

**PROGRAMME SPECIFICATION**

<b>1</b>	<b>Awarding Institution</b>	Newcastle University
<b>2</b>	<b>Teaching Institution</b>	Newcastle University
<b>3</b>	<b>Final Award</b>	MEng (Hons) and BEng (Hons)
<b>4</b>	<b>Programme Title</b>	Civil Engineering (CE), Civil & Structural Engineering (CSE), Civil and Surveying Engineering (CSuE)
<b>5</b>	<b>UCAS/Programme Code</b>	H200 (BEng CE) H210 (BEng CSE) H202 (BEng CSuE) H290 (MEng CE) H242 (MEng CSE) H292 (MEng CSuE)
<b>6</b>	<b>Programme Accreditation</b>	JBM (ICE, IStructE, CIHT, IHE), RICS, ICES
<b>7</b>	<b>QAA Subject Benchmark(s)</b>	Engineering
<b>8</b>	<b>FHEQ Level</b>	6 (H200, H210, H202), 7 (H242, H290, H292)
<b>9</b>	<b>Last updated</b>	Aug 2013

**10 Programme Aims**

1. to provide distinctive and exciting opportunities for students with high academic ability to be inspired and motivated by a unique integrated multi-theme based education in civil engineering (with an emphasis in structural engineering for CSE programmes and on engineering surveying for CSuE programmes);
2. to provide students with a sound grasp of the major challenges of climate change and sustainability, informed by the excellence of the research carried out in the School, and integrated with technical knowledge and skills (particularly in structural engineering for CSE programmes and in engineering surveying for CSuE programmes) in the development of integrated design solutions within DSES modules;
3. to provide opportunities for students to acquire appropriate knowledge and understanding, and a range of skills within a set of core themes, together with a sound grasp of engineering design, and a recognition of the importance of health and safety and the need to manage risk;
4. to provide opportunities for students to integrate their knowledge and understanding of mathematics, science, computer-based methods, design, the economic, social and environmental context, and engineering practice to solve a range of complex engineering problems, principally through involvement in group design and individual projects;
5. to produce graduates who are aware and inspired by their responsibilities to society and to the environment and are equipped to enter employment in industry, the professions or public service or to follow a postgraduate route into research, industry or academia, or to apply their skills in areas outside of engineering;
6. For the MEng programmes, to provide a programme that meets the accreditation requirements of the Joint Board of Moderators (JBM [www.jbm.org.uk](http://www.jbm.org.uk)) to fully satisfy the educational base for a Chartered Engineer (CEng), and for the CSuE programmes, also for a Chartered Surveyor (MRICS) and professional civil engineering surveyor (MCInstCES).  
For the BEng programmes, to provide a programme that meets the accreditation requirements of the Joint Board of Moderators (JBM [www.jbm.org.uk](http://www.jbm.org.uk)) to fully satisfy the educational base for an Incorporated Engineer (IEng). To also partially satisfy the educational base for a Chartered Engineer (CEng) and, for the CSuE programmes, for a Chartered Surveyor (MRICS) and professional civil engineering surveyor

- (MCInstCES), together with accredited Further Learning.
7. to provide a programme designed to achieve the EC<sup>UK</sup> Output Standards for Accredited Engineering Programmes and take account of the QAA's FHEQ Qualification Descriptors, the QAA Subject Benchmark Statement for Engineering, and the University's Graduate Skills Framework.

EC<sup>UK</sup> Output Standards for Accredited Engineering Programmes:

<http://www.engc.org.uk/ecukdocuments/internet/document%20library/AHEP%20Brochure.pdf>

QAA's FHEQ Qualification Descriptors:

<http://www.qaa.ac.uk/AssuringStandardsAndQuality/Qualifications/Pages/default.aspx>

QAA Subject Benchmark Statement for Engineering:

<http://www.qaa.ac.uk/Publications/InformationAndGuidance/Pages/Subject-benchmark-statement-Engineering-.aspx>

University's Graduate Skills Framework:

<http://www.ncl.ac.uk/quilt/modules/gsf.htm>

## 11 Learning Outcomes

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas.

### Knowledge and Understanding

On completing the programmes students should have gained knowledge and understanding of:

- A1 The essential facts, concepts, theories and principles of civil engineering (and structural engineering for the CSE programmes, and engineering surveying for the CSuE programmes)
- A2 The wider multidisciplinary engineering context and its underlying principles
- A3 Mathematical principles necessary to underpin their education in civil engineering (and structural engineering for the CSE programmes, and engineering surveying for the CSuE programmes) and to enable them to apply mathematical methods, tools and notations proficiently in the analysis and solution of engineering problems
- A4 Client and user needs and the importance of aesthetics
- A5 The commercial and economic context within which engineering is practised
- A6 The management techniques that may be used to achieve engineering objectives
- A7 The requirement for engineering activities to promote sustainable development
- A8 The need for a high level of professional and ethical conduct in engineering and an awareness of the framework of relevant legal requirements governing engineering activities, including personnel, health, safety, and risk (including environmental risk) issues
- A9 The characteristics of particular materials, equipment, processes and products typically used in civil engineering (and structural engineering for the CSE programmes, and engineering surveying for CSuE programmes)
- A10 The range of functions civil engineers (and structural engineers for the CSE programmes, and engineering surveyors for the CSuE programmes) fulfil in the principal areas where they are employed, the latest operating practices and the limitations of existing approaches
- A11 Appropriate codes of practice and industry standards

A12 Contractual and quality issues

On completing the MEng programmes, students should also have gained knowledge and understanding of:

