your extenuating circumstances form after the relevant deadline, you must provide a statement explaining in full the reasons for late submission and provide supporting evidence where appropriate.

In addition to submitting the form, you are strongly encouraged to discuss any circumstances which you consider are affecting or might affect your work with your programme director or the lecturer responsible for your coursework.

The PG Senior Tutor may decide that you have been adversely affected by extenuating circumstances and where extenuating circumstances are accepted as having a significant impact on your work, possible outcomes include:

- You are allowed an extension to the deadline for submission of coursework;
- A penalty for late submission of coursework is removed.

Extenuating circumstances forms are treated in strictest confidence. Further details in Appendix G at page 93.

**Graduation**

The graduation ceremony is an important event for the student and for the university. Some students look upon this as a lot of time wasted for three seconds on the stage and a handshake. If that were all there was to it, then it would indeed be an extravagant occasion for little purpose. But there is much more to this than a three-second handshake. There is a danger that the casual observer may devalue the sense of occasion and the importance of ceremony. We will organize a reception involving the other students and the academic staff of the School. There will be a prize-giving in that reception and a few speeches. The actual ceremony is, like any ceremony, a poignant punctuation mark in one’s life. A nexus of events that happens only once and marks end and a beginning, like most ceremonies. There is more to your graduation than the handshake. We want to make a fuss of you because of your success in your studies. By completing an MSc, you have become a little more exceptional and we want to acknowledge your exceptional qualities. We can do that without you if it is too expensive and time-consuming for you to be there in person, of course, but it is something of an empty gesture without you. But, if you are the winner of a prize connected with your achievement, and if you are travelling or working already and cannot get here for the graduation ceremony, please let us have an address where we can send you anything that we may need to send to you. Maintain your contact details in RISIS, so that the university can send you certificates and anything else that you might have earned.
Prizes

Each year, the teaching staff look at the performance of students from both the summer and the Christmas graduation ceremonies to determine which students have achieved the best results in various categories of performance, such as overall marks and dissertation marks, for example. The top performers are awarded a prize, involving a certificate and (usually) some money. The prizes are awarded at the Christmas graduation ceremony.

Re-assessment and resits

Failing a module does not mean that you fail the programme, unless you fail your dissertation module. On all our MSc programmes, there is an absolute requirement to get 50 or more in the dissertation module. Please refer to the requirements for award of the various possible qualifications starting at page 70.

Failing mark in one or more modules

If you fail or withdraw from a qualifying mark in a module, you will normally have the right to be reassessed in the module, subject to the provisions explained below, on one occasion, within the normal duration of the programme. Please note the calculation of awards in the section on Programme Assessment – it is not necessary to get a minimum of 50 in every module. The overall weighted average is more important than the individual module marks.

In 2017-18, the resit period is 12:00 noon 14 August 2018 to 10:00 a.m. 18 September 2018 (both for full-time and for flexible-modular students). If you are eligible to resit a module, the Examinations Office will write to you in July listing those modules in which you are eligible for a resit and asking you to let them know those in which you want a second attempt. They charge a resit fee for each module chosen. The timing of this process enables you to take a considered view in the light of your performance across all of your modules.

Please note that if you are taking a flexible-modular programme, you will only be offered the opportunity to resit a module once. If you decline that option, there will be no further opportunity to resit a failed module.

If your resit mark is lower than the mark you were awarded for your first attempt, the original mark will stand.

(Incidentally, there is a rule in the University that states that if you have failed a taught module and the resit falls within a period scheduled for preparation of a dissertation, an extension of one month will normally be granted to the submission date for the dissertation. Our resit assignments commence after the dissertation submission date for most students.)

Failing the programme as a whole

Failure of the whole programme at the first attempt leads to the examiners recommending the resit requirements for approval by the Faculty Examiners’ Meeting. This is based on the principle that a candidate has the right to two attempts at any assessment. If you fail the programme at the first attempt, you will only have the right to resit modules you have not previously been offered the opportunity to resit (this applies whether you chose to take the resit or not).
Failing mark in the dissertation

If you fail the dissertation at the first attempt and your other results are such that a second attempt at the dissertation might lead to the award of the degree of MSc, you will be permitted to resubmit the dissertation within twelve months from the original submission date as determined by the Faculty Examiners’ Meeting.

Candidates whose results from the taught component of the programme, including second attempts where they have been permitted, are such that they are unable to fulfil the criteria for the award of the MSc degree will not be permitted reassessment in the dissertation.

In calculating the classification of the award (distinction, merit, pass), resit marks will be capped at 50%. However, the uncapped resit mark will appear on the transcript of results and stored in the official record of results.

Assessment and re-assessment subsequent to a student’s period of registration

Most full-time students will have completed the assessment process (including re-examination) by the end of the academic year in which they were registered for their programme. In a small minority of cases, students will have assessments or reassessments to be undertaken in the academic year following their normal period of registration. Students in this category will not be registered at the University for the academic year following their normal period of registration. During such a period of suspension, pending re-examination or pending examination subsequent to having been deemed not to have sat, the following provisions apply:

- Students who are suspended pending examination or re-examination are not permitted to attend lectures, seminars or tutorials, or to submit further formative work, except that they are entitled to attend any revision classes or other revision activities which are included in the normal provision for students and to seek guidance from tutors and lecturers in relation to their revision. Students are not liable to an additional fee for revision classes or revision activities which they attend.
- Students who have been deemed not to have sat and have been suspended pending examination may apply to the Associate Dean (Teaching and Learning) for an exceptional allowance to attend specified classes. The Associate Dean (Teaching and Learning) will consider each case on its merits, and will grant such allowance in cases where a student has missed certain classes due to his or her circumstances. Such students will not normally be liable for an additional fee.
- Students who are suspended pending examination or re-examination have free reader-only access to the library and may apply for Student Visitor Status (which allows borrowing) provided that the student requests continued access, the Head of School sponsors the student, and the student is in good standing with the Library.
- Students who are suspended pending examination or re-examination will not normally have access to materials on Blackboard during their period of suspension.

