

## PROGRAMME SPECIFICATION

### KEY FACTS

Programme name	Civil Engineering; Civil Engineering with Placement
Award	BEng (Hons)
School	Mathematics, Computer Science and Engineering
Department or equivalent	Civil Engineering
UCAS Code	H200; H201
Programme code	USCIVB; USCIVE
Type of study	Full Time
Total UK credits	365
Total ECTS	182.5
Partner (partnership programme only)	Not applicable
Type of Partnership	Not applicable

### PROGRAMME SUMMARY

The BEng Honours Programme is a three-year full time degree comprising 360 credits (3600 study hours) structured as three Programme Stages, each typically delivered over 22 contact weeks, 4 examination weeks, 4 reflective learning (private study) weeks and 8 vacation weeks (which may be used for private study) per academic year. A BEng (Hons) Programme therefore requires a commitment of 40 study hours per week during the academic year.

During the degree, engineering knowledge is built-up and nurtured, with specific objectives associated with each component Programme Stage. Development of design skills and team work are at the heart of the City University engineering degrees throughout the programme. Programme Stage 1 is common across all of the engineering degrees. This introductory year is intended to give you a thorough grounding in the fundamental and applied science and mathematics appropriate for an engineer, as well as developing personal skills such as time and quality management. During Programme Stage 1, you will have the opportunity to undertake preliminary engineering designs through group activity. At the end of Programme Stage 1 (assuming that you have met the academic requirements described below) you will have the opportunity to decide whether to remain on the BEng (Hons) Civil Engineering degree or switch to one of 5 other engineering BEng (Hons) degrees. This flexibility in choice at the end of Programme Stage 1 enables you to follow the discipline that best matches your strengths and most attracts you.

In Programme Stage 2 you will start to specialise and develop your experience of civil engineering design. You will gain specialist understanding of geology and soil mechanics and will advance your knowledge of solid and fluid mechanics while also studying measurement and data analysis.

Your studies become more applied in Programme Stage 3 including the analysis and design of typical geotechnical, hydraulic and structural forms and the use of computational analysis techniques. You will also study construction management and address the challenges of providing sustainable and ethical designs that are safe to

construct. You will undertake an individual project that you select from a range of topics.

If you wish to gain practical experience during your degree, then you have the option of spending 12 months, between Programme Stages 2 and 3, on a paid industrial placement. We strongly recommend this (see the subsequent section entitled 'What Placement opportunities are available?').

At the end of the programme, you will have acquired the knowledge and understanding of analysis and design techniques, practical and personal skills required for a career in engineering.

### **Certificate of Higher Education**

Upon successful completion of Programme Stage 1 you will be able to: (i) discuss underlying concepts and principles associated with fundamental science and technology, (ii) develop skills in time and quality management and (iii) present, interpret and evaluate quantitative and qualitative data within your subject of study appropriate to the formation of an engineer. At this stage, having gained all the necessary credits, you will either: (i) automatically progress onto Programme Stage 2 of the BEng (Hons) in Civil Engineering or (ii) decide to switch onto one of 5 other BEng (Hons) engineering degrees (Aeronautical, Biomedical, Engineering, Electrical and Electronic or Mechanical) or (iii) leave the University with a Certificate of Higher Education in Engineering.

### **Diploma of Higher Education**

Upon successful completion of Programme Stage 2 you will have: (i) built upon your previous knowledge and experience, (ii) developed critical understanding of the well-established principles, and of the way in which those principles have developed in your area of study and (iii) advanced your skills of enquiry and different approaches to problem-solving as well as identified the limitations of your knowledge in your subject. At this stage, having gained all the necessary credits, you will either: (i) automatically progress onto Programme Stage 3 of the BEng (Hons) in Civil Engineering or (ii) leave the University with a Diploma of Higher Education in Civil Engineering. At the end of Programme Stage 2, you also have the opportunity to move to Programme Stage 3 of the MEng (Hons) degree in Civil Engineering if you have achieved an overall aggregate mark of at least 50% at the end of Programme Stage 2.