A13 The different roles within a team and the importance of leadership

A14 Developing technologies related to structural engineering (for the CSE programmes), engineering surveying (for the CSuE programmes) or the student's chosen specialism (for the CE programmes)

A15 Mathematical and computer models relevant to civil engineering (and structural engineering for the CSE programmes, and engineering surveying for the CSuE programmes) and an appreciation of their limitations

A16 Management practices and their limitations, as adopted throughout the project cycle

### **Teaching and Learning Methods**

Knowledge and understanding is mainly imparted through lectures, which for some outcomes (parts of A8 and A10), are given by external speakers with particular specialisms. Tutorials are typically used where students need to practise methods and techniques (A1 and A3) and laboratories and field classes help to reinforce messages that have been initially conveyed in lectures. The integrated design modules in stages 1 and 2 help students to see the wider picture (A2) and also expose them to a range of other concerns (A4, A5, A7), while site visits aid their appreciation of some of the roles engineers fulfil (A10).

For the MEng Programmes, teamwork (A13) is an important element of Sustainable Engineering Design project, and the focus in stage 4 on Structural Engineering (MEng CSE programme), Engineering Surveying (MEng CSuE) or a particular civil engineering discipline (MEng CE programme) allows students to become conversant with latest developments (A14, A15).

### **Assessment Strategy**

The primary means of assessment of knowledge and understanding is by unseen written examinations. These are supplemented by assessed coursework, consisting mainly of project reports and laboratory / field class reports.

### **Intellectual Skills**

On completing the programme students should be able to:

- B1 Apply appropriate quantitative science and engineering principles and tools to the analysis of problems
- B2 Demonstrate creative and innovative ability in the synthesis of solutions and in formulating designs, especially within Design for Sustainable Engineering Systems theme
- B3 Comprehend the broad picture and thus work with an appropriate level of detail
- B4 Plan, conduct and report a major programme of investigative work
- B5 Analyse experimental or computational results and determine their strength and validity
- B6 Identify, classify and describe the performance of systems and components through the use of analytical methods and modelling techniques
- B7 Investigate and define a problem and identify constraints including environmental and sustainability limitations, social matters, health and safety and risk assessment issues
- B8 Manage the design process and evaluate outcomes

On completing the MEng programmes, students should also be able to:

B9 Recognise commercial risks and understand how managers can respond

### **Teaching and Learning Methods**

Intellectual skills are acquired through the teaching and learning programme outlined in section 12. In particular, analysis and problem solving skills (B1, B6) are developed through example classes, tutorials and coursework, and design skills are developed through coursework activities and design projects (B2, B8). These include the Design for Sustainable Engineering Systems modules that require students to recognise constraints and to understand the skills needed for both preliminary and detailed design (B3, B7, plus B9 for the MEng programmes). Experimental results are generated in laboratory and field work and students are expected to analyse and make sense of their data (B5). All students undertake a major individual project in their final year that will require them to scope a particular project that is associated within a wider theme based subject areas and produce a detailed report (B4).

### **Assessment Strategy**

Written coursework assignments, which include group project reports, laboratory reports and a report on a substantial individual project, are the principal means of assessment for these skills, although some may also be assessed by examinations, which in some circumstances are open book exams.

### **Practical Skills**

On completing the programme students should be able to:

- C1 Carry out experiments safely
- C2 Use laboratory and field equipment to generate data
- C3 Prepare technical drawings
- C4 Apply quantitative methods and computer-based models relevant to civil engineering (and structural engineering for the CSE programmes, and engineering surveying for the CSuE programmes), to solve engineering problems, and with an awareness of the limitations of such models
- C5 Develop and apply safe systems of work
- C6 Identify and manage cost drivers
- C7 Ensure fitness for purpose for all aspects of a project including design, construction, operation, maintenance and decommissioning
- C8 Produce design solutions for civil engineering projects (and structural engineering projects for the CSE programmes, and engineering surveying projects for the CSuE programmes)

On completing the MEng programmes, students should also be able to:

- C9 Produce project plans and recognise the need to revise and update as circumstances change
- C10 Ability to extract data pertinent to an unfamiliar problem, and apply in its solution using computer based engineering tools when appropriate

### **Teaching and Learning Methods**

Students have numerous opportunities to carry out experiments in the School's laboratories, but must attend induction programmes to reinforce the need to conduct themselves safely before beginning work (C1, C2, C5). Specific design skills are developed in a range of disciplines and the Design for Sustainable Engineering Systems modules bring these together, requiring a holistic view of the selected project that includes an awareness of costs and the complete project cycle (C5, C6, C7, C8). Technical drawings are produced as an essential part of these design exercises and students are introduced to CAD systems to enable them to produce professional output (C3). Particular industry-standard software is introduced in the relevant modules, some of which students will have a chance to use themselves (C4).

For the MEng programmes, the Sustainable Engineering Systems Design project in stage 3 is a team effort that requires groups of students to collect information to develop a solution to the open-ended problem set. This will, necessarily, involve plans being produced that will later need to be revised in the light of new information (C9, C10).

### **Assessment Strategy**

The ability to use practical skills is mainly assessed by means of written assignments, including drawings, design calculations, laboratory and field class reports, project reports and the report from a substantial individual project.