Appeals for review of marks

If you consider that you have been awarded unfairly a mark for a module you may request that the mark be reviewed, provided that the grounds for the request do not relate to the academic judgement of the examiners. The procedures relating to students’ requests for
Examination arrangements for students with disabilities (where applicable)

A number of arrangements can be made for students with disabilities. Examples of such arrangements include extra time, or rest breaks in examinations; sitting examinations in an alternative venue; or using an amanuensis or reader. These arrangements will be made on an individual basis with the Disability Representative of the student’s School and the Examinations Office. If you consider that you need alternative arrangements, you should contact your School Disability Representative at the earliest opportunity.

If you have been assessed as having a specific learning difficulty (such as dyslexia), you should provide a copy of a recent Educational Psychologist’s assessment report to the Disability Advisory Service. The report will be reviewed by the University Study Advisers, who will either make recommendations based upon it, or will ask you to make an appointment for a new assessment. Students who think they may have specific learning difficulties, but who have not been formally diagnosed as such, should discuss the issue with their Programme Director or School Disability Representative.

Academic misconduct

The University takes the most serious view of cheating and other forms of academic misconduct, whether in written examinations or coursework. Any such case will be treated as a disciplinary matter as described in the Consequences section below.

You should read the University’s definition of academic misconduct, which is given in the Guide to Undergraduate Assessment/Guide to Assessment for Taught Postgraduate Students, and on the Examinations Office website at: www.reading.ac.uk/internal/exams/Policies/exa-misconduct.aspx

Copying

It is clear to all that, if a student is asked to do a piece of work, then simply copying all or part of someone else’s work is not acceptable: copying is cheating and regarded seriously as academic misconduct. More importantly, perhaps, it is not sensible. If there is a purpose in asking a student to do a piece of work; it will be to promote or assess the student’s learning and copying contributes nothing to that purpose. Equally, you should never employ anyone to write an essay for you: this is a variant of copying.

Falsifying data

Falsifying data, evidence or experimental results is another form of academic misconduct.

Plagiarism

For the purposes of the University regulations, plagiarism is defined as the fraudulent representation of another’s work as one’s own. This applies whatever the source of the material (for example, a published source, the web, or the work of another student), whether the material is copied word for word or paraphrased, and whatever the extent of
Avoiding Unintentional Plagiarism

(Extract from the Academic Integrity Toolkit libguides.reading.ac.uk/academicintegrity)

Plagiarism is when someone else’s work is passed off as your own. It may include:

• Using someone else's words directly without accurately acknowledging their authorship (whether this is from a published source or another student)
• Using ideas from someone else’s work without accurately acknowledging their source
• Colluding with another student to produce the same or similar work
• Passing off someone else’s original work (e.g. a commissioned essay) as your own

Although you may be thinking that you would never be so dishonest, it is possible to commit plagiarism unintentionally. Unintentional plagiarism can happen if:

• You are not careful about recording details or note-making
• You do not learn how to cite references to comply with university standards
• You do not fully understand the role that references play in your academic writing

These errors also put you at risk of committing poor academic practice. This is the term used when you produce work which may be fully referenced, but (for instance) relies too heavily on only one or two sources or is generally too derivative (includes too many words quoted from other people and not enough of your own analysis and exposition), or is inadequately paraphrased (too close to the original).

Both plagiarism and poor academic practice leave you liable to penalties which may be determined at a School or University level. These can range from a substantial reduction in your marks (or even a mark of zero) which can affect your final degree classification, to a formal misconduct hearing which may result in your being asked to leave the University.

Things you can do to avoid unintentional plagiarism

• Read your feedback carefully – if your referencing has been criticised, find out what you are doing wrong and put it right before your next submission. A ‘second offence’ may be treated much more seriously, even if it is for another marker.
• Develop good note-making and record keeping practices – be thorough and accurate, avoid doing ‘cut and paste’ research, read a paragraph then write in your own words what you have understood and how it relates to your assignment brief.
• Find out when you need to use a citation – acknowledge every idea you get from your research – not just direct quotes.
• Understand how to use references to support your discussion – referring to other people’s work and showing how it helped to build your own ideas is a way of sharing your research journey and situating your work in the body of work in your discipline.

Joint or group work

The University encourages you to learn from each other, so when working together it is important to work with academic integrity. In group work assessments, it is likely you will be asked to submit a joint assignment that will be clearly acknowledged as being produced by the whole group. Part of the assessment will involve how you manage the group process and divide tasks between the group members. People do not need to do the same amounts of work, but the group does need to take collective responsibility for being honest, fair, and for showing respect to each member of the group.

Learning collaboratively and sharing ideas can be extremely effective. However, you need to be honest and fair. For individual assignments, such as essays or reports, whether undertaken as part of group work or otherwise, discussing the general topics together is fine, but the assignment itself should be planned and written up separately and individually. For mathematical and computing problems or data analysis, discussing the best approach to the problem can lead to you selecting the same methods as your peers, and your work can naturally end up looking quite similar. However, you should complete the stages of the method and any working out yourself. It is not acceptable for one person to do the calculations and for the rest of the group to simply copy them.

If you are in any doubt about what is acceptable when working together, you should ask your lecturers.

Understanding plagiarism: examples of good and bad practice in using written sources

It is important that you understand how to use and acknowledge written sources in your work. The following examples are designed to illustrate and explain the differences between unacceptable practice, poor practice, good practice and better practice.

Original text:

There is no convincing reason to suppose that the remains buried in the Folly Lane enclosure were not that of one, adult, individual; in view of the nature of the pyre goods this was probably a man.


Unacceptable practice

(1) ‘Prototypical’ plagiarism: lifting a section of text from another source without any indication of the source, and is unacceptable:

Unlike the ‘family’ burial enclosures at King Harry Lane, there is no convincing reason to suppose that the remains buried in the Folly Lane enclosure were not that of one adult individual, in view of the nature of the pyre goods this was probably a man. This difference suggests...

(2) Changing the order of a few words does not constitute acceptable paraphrasing:
Unlike the ‘family’ burial enclosures at King Harry Lane, there is no clear reason to suppose that the remains buried in the Folly Lane enclosure were anything other than that of one adult individual, in view of the nature of the pyre goods the gender was probably a male. This difference suggests...