### **BEng (Hons) Degree**

Upon successful completion of Programme Stage 3 (having gained all the necessary credits) you will: (i) have developed a coherent systematic, detailed knowledge of your discipline and (ii) be able to confidently develop and employ appropriate techniques and methods in mathematical modelling and experimentation for engineering problem-solving, analysis and design.

### **Aims**

The overall aim of the BEng (Hons) in Civil Engineering is to provide an excellent education in engineering with specialised training for a professional career in civil engineering.

The specific aims (further elaborated below in the section 'What will I be expected to achieve?') are to produce graduates who:

- are equipped to perform at a high technical level
- are able to apply and integrate knowledge and understanding of other engineering disciplines to support their studies in civil engineering
- are logical, numerate, have a natural curiosity about the scientific world and are able to problem-see as well as problem-solve
- demonstrate an attention to detail, without losing sight of the overall picture

- have a sound knowledge and a practical understanding of business and management and participate effectively in team work
  - are aware of their professional and ethical responsibilities, the global and societal impact of engineering solutions, as well as the economic and political issues
  - are able to communicate effectively to a wide range of audiences
- exhibit team loyalty and have the ability and confidence to be a leader in industry

### **WHAT WILL I BE EXPECTED TO ACHIEVE?**

This programme has been developed in accordance with the QAA Subject Benchmark for Engineering. On successful completion of this programme, you will be expected to be able to:

#### **Knowledge and understanding**

- evaluate and solve problems in civil engineering using your comprehensive knowledge and understanding of analytical engineering subjects
- discuss critically the principles underlying other engineering disciplines
- assess civil engineering operations
- discuss the design process and apply this to carry out a design task
- assess the management principles applied to engineering
- evaluate the role of the professional engineer and wider issues relating to society, the environment and sustainability

#### **Skills**

- plan and carry out experimental work
- use a range of laboratory equipment to obtain data, carry out an analysis of it and comment on the results
- prepare technical reports and drawings, and make technical presentations
- interrogate published scientific literature effectively
- use computer packages for analysis and design
- plan, conduct and report work of an investigative nature
- use analytical and experimental techniques to solve problems in engineering
- design a system or element to meet specifications taking a range of constraints and uncertainties into account and understanding the implications of these on your design
- evaluate critically, information and data from various sources
- collaborate on projects involving other engineering disciplines
- communicate effectively through writing, drawings and oral presentations
- solve problems using analytical and mathematical skills
- work effectively in interdisciplinary teams
- make use of information technology tools
- manage resources and time

#### **Values and attitudes**

- maintain a professional and ethical engineering attitude
- enhance the welfare, health and safety of the community through engineering solutions
- discuss the requirement for engineering activities to promote sustainable development

## **HOW WILL I LEARN?**

The majority of learning in Higher Education is typically conducted through private study. Engineering is a practical discipline which benefits from significant supervised study, but it cannot be learnt through lectures alone. In Programme Stages 1 and 2 there is a higher proportion of supervised study (compared with Programme Stage 3), with typically 20-24 hours of contact timetabled each week.

These supervised contact hours are designed to assist and to focus your private study. Teaching involves a combination of theoretical, experimental and computational study. Our approach is to encourage critical thinking and foster your curiosity. By the time that you reach Programme Stage 3, the tutorial and practical elements are managed more by you, especially in relation to your individual project work. The remaining hours of private study each week are essential to the achievement of the learning outcomes and are guided using both formative and summative coursework tasks set during the academic year. Your private study is also supported by the use of Moodle, City's Online Learning Environment. This provides online access to module content, feedback, guidance on completing coursework, audio-visual resources etc.