### **Transferable/Key Skills**

On completing the programme students should be able to:

- D1 Communicate effectively in writing, verbally and through drawings and presentations
- D2 Gather and use information using Information and Communications Technology
- D3 Work with incomplete information and technical uncertainty
- D4 Search for and use the scientific literature effectively
- D5 Take notes effectively
- D6 Work on projects, both individually and as a member of a team
- D7 Plan self-learning and improving performance as the foundation for life-long learning

On completing the MEng programmes, students should also be able to:

- D8 Monitor and adjust a personal programme of work
- D9 Independently learn new theories, concepts, methods etc. in unfamiliar situations

### **Teaching and Learning Methods**

Many of the transferable skills are practised in the numerous coursework exercises students must undertake and advice on specific aspects will be given in particular modules (D1, D5). The individual and group projects require students to gather information, search literature and recognise and develop areas where their knowledge may be deficient (D1, D2, D3, D4, D6, D7). Design for Sustainable Engineering Systems coursework is a good example of the above, which is carried out in groups and forces the teams to not only use information they have been given, but also to search out and understand aspects of their designs on which they have received no instruction.

For the MEng Programmes, the project in stage 4 will require students to further their understanding in specific specialised areas and to project manage their individual work and report submission (D8, D9).

### **Assessment Strategy**

Most pieces of coursework will include an element to cover transferable skills and a number of modules require students to make oral presentations to an audience, which will also contribute to the assessment for the particular modules. Many of these skills are also assessed in the major individual project that all students undertake.

## **12 Programme Curriculum, Structure and Features**

### **Basic structure of the programme**

The normal Undergraduate year is approximately 31 weeks, arranged in three terms and currently divided into two semesters. The MEng programmes normally last four years, and the BEng programmes three years, although it is possible to take a gap year with the approval of the Head of School. The only part-time study is limited provision for the repetition of failed modules and under exceptional circumstances.

Every Honours student studies 120 credits in each Stage (year), resulting in MEng candidates completing 480 credits and BEng candidates completing 360 credits. Candidates must complete one Stage before proceeding to the next.

There is a Faculty Foundation Year for candidates not adequately qualified to embark on Stage 1 of engineering degree programmes.

All modules at Stage 1 and 2 are compulsory on all six programmes. The CE and CSE programmes have common Stages 1 and 2, whilst CSuE students study surveying to a greater depth rather than environmental engineering and transport. At Stage 3, all modules are compulsory, but there is a 40 credit difference in the set of modules taken by each of the six programmes.

At Stage 4, students on the CE and CSE MEng programmes take three common compulsory modules (60 credits) and select a further 20 credits from a choice of three common optional modules.

Students on the MEng CSE programme take a further 20 credits of compulsory specialist modules, and select a further 20 credits from a choice of two specialist optional modules.

Students on the MEng CE programme select a specialist area in which to take a further four 10 credit specialist optional modules.

Students on the MEng CSuE programme take 90 credits of compulsory modules (60 common with CE and CSE plus 30 specialist credits), and then choose 30 credits of optional modules.

### **Key features of the programme (including what makes the programme distinctive)**

The Civil Engineering, Civil and Structural Engineering, and Civil and Surveying Engineering programmes are systems-based integrated programmes with sustainable development at their heart, engaging with the environmental, social and economic dimensions of this unifying concept in the design, implementation, and rehabilitation of all civil engineering interventions within the Earth system. This challenges students to think not only about the technically demanding subjects but also about the future challenges of climate change, sustainable development, democracy, equity, poverty alleviation, and the lifelines of energy, food and water.

To this end, the programmes are essentially delivered under five themes: Modelling and Information Systems; Infrastructure Systems; Environmental Systems; Human and Management Systems; and Design of Sustainable Engineering Systems (DSES). DSES is central to the Programmes, which challenge the students to integrate all of the knowledge gained in the four other themes within a holistic sustainable development framework that focuses on the delivery of sustainable solutions at a range of scales, from individual structures to whole cities.

Within the themes at Stages 1 to 2, the programmes provide a basis in each of the disciplinary pillars on which the training of all civil engineers must be founded, the most significant of which is the structures discipline. At Stage 3, students on the CSE programmes begin to specialise in this area, while students on the CE and CSuE programmes continue with a more diverse curriculum. Students on the BEng programmes have the opportunity to specialise in the individual design project.

Students on the MEng CSE programme concentrate on structures for a substantial part of Stage 4, including an individual research project. Students on the MEng CE programme have the opportunity to specialise in one of four disciplines (geotechnics, transport, water, environmental engineering) for a substantial part of Stage 4, including an individual research project. Students on the CSuE programme follow the similar core to CE and CSE, but take 30 credits of surveying modules in each of Stages 1, 2 and 3 (and also Stage 4 for MEng),

In designing and delivering the programme, strong links with industry are crucial to ensure that our programme is aligned with industry trends and that graduates emerge with the skill sets that industry needs and the capacity to tackle the challenge of sustainable development in the 21<sup>st</sup> century. In particular, Andy Mace from Arup's Newcastle office, who played a leading role in the Dongtan Eco-city project in China, was established as a Royal Academy of Engineering Visiting Teaching Fellow, to enable close industrial interaction with our DSES modules. Our many other industrial collaborators also provide guest speakers, site visits, project support, and an increasing number of industrial placements.

Students who successfully graduate from these programmes will have met the accreditation requirements of the Joint Board of Moderators for Chartered Engineer status. From the start of the Programmes, students are encouraged to become student members of both ICE and IStructE, and those on the CSuE programmes are also encouraged to become student members of RICS and/or CICES.

For students on the MEng CE and CSE programmes who can demonstrate suitable performance and motivation by the end of Stage 2, there are opportunities to study Stage 3 abroad at an approved institution, usually with teaching in English (e.g. Sweden, Singapore, Hong Kong and Colorado), dependent on availability of suitable equivalent modules.

**Programme regulations (link to on-line version)**

<http://www.ncl.ac.uk/regulations/programme/>

**13 Criteria for admission**

*Entry qualifications*

Entry qualifications are the same across all six programmes.