(3) It is best not to use even relatively short phrases without marking them as quotations. While one might pass un-noticed, this can become a matter of habit, so is best avoided in the first place. Again, the failure to acknowledge the source is a problem:

*Family burial enclosures have been found at King Harry Lane. But at Folly Lane there is no convincing reason to suppose that the burial is of anything other than one individual. Probably a man in view of the nature of the pyre goods. This difference suggests...*

Further advice on how to paraphrase can be found in the References section [libguides.reading.ac.uk/academicintegrity/writing-references](http://libguides.reading.ac.uk/academicintegrity) of the Academic Integrity Toolkit ([libguides.reading.ac.uk/academicintegrity](http://libguides.reading.ac.uk/academicintegrity)).

**Poor practice**

(4) Mentioning the author’s name, but not marking quotations is still barely acceptable, as is still representing other’s words as your own. At least you have said where the idea/material comes from, though not using a proper referencing system:

*Unlike the ‘family’ burial enclosures at King Harry Lane, there is no clear reason to suppose that the remains buried in the Folly Lane enclosure were anything other than that of one adult individual, in view of the nature of the pyre goods the gender was probably a male, in the view of Niblett. This difference suggests...*

(5) Better would be at least providing a complete reference, though this still does not make unmarked quotations or slight re-phrasings acceptable:

*Unlike the ‘family’ burial enclosures at King Harry Lane, there is no clear reason to suppose that the remains buried in the Folly Lane enclosure were anything other than that of one adult individual, in view of the nature of the pyre goods the gender was probably a male (Niblett 1999: 412). This difference suggests...*

**Acceptable practice**

(6) Below the quotation has been clearly acknowledged and referenced. This is good. However, this is not to say that an essay significantly made up of quotations is acceptable, since we are looking for your voice, your ideas, and your interpretations. Quotations should ideally be used sparingly, only where they really succinctly sum up an argument, or where they are vital for the development of an argument:

*Unlike the ‘family’ burial enclosures at King Harry Lane, ‘there is no convincing reason to suppose that the remains buried in the Folly Lane enclosure were not that of one adult individual, in view of the nature of the pyre goods this was probably a man’ (Niblett 1999: 412). This difference suggests...*

**Better practice**

(7) Paraphrasing other people’s ideas is better, it demonstrates you have read their ideas; your mind has worked through them and encapsulated them into words of your own:
Unlike the ‘family’ burial enclosures at King Harry Lane (Stead & Rigby 1989), the burial at Folly Lane was probably that of a single male adult, or so the excavator argued from the pyre remains (Nibblett 1999: 412). This difference suggests...

**Best practice**

(8) However, an essay that just comprises paraphrasing of other people’s views can still result in a fairly derivative essay. The best practice overall is where you take other people’s ideas and you intermesh them, rather than sequentially paraphrasing them. This demonstrates your ability to think comparatively, to be able to directly compare the work of different academics, and to be able to vocalise your own point of view:

> Stead and Nibblett came to very different interpretations of their own cemetery excavations at Verulamium. Stead’s excavation at King Harry Lane exemplified the group homogenising aspect of burial of one tier of society, whereas Nibblett’s Folly Lane enclosure evoked separate treatment and disposal of one individual male. Both argued this from the remains of the funerary pyre goods found buried with the cremated remains (Stead & Rigby 1989, Nibblett 1999: 412).

**Plagiarism and its detection**

It is a requirement that all work that students submit is their own and is not copied from others, and that all quotations and sources are duly acknowledged. In doing a piece of work, students will, of course, use sources, and the University generally encourages students to discuss their work with others. However, the final writing of a piece of work should be the student’s and, to gain high marks, students are expected to add value to material which they use. For details of this see the detailed advice about plagiarism.

It occasionally happens that we receive work which appears to have plagiarised material in it and, in common with other universities, the University of Reading subscribes to Turnitin, a plagiarism detection service for comparing work received with that of other sources. Students, by taking this programme, agree that all submitted work may be submitted for the detection of plagiarism. All submitted papers may be included as source documents in the system’s reference database solely for detecting plagiarism of such papers in the future. Use of the plagiarism service shall be subject to such Terms and Conditions of Use as may be agreed between the Service and the University of Reading from time to time and posted on the Service’s and University’s websites.

**Consequences**

Within the University, the most serious view will be taken of plagiarism and other forms of cheating. Any such case will be treated as a disciplinary matter. Minor cases may be dealt with at School level, but if the case is more serious it will be referred to the Senate Standing Committee on Academic Misconduct. The Senate Standing Committee on Academic Misconduct has the power to impose disciplinary sanctions, including a failure in all of the assessments for a Year or Part of a programme or, in sufficiently serious cases, removal of the student from membership of the University. (See the provisions of the Regulations for Conduct (41)(e).)

Further advice on how to build references into your writing can be found in the Building references into your writing section of the Academic Integrity Toolkit.
Appendix A – Reading Student Charter

Partners in Learning

Staff and students have worked together to develop this charter that clearly sets out what we all expect of each other. It recognises the importance of an effective partnership commitment, in which the University and its staff have professional obligations but where students are also responsible for themselves as learners and as individuals.

Students expect the University

• to provide an excellent and varied learning experience;
• to deliver degrees with relevant content informed by the latest research;
• to provide access to learning resources and facilities that allow you to excel;
• to offer opportunities to gain knowledge and skills useful for life beyond University;
• to provide support for professional development and access to career information, advice and guidance;
• to provide a broad range of social, cultural, sporting and co-curricular activities;
• to facilitate opportunities to express views which are considered and responded to.

Students expect staff

• to teach in an engaging and varied manner that inspires learning;
• to give timely and constructive feedback on work;
• to provide effective pastoral and learning support when needed;
• to respond, communicate and consult in a timely and effective manner;
• to recognise the student body to be a diverse collection of adults who are partners with an equally important voice in their learning.

The University expects students

• to work hard at their studies and be active partners in shaping their experience of Higher Education;
• to seek out opportunities to enhance their understanding and to develop practical and intellectual skills;
• to take advantage of the wealth of activities (social and developmental) provided by the University and the Students Union;
• to be aware that their conduct affects other students and reflects on the University and to act accordingly;
• to provide constructive feedback on their time at Reading through the Students Union and directly to the University.

Staff expect of students

• to be pro-active in managing their learning and in seeking help when needed;
• to be enquiring in their thinking;
• to manage their time to fulfil academic and other commitments;
• to engage fully with all academic commitments;
• to conduct themselves and to engage in their studies with honesty;
• to keep appointments and to communicate with staff in a timely and courteous manner;
• to take ownership of their own health and well-being.