Contact hours are made up of: lectures, which direct you towards the most important topics in the field and which allow discussion and clarification of areas of uncertainty with expert staff; tutorials where staff are on hand to help with problem-solving exercises; laboratory and workshop classes where practical situations and methods are encountered; and research or design/build projects, both individually and in groups, where personal skills, teamwork, creativity and critical thinking are developed and where knowledge built up elsewhere in the programme is integrated and developed. Site visits and field courses are used to place taught sessions in the context of real-world industries or products. Residential field courses allow you to undertake longer practical sessions in geology outside in the field.

## **WHAT TYPES OF ASSESSMENT AND FEEDBACK CAN I EXPECT?**

### **Assessment and Assessment Criteria**

The Programme is subdivided into Programme Stages (years of study) and each Programme Stage into modules (coherent groupings of syllabus topics addressing particular Learning Outcome types). Each module in the programme may have one or more assessment components of differing types. Assessment components may involve more than one assessment task (e.g. they may be an aggregate of different coursework marks or multiple examination papers).

Most modules will have an examination component as well as a coursework (continuous assessment) component. The split between examination and coursework assessment is approximately 50:50 over the programme lifetime. Examinations are used because they provide a controlled environment in which to assess knowledge and understanding and problem-solving skills. The time pressure and lack of prior warning about specific issues to be tackled is representative of real-world situations faced by practising engineers.

Coursework assessments vary from paper assignments (which may be similar to examinations but with longer time scales and with access permitted to information sources) to the assessment of practical skills which cannot be done in the exam hall.

For example communication skills (e.g. presentations, drawings and written reports), personal skills (such as team work or leadership), planning and design (both software and hardware), data analysis, critical review of information and the use of laboratory apparatus for measurement of properties and modelling of behaviour are usually assessed by means of coursework tasks.

Often coursework tasks may be set which are not to be assessed but which are valuable as a learning experience. This is known as formative coursework and is often the key to improving grades on assessed or summative coursework. You will receive feedback from all coursework assessments, both formative and summative, to allow you to learn from mistakes made in the assessment.

Assessment Criteria are descriptions, based on the intended learning outcomes, of the skills, knowledge or attitudes that you need to demonstrate in order to complete an assessment successfully, providing a mechanism by which the quality of an assessment can be measured. Grade-Related Criteria are descriptions of the level of skills, knowledge or attributes that you need to demonstrate in order to achieve a certain grade or mark in an assessment, providing a mechanism by which the quality of an assessment can be measured and placed within the overall set of marks. Assessment Criteria and Grade-Related Criteria will be made available to you to support you in completing assessments. These may be provided in programme handbooks, module specifications, on the virtual learning environment or attached to a specific assessment task.

### **Feedback on assessment**

Feedback will be provided in line with our Assessment and Feedback Policy. In particular, you will normally be provided with feedback within three weeks of the submission deadline or assessment date. This may be written (on the hard copies and online) or oral (in class), specific to you or generally applicable, and would normally include a provisional grade or mark. If the coursework submitted is a laboratory report, then your work will not be returned until three weeks after the last report has been submitted. Laboratories are undertaken by groups of you in rotation over periods of many weeks and consequently the last group of you may complete the laboratory and submit the report many weeks after the first group.

For end-of-module examinations or an equivalent significant task (e.g. an end-of-module project), a generic feedback will normally be provided within four weeks of the last day of exam period. The timescale for feedback on final year projects or dissertations may be longer and starts from the date of the final presentation of the project. The full policy can be found at:

[http://www.city.ac.uk/data/assets/pdf\\_file/0008/68921/assessment\\_and\\_feedback\\_policy.pdf](http://www.city.ac.uk/data/assets/pdf_file/0008/68921/assessment_and_feedback_policy.pdf)

### **Assessment Regulations**

In order to pass your programme, you should complete successfully (or be exempted from) the relevant modules and assessments and will therefore acquire the required number of credits. You also need to pass each preceding Programme Stage of your Programme in order to progress to the following Programme Stage.