**A Levels**

AAB including Mathematics and preferably Physics or other scientific subjects, but excluding General Studies and Critical Thinking. GCSE Physics or Dual Award Science (minimum grade B) required if not offered at A or AS level.

## **Scottish Qualifications**

AAB at Advanced Higher including Mathematics. Preference will be given to applicants with mathematical or science-based Advanced Highers. Physics required at grade 2 Standard Grade (or Intermediate 2 equivalent) if not offered at Higher or Advanced Higher.

### *Admissions policy/selection tools*

Selection is not judged on academic performance alone. Special cases, for example mature students, students who have achieved a position of authority, students who have worked in the construction industry or in developing countries, or students who come through the PARTNERS route are considered separately on their individual merit.

Some undergraduate students are accepted onto our undergraduate degree programmes with non-A level qualifications. The equivalence of these "non-standard" qualifications are discussed widely at Faculty level, and are set on an annual basis to reflect changes to the qualifications, and also based on our experience of students having gone through the system with such qualifications.

UCAS application forms are received and processed initially by the University's central Admissions Office, and the data is transferred to their database. From there, the forms are sent directly to the Admissions Tutor, or Selector, for the undergraduate programmes. On receipt of the UCAS application forms, the Admissions Tutor makes an initial assessment of the application based on the information supplied on the UCAS application form, that is, on predicted grades, the applicant's personal statement, the referee's report and whether the applicant had any relevant work experience. Applicants who have already achieved their qualifications, but are taking a gap year, are immediately made an offer of a place if they meet our entry criteria. They then receive an invitation to one of our Open Days. UK applicants who have yet to complete their qualifications are invited to an interview, which also forms part of our Open Day. A decision is made directly after the interview, or in the couple of days following interview, and the applicant informed of the decision directly. One of the main reasons we use this approach is to improve our conversion rate and to improve our entry qualifications. International applicants are made an offer on receipt of their application and are sent a Newsletter giving them appropriate information about the courses, the University and the city, with the invitation to visit informally if they are in the UK prior to starting their studies.

The Open Days and interviews are run to allow applicants to visit and for both parties to make an informed choice. They are also the ideal forum for dealing with applicants' queries, introducing them to life in Newcastle, and establishing their interest and motivation in becoming a professional civil engineer, structural engineer, or civil engineering surveyor. The Open Day begins with an ice-breaking team-based problem-solving exercise. After a welcome talk, applicants are then interviewed, given a guided tour around the School, campus and city, and shown a number of small presentations from University staff on financial, careers and similar issues. Current students are heavily involved in the tours, which allow our visitors to gain a realistic vision of life as a civil, civil and structural or civil and surveying engineering student at Newcastle.

The engineering Schools within the Faculty of Science, Agriculture and Engineering (SAgE) have a wealth of experience of recruiting international students. Our international offers are based on this knowledge.

Students may transfer from BEng to MEng, or from MEng to BEng, at the end of their second year, providing they meet the transfer criteria.

### *Non-standard Entry Requirements*



**International Baccalaureate**

37 points with Mathematics and preferably Physics at Higher Level grade 6 or above. Physics required at Standard Level grade 6 or above if not offered at Higher Level.

**Irish Leaving Certificate**

Exceptional applicants may be considered for direct entry into Stage 1, provided they meet a very high standard. Such applicants must have achieved all A's at higher level, with at least 3 A's in mathematical and science subjects. All other candidates will be considered for foundation year entry. All applications will be considered on an individual basis.

**Access Qualifications**

Candidates will be considered for BEng or foundation year entry only. Please see above for BEng entry, or Engineering with Foundation Year for specific entrance requirements.

**BTEC National Diploma**

Candidates offering the BTEC National Diploma will be considered for Foundation Year entry only. Please see Engineering with Foundation Year for specific entrance requirements.

**BTEC Higher National Diploma**

Overall Distinction grades with Distinction in mathematics and science units. Units must include both Analytical Methods and Further Analytical Methods. Students studying the HND outside of the UK, and who have studied subjects corresponding in syllabus and level to Stage 1 of the degree and with Distinction in Mathematics and other engineering subjects, may be considered for Stage 2 entry.

**PARTNERS - A Levels**

ABB/BBB including Mathematics and excluding General Studies. Preference will be given to applicants with mathematical or science-based A levels. GCSE Physics or Dual Award Science (minimum grade B) required if not offered at A or AS level.

**PARTNERS - BTEC National Diploma**

Candidates offering the BTEC National Diploma will be considered for Foundation Year entry only. Please see Engineering with Foundation Year for specific entrance requirements.

**Advanced Diploma Eng**

Advanced Diploma in Construction and the Built Environment or in Engineering acceptable. Grade A in the Principal Learning and Extended Project required, and A level Mathematics at grade A, or equivalent. For Construction and Built Environment, GCSE Dual Award Science (minimum grade BB) also required.

**Foundation Degrees**

Candidates will be considered on an individual basis – please see BTEC Higher National Diploma for entry standards.

**Other Qualifications**

Other qualifications are considered on an individual basis.

### **Direct Entry Students**

Direct entry to Stage 2 of the undergraduate degree programmes is possible for candidates with the appropriate qualifications, both from home and internationally.

The University operates an Accreditation of Prior Learning (APL) Policy which allows Admissions Tutors and Degree Programme Directors to admit students into any of the later Stages, providing the level of their knowledge and skills is appropriate. Details of the APL policy can be seen at <http://www.ncl.ac.uk/quilt/assets/documents/qsh-apel-pol.doc>.

#### *Additional Requirements*

Mathematics and Physics or Dual Award Science are required at GCSE Level, minimum Grade B.