**We all expect of each other**

• to treat one another with respect, tolerance and courtesy regardless of identity, background or belief, both in person and online;
• to show responsible stewardship for the university environment, facilities and resources;
• to challenge one another intellectually and to contribute to the advancement of knowledge;
• to work fairly and effectively with one another both inside and outside of academic context;
• to be accountable for our actions and conduct;
• to recognise and value positive contributions from others.
Appendix B - Key Contacts

Teaching and Learning support teams/Support Centres are your first port of call for anything ranging from a query about campus cards, advice on changing programme or on module selection, submitting extenuating circumstances forms and placements advice, to any other general or programme-specific question. For full information regarding how and when you can access the service and who does what, please visit the Student Support page.

Programme Directors

Construction Cost Management
Dr Florence Phua, f.phua@reading.ac.uk

Construction Management
Prof Will Hughes, w.p.hughes@reading.ac.uk

Design and Management of Sustainable Built Environments
Prof Runming Yao, r.yao@reading.ac.uk

Construction in Emerging Economies
Dr Tabarak Ballal, t.ballal@reading.ac.uk

Information Management for Design, Construction and Operation
Dr Dragana Nikolic, d.nikolic@reading.ac.uk

Project Management
Dr Shu-Ling Lu, s.lu@reading.ac.uk

Renewable Energy: Technology and Sustainability
Dr Maria Vahdati, m.m.vahdati@reading.ac.uk

Programme Administrators

The team may be contacted on sbe-postgrad@reading.ac.uk where all messages are picked up quickly by someone who will know how to respond.

Student Support Co-ordinator

Pippa White, ssc.sbe@reading.ac.uk

PG Senior Tutor

Dr Katherine Hyde, k.hyde@reading.ac.uk

All contact details

Details of all academic staff and administrative staff in the School can be found on the School web-page: bit.ly/SCME-staff
Appendix C – Aims and Objectives

The University aspires to: “excellence in teaching, research and scholarship, within an environment which is intellectually stimulating for both staff and students”.

Consistent with this University aim, the School sets out to develop the intellectual potential of every student within a framework which provides high-quality teaching and the stimulus for research to be undertaken by staff. Our belief is that there is a relationship between teaching and research which is beneficial to students. Students are encouraged to think in an open way and to test the information and concepts that they have gained through studying a variety of subjects.

In teaching undergraduate and postgraduate programmes, the School aims to:

- create a stimulating academic environment for both students and staff and provide the structure to enable students to enhance their intellectual and academic abilities,
- help students to appraise ideas and to evaluate evidence in a critical and objective fashion,
- foster a range of generic transferable skills,
- develop the ability to learn at an advanced level through stimulating a commitment to learning, thus providing a foundation for life-long learning and research,
- provide students with the academic and professional framework for a variety of career paths in the construction sector, whether in contracting organisations, consultancies, government bodies, client organisations, suppliers or manufacturers,
- ensure that students are given an international perspective in their learning experience,
- expose students to the latest research results and industry practice.

Overall objectives for the undergraduate and postgraduate programmes are that graduates will:

- possess the skills and knowledge necessary to examine critically the strategic, technical, economic, legal and managerial aspects of the construction and allied industries,
- obtain the necessary academic and practical framework to enable postgraduates to fulfil their professional, vocational and academic potential,
- have gained a variety of transferable skills in:
  - appraising theories, concepts and methods,
  - literacy and effective oral presentation,
  - independent study,
  - decision-making and problem-solving,
- acquire an attitude of curiosity, open-mindedness and objectivity, and respect for scholarship,
- gain employment and be able to provide solutions to practical problems,
- be prepared for a challenging career with a positive attitude towards change and innovation and the need to keep abreast of new developments.
Appendix D – Additional information for visa national students

If you are one of the many students studying with us who needed a visa to enter the UK then please read the following information carefully.

The majority of student visas are a Tier 4 (general) visa although you may be here under a variety of different visas including dependent visas, Tier 1 and Tier 2 visas, student visitor visa etc. In all cases each particular type of visa carries with it specific conditions relating to your study. Therefore if you make any changes to your programme while you are with us, such as changing degree programme, suspending or withdrawing, this may have implications for your visa and the University, in some instances, is obliged to inform the Home Office of these changes.

In order to support you in relation to the often complex rules and regulations surrounding your visa, the University has an Immigration Team that offers students free immigration advice. The Immigration Team can advise on a range of visa related issues including the effects of programme changes to your visa, work entitlements, visa renewal and dependent-related issues. The Immigration Team is based in the Carrington Building and offers advice either via a drop-in service, by appointment or by email. You can contact the immigration team by emailing immigration@reading.ac.uk or by visiting the Immigration Team reception desk located on the ground floor of the Carrington Building.
Appendix E – Careers

The Careers, Placement and Experience Centre (CPEC) has one simple goal: to help you get where you want to be. They are situated on the first floor of the Carrington Building, between the Palmer Building and the Students' Union.

Opening hours: Monday to Friday 10:00–16:30 during term time and normally 10:00–16:00 during vacations.

Email: careers@reading.ac.uk

Telephone: (0118) 378 8359

Web: http://www.reading.ac.uk/careers

Job Shop: getting a part-time job or vacation work

To help you supplement your income and gain valuable work experience, Careers has set up a Job Shop based in the Students' Union which advertises over a thousand vacancies every year. This is open Monday to Friday 1:00–16:00 with staff available to help you find the job that suits your skills and availability. There is also have an online Job Shop which advertises part-time, temporary and vacation opportunities on campus and in the local area. To find out more, visit www.reading.ac.uk/careers/jobshop/

You can also get recognition for part-time or voluntary work through the RED Award scheme www.reading.ac.uk/redaward

Gaining work experience and employability skills

We run a range of extracurricular schemes to help students develop their skills and experience. We promote hundreds of local, national and international placement opportunities with employers, charities and organisations on our online vacancies board, My Jobs Online, which students can customise to meet their own needs and provide regular updates as new vacancies come in.