Your overall aggregate mark will be calculated by combining the aggregate marks from Programme Stages 1, 2 and 3 in the ratio 1:3:6.

The pass mark for each module is 40%. In some modules there will be a requirement to pass individual components of the module (where the pass mark for these components will also be 40%). Details of which assessment components need to be passed individually is provided in the Module Specification.

If you fail an assessment component or a module, the following will apply.

1. *Compensation:* where, if you fail up to a total of one sixth of the total credits at first or resit attempt, you may be allowed compensation if
  - Compensation is permitted for the module involved (see the What will I study Section of the Programme Specification), and
  - it can be demonstrated that you have satisfied the Learning Outcomes of the modules in the Programme Stage, and
  - a minimum overall mark of at least 30% has been achieved in the module to be compensated, and
  - an aggregate mark of at least 40% has been achieved for the Programme Stage under consideration.

Where you are eligible for compensation at the first attempt, this will be applied in the first instance rather than offering a resit opportunity.

If you receive a compensated pass in a module then you will be awarded the full 20 credits for that module. The original component marks will be retained in the record of marks and your original module mark will be used for the purpose of your Award calculation.

2. *Resit:* Where you are not eligible for compensation at the first attempt, you will normally be offered one resit attempt.

If you are successful in the resit, you will be awarded the full credit for that module. The mark for each assessment component that is subject to a resit will be capped at the pass mark for the module. This capped mark will be used in the calculation of the final module mark together with the original marks for the components that you passed at first attempt.

If you do not meet the pass requirements for a module and do not complete your resit by the date specified, you will not progress to the next Programme Stage and the Assessment Board will require that you to be withdrawn from the Programme. If you fail to meet the requirements for a particular Programme Stage or the Programme, the Assessment Board will consider whether you are eligible for an Exit Award as per the tables shown below.

If you would like further information about the way in which assessment works at City, please see the full version of the Assessment Regulations at:  
<http://www.city.ac.uk/about/city-information/governance/constitution/senate-regulations>

## WHAT AWARD CAN I GET?

### Bachelor's degree with honours in Civil Engineering

Programme Stage	HE Level	Credits	Weighting %	Class	% Required
1	4	125	10	I	70
2	5	120	30	II upper division	60
3	6	120	60	II lower division III	50 40

**Ordinary degree in Civil Engineering**

Programme Stage	HE Level	Credits	Weighting %	Class	% Required
1	4	125	10	With Distinction	70
2	5	120	30	With Merit	60
3	6	60	60	Without Classification	40

**Diploma of Higher Education in Civil Engineering**

Programme Stage	HE Level	Credits	Weighting %	Class	% Required
1	4	125	25	With Distinction	70
2	5	120	75	With Merit	60
				Without Classification	40

**Certificate of Higher Education in Engineering**

Programme Stage	HE Level	Credits	Weighting %	Class	% Required
1	4	125	100	With Distinction	70
				With Merit	60
				Without Classification	40

**WHAT WILL I STUDY?****Programme Stage 1**

Programme Stage 1 comprises seven core Level-4 modules, totalling 125 credits. To pass Stage 1 you must obtain all 125 credits, as specified in the Programme Scheme. All modules, except for ET1000 and ET1090, are assessed by a combination of course work distributed throughout the academic year and an end of year exam. The proportion of each component is specified in the description for each module. You must achieve a pass mark for the module and any components as set out in each module specification. ET1000 is a pass/fail module assessed by your personal tutor by means of a portfolio of evidence of initial personal and professional development. ET1090 (Design I) is assessed by coursework distributed throughout the academic year for which you must achieve a pass mark.