#### *Level of English Language capability*

IELTS 6.5 (or equivalent) including a minimum of 5.5 in each category.

## **14 Support for Student Learning**

The Student Services portal provides links to key services and other information and is available at: <http://www.ncl.ac.uk/students/>

#### *Induction*

During the first week of the first semester students attend an induction programme. New students will be given a general introduction to University life and the University's principle support services and general information about the School and their programme, as described in the Degree Programme Handbook. New and continuing students will be given detailed programme information and the timetable of lectures/practicals/labs/ tutorials/etc. The International Office offers an additional induction programme for overseas students.

#### *Study skills support*

Students will learn a range of Personal Transferable Skills, including Study Skills, as outlined in the Programme Specification. Some of this material, e.g. time management is covered in the appropriate Induction Programme. Students are explicitly tutored on their approach to both group and individual projects.

Numeracy support is available through Maths Aid and help with academic writing is available from the Writing Development Centre (further information is available from the Robinson Library).

#### *Academic and Pastoral support*

Each undergraduate and taught postgraduate student will be assigned a personal tutor.\* A personal tutor is one part of a wider network of advice and guidance available to students to support their personal and general academic development. The module leader acts as the first point of contact for subject-specific academic advice. Thereafter the Degree Programme Director or Head of School may be consulted. Issues relating to the programme may be raised at the Student-Staff Committee, and/or at the Board of Studies. Within the academic unit, students may also receive additional academic and pastoral advice from a range of other student-facing staff including degree programme directors, dissertation/project supervisors, and administrative support staff.

\*Arrangements may vary for students taking special types of provision.

The University also offers a wide range of institutional services and support upon which students can call, such as the Writing Development Centre, Careers Service and Student Wellbeing Service. This includes one-to-one counselling and guidance or group sessions / workshops on a range of topics, such as emotional issues e.g. stress and anxiety, student finance and budgeting, disability matters etc. There is specialist support available for students with dyslexia and mental health issues. Furthermore, the Student Union operates a Student Advice Centre, which can provide advocacy and support to students on a range of topics including housing, debt, legal issues etc.

#### *Support for students with disabilities*

The University's Disability Support team provides help and advice for disabled students at the University - and those thinking of coming to Newcastle. It provides individuals with: advice about the University's facilities, services and the accessibility of campus; details about the technical support available; guidance in study skills and advice on financial support arrangements; a resources room with equipment and software to assist students in their studies.

#### *Learning resources*

The University's main learning resources are provided by the Robinson and Walton Libraries (for books, journals, online resources), and Information Systems and Services, which supports campus-wide computing facilities.

All new students whose first language is not English are required to take an English Language Proficiency Test. This is administered by INTO Newcastle University Centre on behalf of Newcastle University. Where appropriate, in-session language training can be provided. The INTO Newcastle University Centre houses a range of resources which may be particularly appropriate for those interested in an Erasmus exchange.

## **15 Methods for evaluating and improving the quality and standards of teaching and learning**

#### *Module reviews*

All modules are subject to review by questionnaires which are considered by the Board of Studies. Changes to, or the introduction of new, modules are considered at the Board of Studies and/or the School Teaching and Learning Committee. Student opinion is sought at the Student-Staff Committee and/or the Board of Studies. New modules and major changes to existing modules are subject to approval by the Faculty Learning, Teaching and Student Experience Committee.

#### *Programme reviews*

The Board of Studies conducts an Annual Monitoring and Review of the degree programme and reports to Faculty Learning, Teaching and Student Experience Committee. The FLTSEC takes an overview of all programmes within the Faculty and reports any Faculty or institutional issues to the University Learning, Teaching and Student Experience Committee.

#### *External Examiner reports*

External Examiner reports are considered by the Board of Studies. The Board responds to these reports through Faculty Learning, Teaching and Student Experience Committee. External Examiner reports are shared with institutional student representatives, through the Student-Staff Committee.

#### *Student evaluations*

All modules and stages\* are subject to review by student questionnaires. Informal student evaluation is also obtained at the Student-Staff Committee, and the Board of Studies. The National Student Survey is sent out every year to final-year undergraduate students, and consists of a set of questions seeking students' views on the quality of the learning and teaching. The results from student surveys are considered as part of the Annual Monitoring and Review of the programme and any arising actions are captured at programme and School / institutional level and reported to the appropriate body.

\*With the exception of intercalating years and the final stages of undergraduate programmes.

#### *Mechanisms for gaining student feedback*

Feedback is channelled via the Student-Staff Committee and the Board of Studies.

#### *Faculty and University Review Mechanisms*

Every six years degree programmes in each subject area undergo periodic review. This involves both the detailed consideration of a range of documentation, and a review visit by a review team (normally one day in duration) which includes an external subject specialist and a student representative. Following the review a report is produced, which forms the basis for a decision by University Learning, Teaching and Student Experience Committee on whether the programmes reviewed should be re-approved for a further six year period.

#### *Accreditation reports*

The CE and CSE programmes are accredited by the Joint Board of Moderators (Institution of Civil Engineers, Institution of Structural Engineers, Chartered Institution of Highways and Transportation, and the Institute of Highway Incorporated Engineers) in fully satisfying the educational base for a Chartered Engineer (CEng) [MEng], fully satisfying the educational base for an Incorporated Engineer (IEng) [BEng], or partially satisfying the educational base for a Chartered Engineer (CEng) [BEng]. See [www.jbm.org.uk](http://www.jbm.org.uk) for further information and details of Further Learning programmes for CEng. It is anticipated that the CSuE programmes will also be accredited by both the Royal Institution of Chartered Surveyors ([RICS](http://RICS)) and the Chartered Institution of Civil Engineering Surveyors ([CICES](http://CICES)).