The University's own work experience schemes include:

- RED (volunteering) www.reading.ac.uk/redaward
- The Reading Internship Scheme is open to all Reading students and finalists for up to 6 months after graduation, in smaller to medium companies based in the Thames Valley region

Jobs for postgraduates

Our website links to some of the most popular websites for postgraduates and we can help you pinpoint those that are most relevant to your career interests. You can apply for some future graduate vacancies in the summer and many have closing dates in the Autumn Term. www.reading.ac.uk/careers/postgrad/jobhunting.asp

Meet employers

The University is targeted by many leading recruiters and, in addition to job roles that target your particular discipline, around 50% are open to a wide range of disciplines, so whether
you are looking for a career that relates to the subject matter of your postgraduate degree or for something broader, you have plenty of options. The Careers Centre works with a wide variety of employers from ‘niche’ micro businesses through the public and voluntary sectors to Times Top 100 companies.

You can meet employers through presentations on campus. In addition we run a range of career fairs where you can talk informally to employers who want to recruit from your degree discipline. See our website for fairs covering areas in Construction Management and for term-time jobs www.reading.ac.uk/careers/events/fairs/

**What next?**

Our event timetable reflects the times when you are most likely to be researching careers and companies or making applications. Some are ‘one off’ sessions and others, such as CV workshops, are repeated throughout the year. Employers often have early deadlines for both work experience and graduate jobs and we can advise on what you need to do and when.

Alternatively, drop in to Careers Reception on the first floor of the Carrington Building if you would like to talk to a member of staff.

**Work experience**

Check out www.reading.ac.uk/careers/placements/ for placements and other work experience opportunities, many of which are open to postgraduate students.
Appendix F – General Facilities

Parking

Car parking spaces at the University are severely limited, so parking is restricted to those with a permit. Parking at halls is also limited and is controlled by a separate permit system. Designated motorcycle parking spaces can be found at the following car parks: Sports Centre, CP5, CP6, CP12, AMS and RSSL. These parking areas are in addition to parking spaces available for both cars and motorcycles that can be found in University campus and halls car parks.

If you are not eligible for a permit, there are a number of alternatives that you can use to get around. If you choose to park off-site, please ensure you park legally and considerately, taking into account any parking restrictions. For further information see: www.reading.ac.uk/parking/students/park-student-parking.aspx

Health Facilities

The University Health Centre is in Northcourt Avenue, just off the main campus. Consultations with doctors are by appointment. A nurse is available on a non-appointment basis. Telephone (0118) 987 4551.

The University Dental service is also based at the Northcourt Avenue surgery. Appointments are necessary. Telephone (0118) 931 8649

The Royal Berkshire Hospital is situated in the block surrounded by Redlands Road, Craven Road, London Road and Addington Road. The main entrance is situated on London Road. Telephone (0118) 987 5111.

Sports Facilities

The SportsPark (see Appendix E) is open from 07.30–22.00 in term time, 09.00–20.00 on Saturday and 10.00–20.00 on Sundays. The Sports Hall offers courts for badminton, squash, football, basketball, volleyball, table tennis, netball, and hockey. There are also outdoor facilities for football, tennis, etc. An excellent fitness suite is fitted out with the latest resistance and cardio-vascular equipment. Telephone (0118) 9318799 for bookings and enquiries (internal extension 8799).

Catering

A wide range of meals and snacks are available at the various catering outlets on the campus (www.reading.ac.uk/catering) and from the Students Union.
Appendix G – Extenuating circumstances form

Guidance for students See link: www.reading.ac.uk/exams/

Before completing the form, please read these notes.

We are required to keep records of any action we take in respect of course assessment in which an individual student is treated differently from others. We need to record information about illness or other problems which may have affected examination performance or which may form the basis of a request for suspension of a student’s course, or an extension to a deadline to submit coursework.

This document sets out what we ask you to do. Please answer every question and submit the form as soon as possible after your illness or other circumstance so that we can respond to your request quickly.

You are strongly encouraged to discuss any circumstances which you consider are affecting or might affect your work with your Programme Administrator or the lecturer responsible for your coursework/module.

You are responsible for notifying your School of any circumstances which you consider might have affected your performance or your ability to complete a piece of coursework by the deadline.

If you do not submit this form, your circumstances will not be considered.

Claims will be considered where:

- your performance or ability to work has been impaired by your circumstances; and
- the circumstances were beyond your control (such as illness, death or severe illness of close relative or partner, physical attack, witnessing a seriously distressing event or other events of comparable effect)

Extensions

An extension to a deadline for completion of assessed coursework is one possible outcome of a request for consideration of extenuating circumstances. If you use this form to request an extension, you must have valid extenuating circumstances. Note that an extension may not be granted if your reasons are not valid. Some examples of reasons not usually considered valid are set out below. If you are seeking an extension, you should indicate a revised submission date that you consider reasonable given your particular circumstances.

Confidentiality

The information which you provide on this form will be kept in strict confidence and will be restricted to those who are involved in deciding the action to be taken in the light of your circumstances. The decision on your request will be passed to those who need to know, but the detailed circumstances will remain confidential.
Completing the form

The following guidance relates to the numbered sections of the form:

1. **Specify the overall period of time when your work has been or will be affected**

Please give the dates or period of time during which your problems have affected your work and ability to study. You should consider carefully the time period you specify as the University will not normally consider circumstances which fall outside of this period.

2. **Modules/exams/coursework affected and the action you would like us to take**

If your problem has affected your coursework or exam for one or more modules, please list the modules affected and complete the table.

If your ability to complete an assessment has been affected by extenuating circumstances, various actions are possible. For example:

- You may be offered an extension to a deadline to submit a piece of coursework.
- You may be deemed not to have sat (DNS), which means that you are permitted a further attempt at an examination or assessment as if for the first time.
- The mark for the module may be calculated by a variant of the normal method, for example, a piece of work may be set aside and the mark calculated on the remaining work.
- The mark for the module may be set aside.

You should indicate in this section of the form what action you would like us to take in consideration of your circumstances. If you are seeking an extension, you should indicate a revised submission date that you consider reasonable given your particular circumstances.

If your circumstances are such that you are considering suspending your registration, you should consult your Personal Tutor and the Advisory Team at the Student Services Centre as a matter of urgency.

Please note that students can only be Deemed Not to have Sat (DNS) on two occasions per part of study. This is outlined in the policy available at: [https://www.reading.ac.uk/web/files/qualitysupport/extencircumstances.pdf](https://www.reading.ac.uk/web/files/qualitysupport/extencircumstances.pdf)

3. **About your problem**

Describe concisely the circumstances which you consider to have had an adverse effect on your ability to study and describe how these have affected your performance or ability to complete a piece of coursework by the deadline, or to take an exam. (Continue on a separate sheet if necessary).

Note that the following would NOT normally be considered as valid extenuating circumstances:

- Computer or printer failure
- Bunching of deadlines
- Job interview
- Falling behind due to paid employment
- Minor illness such as coughs and colds
• Illness after the deadline has passed
• Attendance at weddings and other "rites of passage" ceremonies
• Religious festivals (unless they cover a significant portion of the assessment period or fall on the day of an examination, in which case the student is expected to give reasonable advance warning).
• General feeling of anxiousness/depression unless backed up by medical evidence
• Holidays
• House moves
• Ignorance of rules and regulations

4. Supporting evidence

Some form of supporting evidence is normally required to support your case, such as a letter from a counsellor, hall warden, or your Personal Tutor. In cases of bereavement you will normally be required to provide a copy of the death certificate. You should attach any supporting evidence to this form. If the evidence is not yet available, please indicate when it will be submitted.

If you consulted a doctor/professional practitioner (except for a counsellor in the University Counselling Service, in which case see below) about your circumstances, please provide a medical certificate or letter/statement from the practitioner and submit it with this form to Support Centre. Note that medical and other practitioners may charge for providing a certificate or letter.

5. Supporting evidence to be provided by the University Counselling Service

If you consulted the University Counselling Service, please provide the counsellor's name, the date(s) of consultation(s) and your signature to give your consent for the University Counselling Service to disclose information from your confidential records which is relevant to the present request. If you are unwilling for information from your records to be disclosed, you should discuss the matter with your Personal Tutor.

Please note that it is your responsibility to provide the supporting evidence. All evidence must be submitted by the time of the relevant Special Cases Sub-Committee meeting. Only in exceptional cases will extenuating circumstances be considered after this meeting.

6. Supporting evidence to be provided by the University Medical Practice

If you consulted the University Medical Practice, please see their website for information on how to obtain evidence: www.readinguniversitymedicalpractice.nhs.uk

Submitting the form

It is important that you submit the form to the Support Centre as soon as possible, so that the information can be taken into account.

Your form should be in a sealed envelope clearly marked with your name and degree and the words 'Extenuating Circumstances Form - Confidential'.
Download an Extenuating Circumstances Form

The form is available with the guidance in the PG Student portal of Blackboard.
Appendix H - Overview of ‘Essentials’ and key academic policies and procedures

Overview of ‘Essentials’

‘Essentials’ (student.reading.ac.uk/essentials) contains all the essential information that students will need during their time at University. Listed below is what is included in each broad section with a link. Please take time to browse each section to discover the variety of information available to you online.

- Welcome
- Campus and local area: maps, accommodation, campus card, food and shops, safety and security, Nursery and pre-school, Green issues, booking a university classroom.
- Opportunities: volunteering, student training events, study abroad, learning a language, clubs and societies, sports, music.
- Money matters: tuition fees, advice, funding opportunities, insurance, US loans and Federal Aid.
- Study: library, programmes and modules, study support, IT, Blackboard, Personal Tutor.
- Exams: (see also section on Key Academic Policies and Procedures for links to important information).
- Support and wellbeing: counselling and wellbeing, support arrangements, disability, ‘life tools’ talks, learning support, peer support, religious and spiritual care, medical and general health.
- ‘the important stuff’: A to Z of policies and procedures, calculator use in exams, council tax and voting, international students, student contract, student charter, rules and regulations including:
  - changing degree programme
  - behaviour whilst studying
  - extenuating circumstances
  - learner responsibilities
  - plagiarism – referencing rules
  - parental responsibilities policy
  - suspensions
  - withdrawing from study
  - absence and attendance
- Careers and development: Reading Internship Scheme, destinations, jobs, placements, professional skills hub, events, Careers A-Z.
- ‘Have your say’: student feedback, student representation.
- Need help? lost and found, emergency contacts.
- Graduation
- International students: International advice team, visas and immigration, studying in the UK, living in the UK, suspension, withdrawal and attendance for Tier 4 students, opening a bank account.

It is your responsibility to familiarise yourself with the content of Essentials, and to use it as a reference when required.
Key Academic Policies and Procedures

It is important that you read (or familiarise yourself with) the following academic policies and procedures, since they govern important aspects of your programme and may therefore have a significant impact on your studies and the successful completion of your degree.

Examinations office

- Guidance for students

Guide to postgraduate assessment

The Guides to assessment include important information in relation to:

- penalties for late submission of coursework
  http://www.reading.ac.uk/web/FILES/qualitysupport/penaltiesforlatesubmission.pdf
- examination arrangements for students with disabilities and specific learning difficulties
  http://www.reading.ac.uk/exams/student/lexa-special.aspx
  http://www.reading.ac.uk/web/files/qualitysupport/7_Students_with_specific_needs.pdf
- extenuating circumstances
  http://www.reading.ac.uk/web/files/qualitysupport/extencircumstances.pdf
- academic misconduct
  http://www.reading.ac.uk/web/files/qualitysupport/9_Academic_integrity_and_academic_misconduct_final.pdf
- feedback to students
  http://www.reading.ac.uk/web/files/qualitysupport/feedbackonstudentperformance.pdf
- marking and progression
  http://www.reading.ac.uk/web/files/qualitysupport/10_Marking_withannexes.pdf
  http://www.reading.ac.uk/web/files/qualitysupport/15_Progression.pdf
- classification of degrees
  http://www.reading.ac.uk/cqsd/QualityAssurance/PoliciesandProcedures/cqsd-assessmenthandbook.aspx
- publication of results
  http://www.reading.ac.uk/web/files/qualitysupport/27_Recording_documentation_and_publication.pdf
- re-examination
- how to make an appeal
  http://www.reading.ac.uk/internal/exams/Policies/lexa-appeal.aspx

Policies not included in the assessment handbook

Policy in relation to students’ use of editorial and proof-reading services

Students who feel that they need assistance in writing appropriate English should, in the first instance, seek guidance from their School, which should discuss with the student his or her difficulties. Further guidance on the Use of editorial and proof-reading services on the Examinations Office website at this link.
Policy on and procedures relating to academic engagement and fitness to study

You are academically engaged if you comply with the academic requirements stated in the University’s Statement of learner responsibilities, in particular those requirements relating to engagement with the personal tutorial system, attendance and participation in academic classes and submission of coursework. Further guidance on the Policy on and procedures relating to academic engagement and fitness to study can be found on the Centre for Quality Support and Development website at this link.