#### *Additional mechanisms*

Strategic and pedagogical review takes place annually via School Teaching Away Days.

## **16 Regulation of assessment**

#### *Pass mark*

The pass mark for Level 7 modules (Stage 4 of MEng CE, CSE and CSuE) is 50, and for Level 4, 5 and 6 modules (Stages 1, 2 and 3) is 40.

#### *Course requirements*

Progression is subject to the University's Undergraduate Progress Regulations, the Undergraduate Examination Conventions (for BEng programmes) and Integrated Masters Examination Conventions (for MEng programmes). In order to progress a student must pass, or be deemed to have passed, 120 credits at each Stage. Students on the MEng programmes not meeting the threshold Stage average of 55 at the end of Stage 2 will be transferred on to the appropriate BEng programme, while students on the BEng programmes that meet the threshold will be offered the opportunity to transfer to the appropriate MEng programme. Compensation and reassessment opportunities are available as outlined in the Examination Conventions, except that compensation is limited to a maximum of 20 credits per Stage.

#### *Weighting of Stages*

Marks from all modules studied at Stages 2, 3 and 4, contribute to degree classification as specified in the relevant degree programme regulations.

MEng degree classification is based on a Stage 2: Stage 3: Stage 4 weighting of 1:2:3.

BEng degree classification is based on a Stage 2: Stage 3 weighting of 1:2.

*Common Marking Scheme*

The University employs a common marking scheme, which is specified in the Undergraduate Examination Conventions and the Integrated Masters Examination Conventions, namely:

**Summary description applicable to Honours level Degree Classification Modules (levels 4-6)**

**Summary description applicable to level 7 Degree Classification Modules**

<39	Fail	<39	Fail
40-49	Third Class	40-49	Fail
50-59	Second Class, Second Division	50-59	Second Class, Second Division
60-69	Second Class, First Division	60-69	Second Class, First Division
70 or above	First Class	70 or above	First Class

*Role of the External Examiner*

An External Examiner, a distinguished member of the subject community, is appointed by FLTSEC, following recommendation from the Board of Studies. The External Examiner is expected to:

- i. See and approve assessment papers
- ii. Moderate examination and coursework marking
- iii. Attend the Board of Examiners
- iv. Report to the University on the standards of the programme

In addition, information relating to the programme is provided in:

The University Prospectus: <http://www.ncl.ac.uk/undergraduate/>

The School Brochure: <http://www.ncl.ac.uk/marketing/services/print/publications/ordering/>

Degree Programme and University Regulations: <http://www.ncl.ac.uk/regulations/docs/>

The Module Catalogue: <http://www.ncl.ac.uk/module-catalogue/>

Please note. This specification provides a concise summary of the main features of the programme and of the learning outcomes that a typical student might reasonably be expected to achieve if she/he takes full advantage of the learning opportunities provided. The accuracy of the information contained is reviewed by the University and may be checked by the Quality Assurance Agency for Higher Education.

## Mapping of Intended Learning Outcomes onto Curriculum/Modules

## (a) Civil Engineering and Civil and Structural Engineering

Module	Type	Intended Learning Outcomes			
		A	B	C	D
<b>STAGE 1 ALL PROGRAMMES</b>					
CEG1001	Compulsory	2,4,5,6,7,8	2,3,4,7,8	3,4,6,7,8	1,2,3,4,6,7
CEG1003	Compulsory	2,4,5,7,8	3,7	6	1,2,4,5,7
CEG1101	Compulsory	1,2,7,8,9	1,6,7	1,2,5	1,2,5,7
CEG1201	Compulsory	1,9	5,7	1,2,5	1,2,5,7
CEG1302	Compulsory	1,3,9	1,5,6	1,2,4,5	1,2,5,7
CEG1303	Compulsory	1,3,9	1,5,6	1,2,4,5	1,2,5,7
CEG1501	Compulsory	1,2,9	1,5	1,2,4,5	1,2,5,7
CEG1709	Compulsory	1,12	1	1,2,5	2,5,6,7
CEG1710	Compulsory	3,9,10	1,3,5	4	1,2,6
ENG1001	Compulsory	3	1		1,5,7
<b>STAGE 2 ALL PROGRAMMES</b>					
CEG2001	Compulsory	2,4,5,6,7,8,9	2,3,4,7,8	3,6,7,8	1,2,3,4,6,7
CEG2002	Compulsory	3	1,5,6	4	1,2,5,7
CEG2101	Compulsory	1,8,9,11	1,2,7,8	1,2,8	1,2,3,4,5,7
CEG2201	Compulsory	1,8,9,10	1,3,5,6,7	1,2,4,7	1,2,3,5,7
CEG2301	Compulsory	1,3,9,11	1,6	7	1,2,5,7
CEG2302	Compulsory	1,3,8,9,11	1,3,6,7	1,2,5,7,8	1,2,5,7
CEG2303	Compulsory	1,2,4,5,7,8,9	1,5	1,2	1,2,5,7
CEG2401	Compulsory	1,2,4,5,7,8,11	1,3,6,7	4,7,8	1,2,4,5,7
CEG2501	Compulsory	1,2,3,9	1,3,5	2,4	1,2,5,7
CEG2712	Compulsory	1,3,10	1,3,5	1,2	1,2,5,6,7
<b>STAGE 3 ALL PROGRAMMES</b>					
CEG3001	Compulsory	2,4,5,6,7,8	2,3,7,8	3,6,8	1,2,3,4,6,7
CEG3002	Compulsory	4,5,6,8,9,10,11,12	2,3,7	5,6,7	1,2,3,4,5,7
CEG3003	Compulsory	5,7,8	7		1,2,4,5,6,7
CEG3201	Compulsory	1,2,7,8,9,10,11	1,2,3,7,8	4,7,8	1,2,3,5,6,7
CEG3301	Compulsory	1,9,10,11	1,2,6,8	3,4,7,8	1,2,5,6,7
CEG3305	Compulsory	1,3,11	1,6	4	1,2,5,7
CEG3302	Compulsory (CSE)	1,3,9,11	1,5,6	4	1,2,5,7
CEG3304	Compulsory (CSE)	2,4,6	2,3,7,8	3,7,8	1,2,3,5,6,7
CEG3401	Compulsory (CE)	2,4,5,7,8,9,10,11	1,3,6,7	3,4,7,8	1,2,3,4,5,7
CEG3503	Compulsory (CE)	2,5,7,8	2,3,7	2,6	1,2,4,5,6,7
CEG3099	Compulsory (BEng)	4,7,8	1,2,3,4,5,7	1,2,5,8	1,2,3,4,6,7
CEG3004	Compulsory (MEng)	2,4,5,6,7,8,9,10,13	1,2,3,7,8	3,6,7,8,9,10	1,2,3,4,6,7,9