Student complaints procedure

The University welcomes feedback from its students. Whilst most of the feedback we receive is positive, we recognise that from time to time problems do arise and students may occasionally wish to express concern or dissatisfaction with aspects of the University or the services it provides. We aim to use the feedback gathered from such complaints positively to help us improve the services we offer and to enhance the University experience for all students. Further guidance on the Student Complaints procedure can be found on the Centre for Quality Support and Development at this link.
Reading University Students’ Union

RUSU is a student-led independent charity, based on Whiteknights campus that exists to represent, support and provide opportunities for all students studying at the University of Reading. As a student, you are automatically a member of the Student’s Union. Our ultimate ambition is to deliver essential and relevant services to students in an accountable, inclusive and dynamic way. As RUSU is a separate organisation to the University of Reading, we will fight to ensure that the student is always put first. More can be found on the RUSU website.

What does RUSU do day to day?

We strive to solve any problems you may face at University

We offer advice, or point you in the direction for help on matters such as welfare, money, education, accommodation and any other issues you may face.

We will help you unleash your potential

RUSU will enhance your existing skills, helping you to get to know yourself a little better, and encouraging your participation in new activities. We’ll open your eyes to opportunities you may not have considered; from joining (or starting!) a society to launching student led campaigns on matters that are meaningful to YOU.

We will provide you with exciting activities to get involved in

Whether you enjoy sports, a specific hobby, DIY, debating, baking, music, helping others or you are looking to try something new like sailing, then RUSU is the place for you. Looking to set up the first ever Gel Pen appreciation club? DO IT!

At RUSU, you are our main priority! Let RUSU support you and enhance YOUR University experience.

Eat, drink and socialise at RUSU

Whether you fancy a pint, a coffee to help you get through the day or some curly fries as a pick me up, we have it all for you at RUSU, in our Mojo’s bar and Café Mondial.

How is RUSU student-led?

RUSU is led by five full-time Student Officers who are elected in to their roles by the student body. The Student Officers run for election while studying, then take a sabbatical year from study or start after their graduation. The Student Officers listen to the views of the thousands of students on campus; they represent the student voice on campus, locally and nationally. They’re accountable to all students.

Your elected full-time Student Officers are:

President – Jason Dabydoyal, Education Officer – Lillie-Mae Firmin, Diversity Officer – Nozomi Tolworthy, Welfare Officer – Dan Bentley, Student Activities Officer – Ali Perry. Visit RUSU Officers webpage to find out more about your officers and how to contact them.
Liberation and representation

As well as Full Time Officers, there is an elected team of 10 Part-time Officers. The Part-time Officers represent groups of students (or issues) that are less represented in Higher Education. The Part-time Student Officer positions are: International Students’ Officer, Mature Students’ Officer, LGBT+ (Lesbian, Gay, Bisexual and Transgender) Students’ Officer, BAME (Black, Asian and Minority Ethnic) Students’ Officer, Women’s Officer, Disabled Students’ Officer, Postgraduate Taught Students’ Officer, Environment & Ethics Officer, London Road Students’ Officer, Postgraduate Research Students’ Officer.

Academic representation

Course Reps and School Reps are an essential part of the student representative structure. Course and School Reps proactively seek out, identify and promote the views of students and represent your views at school level and course level. There is one Course Rep for every Programme at every year, while there is a School Rep for Undergraduates and a School Rep for Postgraduate per School.

Visit the RUSU Course Reps page to find out more about Course Reps, and how to get involved.

Visit the RUSU School Reps webpage to find out more, or to contact your School Reps.

Get involved in student representation! This is a great opportunity! You receive training, it is a great way to meet other students and it will look great on your CV as the skills you develop will help you get the job of your dreams! There are a number of representative roles to put yourself forward for whilst at University. If you want to learn more about the different elected roles or would like to find out how to run in a RUSU election, go to the RUSU Elections webpage.

What can RUSU do for me? Change It!

RUSU organises and supports campaigns that have been put forward by students via the Change it! webpage. Campaigns aim to raise awareness and ultimately make change amongst the student community on issues that affect you on campus, in the community and at a national level. You can submit an idea for change at any time on the Change it! webpage and view current campaigns at Campaigns webpages.
If you want to get involved in campaigns email changeit@rusu.co.uk or visit the ARC Centre (Advice & Representation Centre) and ask to speak to the Campaigns Coordinator. Using Change It is a great way to direct your Students’ Union so get involved!

**How does RUSU support students?**

**RUSU Advice Service**

Need some housing, money or academic advice? The RUSU advice team offer free, impartial and expert advice helping students with a wide range of issues, from financial, to academic. The advice team are based in the ARC in the RUSU building or go to [RUSU Advice](#) webpage to find out how to get in touch.

**RUSU Nursery Service**

There are many student parents with young children. RUSU provides an excellent nursery facility, Little Learners Nursery, for children aged 3 months to school age. If you’re a parent and have your children here at Reading, you can apply for a place by visiting [RUSU Nursery](#) for more information.

**How can RUSU enhance your student experience?**

**Societies, Sports and Volunteering**

RUSU offers students the opportunity to become a member of a society; with over 100 there is plenty to choose from. If there isn’t one for you, you can set one up! Joining a society can be a great way to develop your interests and hobbies. You can find out about RUSU societies by going to [RUSU Activities](#) webpage.

RUSU also supports the running of student sports clubs on campus. Many of our sports clubs compete on a national level in the BUCS League, but all clubs offer opportunities for those from all levels of experience. There are over 50 different sports to choose from. Many sports clubs even take part in Varsity, an all-sport event which runs every year competing against Oxford Brookes.

Go to [RUSU Sport & Leisure](#) for a full list of teams and groups and find out how to get involved.
Volunteering

Volunteering is a fantastic way to not only give back to the community, but develop your skills, meet new people and improve your career prospects! You can find out more about the huge range of volunteering opportunities by visiting RUSU Volunteering webpage.

For more information...

Visit the RUSU website or follow us on Twitter @RUSUtweets and Facebook /RUSUnews. You can also drop by and visit us in the RUSU building located on Whiteknights Campus.
Index

A

Academic integrity, 50
Academic misconduct, 80
Academic tutor, 58
Additional costs of studying, 63
Appeals for review of marks, 79
assessment
appeals, 79
Assessment, 2
capping marks, 79
failing the programme, 78
late submission, 75
outside period of registration, 79
problems, 76
Assignment brief issue dates, 68
Assignment submission, 73

B

Blackboard. Also see Communication
Books, 60
Bookshop, 60

C

Calculating final award, 70
CEM102 Business of Construction, 27
CEM103 Principles and Practice of Project Mgmt, 28
CEM104 CCM Principles and Practice, 29
CEM107 SDM Principles and Practice, 31
CEM10A Research Skills, 27
CEM10B Research Dissertation, 27
CEM110 Collaboration Practice and Innovation, 34
CEM11A Collaboration Practice and Innovation A, 34
CEM11B Collaboration Practice and Innovation B, 34
CEM12A Business of Construction A, 27
CEM12B Business of Construction B, 27
CEM13A Principles and Practice of Project Management A, 28
CEM13B Principles and Practice of Project Management B, 28
CEM14A Construction Cost Management Principles and Practice, 29
CEM14B Construction Cost Management Principles and Practice, 29
CEM150 International Development in Construction, 29
CEM15A International Development in Construction, 29
CEM15B International Development in Construction, 29
CEM160 Renewable Energy Systems, 30
CEM16A Renewable Energy Systems A, 30
CEM16B Renewable Energy Systems B, 31
CEM17A SDM Principles and Practice A, 32
CEM17B SDM Principles and Practice B, 32
CEM18A Engineering Research Skills, 32
CEM18B Engineering Dissertation, 33
CEM19A Energy Research Skills, 33
CEM19B Energy Research Dissertation, 34
CEM201 An Introduction to Project Management, 35
CEM202 Construction Project Management, 35
CEM203 Financial and Management Accounting in Construction, 36
CEM204 International Construction, 36
CEM205 Human Resource Management, 37
CEM206 Construction Contract Law, 37
CEM209 Managing Construction, 38
CEM210 People, Information and Technology, 38
CEM215 Infrastructure Development, 38
CEM216 International Construction Labour, 39
CEM217 Construction Sector Transition, 39
CEM220 Urban Sustainability, 40
CEM221 Energy in Buildings, 40
CEM222 Building Simulation, 41
CEM223 Urban Microclimates, 41
CEM224 Carbon Management, 41
CEM225 Building Information Modelling, 42
CEM226 ICT and Energy Management, 42
CEM228 Construction Economics, 43
CEM229 Green Building Assessment, 43
CEM230 Design Management, 43
CEM233 Urban Energy Systems, 44
CEM235 Engineering Project Management, 44
CEM237 Basic Measurement Principles, 45
CEM238 Construction Cost Engineering, 45
CEM242 Advanced Visualisation and Interactive Technologies, 46
CEM243 New Technology, Management and Change, 46
CEM244 Analysing Construction Processes, 47
CEM302 Strategic Management, 47
CEM303 Sustainable Design, Construction and Operation, 47
CEM319 Life Cycle Assessment, 48
CEM334 Innovative Developments in Construction, 48
CEM335 Real estate Development Analysis & Appraisal, 49
Communication, 66, Also see Email
addressing academic staff, 67
Blackboard, 68
Complaints procedures, 64
Contact addresses and phone numbers. See Student responsibilities
Coursework submission, 73
Critical thinking, 53

D
Developing learning practices, 56
Dissertation advice, 55
Dyslexia, 62

E
Editorial and proof-reading services, 54
Effective reading, 52
Effective writing, 53
Email
addressing academic staff, 67
auto-forwarding, 68
operation, 66
signing off, 66
Examination arrangements for students with disabilities, 80
Extenuating circumstances, 76
External examiners, 72

F
Facilities, 64
Failing mark in one or more modules, 78
Failing mark in the dissertation, 79
Failing the programme as a whole, 78
Feedback
progress, 74
Feedback on submitted work, 74
Formative assessment, 76

G
Group work, 51, 82

H
How to get a good degree in this subject, 50

K
Key contacts, 87

L
Learning practices, 51, 56
Library, 61

M
Marks, 70
capping, 79
ejarly issue for professional institution, 75
failing a module, 78
late submission, 75
Maternity policy, 61
Module
assignments, 68
attendance, 68
changing, 3
credits, 1
enrolment, 3
guest attendance, 68
resit, 78
timetable availability, 69
MSc Construction Cost Management, 4
MSc Construction in Emerging Economies, 13
MSc Construction Management, 7
MSc Design and Management of Sustainable Built Environments, 10
MSc in Renewable Energy: Technology and Sustainability, 22
MSc Information Management for Design, Construction and Operation, 16
MSc Project Management, 19

P
Penalties for late submission, 75
Personal tutor. See Academic tutor
Plagiarism
consequences, 84
detection, 84
generally, 80
understanding, 82
unintentional, 81
Programme assessment
Certificate Award, 72
Diploma, 71
Diploma with Distinction, 72
Diploma with Merit, 71
generally, 70
MSc Distinction, 71
MSc Merit, 70
MSc Pass, 70
PGCert, 72
Programme Directors, 87
Programme specifications, 3
Publication of marks and grades, 75
Q
Quality assurance procedures, 65

R
Reading lists, 51, 60
Reading Student Charter, 85
Re-assessment and resits, 78
Recognising and rewarding skills development, 62
RED award, 62
References and citations, 54
Requirements for award. See Programme assessment
Research skills, 56
RISISweb Portal, 68

S
Safety, 61
Safety boots, 63
School accommodation, 61
Site visits, 59
Software, 60
Staff responsibilities
    Reading Student Charter, 85
Student academic representation, 65
Student counselling and well-being services, 63
Student responsibilities
    contact address, 68
    phone numbers, 68
    Reading Student Charter, 85
    term-time address, 68
Students with physical disabilities, 62
Submission dates, 57
Suspension, 79

T
Talis, 60
Timetables. See Module: timetable availability
Transcript
    availability, 75
    early issue for professional institution, 75
Turnitin, 73

U
University code of practice on assessment, 76
University responsibilities
    Reading Student Charter, 85
University support for students, 58