Module	Type	Intended Learning Outcomes			
		A	B	C	D
<b>STAGE 4 ALL PROGRAMMES</b>					
CEG8002	Compulsory	4,5,6,8,10,12,13,16	3,7,9	5,6,7,9,10	1,2,5,6,7,9
CEG8003	Compulsory	4,5,7,8,10,13	2,7	6,10	1,2,4,6,7,8,9
CEG8099	Compulsory	8,14	1,2,3,4,5,7	1,2,5,9,10	1,2,3,4,6,7,8,9
CEG8004	Optional	4,5,6,8,12,13,16	2,7,8,9	6,7,9,10	1,2,4,6,7,8,9
CEG8005	Optional	4,8,13	2,7,8	3,6,7,8,9,10	1,2,3,6,7,8
NCL8007	Optional	4,8	2		1,2,6,7,8,9
<b>STAGE 4 CIVIL &amp; STRUCTURAL ENGINEERING PROGRAMME</b>					
CEG8302	Compulsory	4,7,9,10,14	1,2,3,6,7,8	3,4,7,8,9,10	1,2,3,4,5,6,7,8,9
CEG8308	Compulsory	2,4,5,7,8,9,10,11,14,15	1,2,6,7,8	3,4,6,7,8,10	1,2,3,4,5,6,7,8,9
CEG8304	Optional	1,2,3,11,15	1,5,6	4,7,10	1,2,5,7,8,9
CEG8305	Optional	1,3,9,15	1,5,6	4,10	1,2,5,7,8,9
<b>STAGE 4 CIVIL ENGINEERING PROGRAMME ENVIRONMENTAL ENGINEERING OPTION</b>					
CEG8105	Optional	2,4,5,6,7,8,9,10,11,14,16	7,9	6,10	1,2,4,5,7,8,9
CEG8107	Optional	2,4,5,7,8,9,10,14	2,3,7	7,8,9,10	1,2,3,4,5,6,7,8,9
CEG8405	Optional	2,4,7,8,14,15	1,6,7	4,7,10	1,2,3,4,5,7,8,9
CEG8608	Optional	2,7,8,9,10,13,14,15	1,4,6,7	4,5,9,10	1,2,4,5,6,7,8,9
<b>STAGE 4 CIVIL ENGINEERING PROGRAMME GEOTECHNICAL ENGINEERING OPTION</b>					
CEG8202	Optional	2,7,8,9,10,14	1,3,5,6,7	2,7,9,10	1,2,3,4,5,7,8,9
CEG8204	Optional	2,4,7,8,9,10,11,14,16	3,6,7	4,5,6,7,8	1,2,3,4,5,7,8,9
CEG8205	Optional	2,3,9,13,15	1,3,5,6,7	4,10	1,2,3,4,5,6,7,8,9
CEG8608	Optional	2,7,8,9,10,13,14,15	1,4,6,7,9	4,5,9,10	1,2,4,5,6,7,8,9
<b>STAGE 4 CIVIL ENGINEERING PROGRAMME TRANSPORT ENGINEERING OPTION</b>					
CEG8405	Optional	2,4,7,8,14,15	1,6,7	4,7,10	1,2,3,4,5,7,8,9
CEG8406	Optional	2,4,5,6,7,8,10,14	6,7	6,7,10	1,2,4,5,6,7,8,9
CEG8411	Optional	4,5,7,8,10	7	6,7,10	1,2,4,6,7,8,9
CEG8412	Optional	4,5,6,7,8,16	6,7,9	6,7,9,10	1,2,4,5,6,7,8,9
<b>STAGE 4 CIVIL ENGINEERING PROGRAMME WATER RESOURCES ENGINEERING OPTION</b>					
CEG8505	Optional	2,7,15	1,3,6,7,9	4,10	1,2,3,4,5,7,8,9
CEG8511	Optional	2,3,7,9,10,14	1,2,5,6,7	10	1,2,3,4,5,7,8,9
CEG8512	Optional	2,5,7,8,10,13,14,15,16	1,2,3,6,7	4,6,9,10	1,2,3,4,5,6,7,8,9
CEG8515	Optional	2,7,10,14,15	1,3,5,6	4,10	1,2,3,4,5,6,7,8,9

**(b) Civil and Surveying Engineering**

Module	Type	Intended Learning Outcomes			
		A	B	C	D
<b>STAGE 1 ALL PROGRAMMES</b>					
CEG1001	Compulsory	2,4,5,6,7,8	2,3,4,7,8	3,4,6,7,8	1,2,3,4,6,7
CEG1201	Compulsory	1,9	5,7	1,2,5	1,2,5,7
CEG1302	Compulsory	1,3,9	1,5,6	1,2,4,5	1,2,5,7
CEG1303	Compulsory	1,3,9	1,5,6	1,2,4,5	1,2,5,7
CEG1501	Compulsory	1,2,9	1,5	1,2,4,5	1,2,5,7
CEG1701	Compulsory	1,2,4,5,6,8,9	1,3,4,5,7	1,2,4,5	1,2,3,5,6,7
CEG1703	Compulsory	1,11	1,3,5,6	1,2,3,4	1,2,5,6,7
ENG1001	Compulsory	3	1		1,5,7
<b>STAGE 2 ALL PROGRAMMES</b>					
CEG2001	Compulsory	2,4,5,6,7,8,9	2,3,4,7,8	3,6,7,8	1,2,3,4,6,7
CEG2002	Compulsory	3	1,5,6	4	1,2,5,7
CEG2201	Compulsory	1,8,9,10	1,3,5,6,7	1,2,4,7	1,2,3,5,7
CEG2301	Compulsory	1,3,9,11	1,6	7	1,2,5,7
CEG2302	Compulsory	1,3,8,9,11	1,3,6,7	1,2,5,7,8	1,2,5,7
CEG2303	Compulsory	1,2,4,5,7,8,9	1,5	1,2	1,2,5,7
CEG2501	Compulsory	1,2,3,9	1,3,5	2,4	1,2,5,7

CEG2701	Compulsory	1,2,4,5,8,9,10,11,12	1,3,4,5,6,7,8	1,2,3,4,5,6,7,8	1,2,3,4,5,6,7
CEG2708	Compulsory	4,9,10,11	1,3,5,6	1,2,3,4,5	1,2,3,4,5,6,7
CEG2719	Compulsory	1,3,9,10	1,3,5,6	1,2,4	1,2,3,4,5,7
<b>STAGE 3 ALL PROGRAMMES</b>					
CEG3001	Compulsory	2,4,5,6,7,8	2,3,7,8	3,6,8	1,2,3,4,6,7
CEG3002	Compulsory	4,5,6,8,9,10,11,12	2,3,7	5,6,7	1,2,3,4,5,7
CEG3003	Compulsory	5,7,8	7		1,2,4,5,6,7
CEG3201	Compulsory	1,2,7,8,9,10,11	1,2,3,7,8	4,7,8	1,2,3,5,6,7
CEG3301	Compulsory	1,9,10,11	1,2,6,8	3,4,7,8	1,2,5,6,7
CEG3099	Compulsory (BEng)	4,7,8	1,2,3,4,5,7	1,2,5,8	1,2,3,4,6,7
CEG3004	Compulsory (MEng)	2,4,5,6,7,8,9,10,13	1,2,3,7,8	3,6,7,8,9,10	1,2,3,4,6,7,9
CEG3713	Compulsory	1,3,11	1,6	4	1,2,5,7
CEG3714	Compulsory	3,4,9	1,3,5	4	1,2,3,4,5,7
CEG3711	Compulsory	3,4,9	1,6	4	1,2,3,4,5,7
CEG3712	Compulsory	1,2,4,9,10	1,5,6	1,2,4,5	1,2,3,4,5,6,7

Module	Type	Intended Learning Outcomes			
		A	B	C	D
<b>STAGE 4 ALL PROGRAMMES</b>					
CEG8002	Compulsory	4,5,6,8,10,12,13,16	3,7,9	5,6,7,9,10	1,2,5,6,7,9
CEG8003	Compulsory	4,5,7,8,10,13	2,7	6,10	1,2,4,6,7,8,9
CEG8099	Compulsory	8,14	1,2,3,4,5,7	1,2,5,9,10	1,2,3,4,6,7,8,9
CEG8706	Compulsory	1,2,4,8,9,10,13,15	1,2,3,4,5,6,7	1,2,3,4,5,7	1,2,3,4,5,6,7,8
CEG8705	Compulsory	2,4,9,10	1,3,5	4	1,2,3,4,5,7
CEG8004	Optional	4,5,6,8,12,13,16	2,7,8,9	6,7,9,10	1,2,4,6,7,8,9
CEG8005	Optional	4,8,13	2,7,8	3,6,7,8,9,10	1,2,3,6,7,8
CEG8202	Optional	2,7,8,9,10,14	1,3,5,6,7	2,7,9,10	1,2,3,4,5,7,8,9
CEG8204	Optional	2,4,7,8,9,10,11,14,16	3,6,7	4,5,6,7,8	1,2,3,4,5,7,8,9
CEG8205	Optional	2,3,9,13,15	1,3,5,6,7	4,10	1,2,3,4,5,6,7,8,9
CEG8405	Optional	2,4,7,8,14,15	1,6,7	4,7,10	1,2,3,4,5,7,8,9
CEG8406	Optional	2,4,5,6,7,8,10,14	6,7	6,7,10	1,2,4,5,6,7,8,9
<b>CEG8422</b>	<b>Optional</b>				
CEG8505	Optional	2,7,15	1,3,6,7,9	4,10	1,2,3,4,5,7,8,9
CEG8515	Optional	2,7,10,14,15	1,3,5,6	4,10	1,2,3,4,5,6,7,8,9
NCL8007	Optional	4,8	2		1,2,6,7,8,9