Module Title	SITS Code	Module Credits	Core or Elective	Can module be compensated?	Level
Mathematics I	EX1010	20	Core	No	4
Engineering Science	ET1060	20	Core	No	4
Fluid Mechanics & Thermodynamics I	ET1070	20	Core	No	4
Solid Mechanics	ET1080	20	Core	No	4
Electronics	ET1061	20	Core	No	4
Design I	ET1090	20	Core	No	4
Personal & Professional Development	ET1000	5	Core	No	4

### Programme Stage 2

Programme Stage 2 comprises six core Level-5 modules, totalling 120 credits. To pass Programme Stage 2 you must obtain all 120 credits, as specified in the Programme Scheme.

All modules, except for Design II: Civil & Structural, are assessed by a combination of course work distributed throughout the academic year and an end of year exam. The proportion of each component is specified in the description for each module. You must achieve a pass mark for the module and any components as set out in each module specification. Design II: Civil & Structural is assessed by coursework distributed throughout the academic year for which you must achieve a pass mark.

The Geology and Soil Mechanics module includes a compulsory residential field trip.

A student who has successfully completed Programme Stage 2 of a BEng programme may, with the approval of the Assessment Board, transfer to Programme Stage 3 of the related MEng programme provided that they have obtained an overall aggregate mark of at least 50% at Programme Stage 2.

Module Title	SITS Code	Module Credits	Core or Elective	Can module be compensated?	Level
Mathematics II	EX2010	20	Core	No	5
Fluid Mechanics & Thermodynamics II	ET2070	20	Core	No	5
Structural Mechanics	ET2080	20	Core	No	5
Geology and Soil Mechanics	CV2501	20	Core	No	5
Measurement and Data Analysis	ET2082	20	Core	No	5
Design II: Civil & Structural	CV2500	20	Core	No	5

### Programme Stage 3

Programme Stage 3 comprises six core Level-6 modules, totalling 120 credits. To pass Programme Stage 3 you must obtain all 120 credits, as specified in the Programme Scheme.

All modules, except for Design III: Civil and BEng Individual Project, are assessed by a combination of course work distributed throughout the academic year and an end of year exam. The proportion of each component is specified in the description for each module. You must achieve a pass mark for the module and any components as set out in each module specification. Design III: Civil is assessed by coursework distributed throughout the academic year for which you must achieve a pass mark. The BEng Project module is an individual project assessed by a combination of in-year progress, your dissertation and your performance in an oral examination.

At most one 20-credit module can be compensated (but not the BEng Project module

or Design III) if you achieve a mark of at least 30% in that module and have passed the other five modules.

Module Title	SITS Code	Module Credits	Core or Elective	Can module be compensated?	Level
Geotechnical Engineering	CV3501	20	Core	Yes	6
Hydraulic Engineering	CV3503	20	Core	Yes	6
Structural Engineering	CV3602	20	Core	Yes	6
Civil Engineering Management	CV3502	20	Core	Yes	6
BEng Individual Project	ET3106	20	Core	No	6
Design III: Civil	CV3500	20	Core	No	6

### TO WHAT KIND OF CAREER MIGHT I GO ON?

Most graduates choose to enter the civil engineering profession either with consultants or contractors. Recent graduates have joined leading design consultants such as AECOM, Atkins, Building Design Consultants, London Bridge Associates, Mott MacDonald, Arup and Ramboll or contracting engineering practices in the UK such as Balfour Beatty Engineering, Jacobs Engineering and Skanska. Graduates also join companies overseas.

However, beyond civil engineering, this degree equips you with the required technical expertise, initiative and management skills to be able to face modern challenges in any number of branches of the engineering industry. Your creativity and innovation in design will serve you well in the broad profession.

The Centre for Career & Skills Development provides a service to current undergraduates and postgraduates, as well as recent graduates of the University. Their aim is to provide you with advice, information and skills that you need to make a smooth transition into the world of professional engineering. If you would like further information on the careers support available at City, please go to:

<http://www.city.ac.uk/careers>

### WHAT STUDY ABROAD OPTIONS ARE AVAILABLE?

At present these options are not available; they remain under development

MCSE's Professional Liaison Unit (PLU) collaborates with the University Career and Skills Development Service to offer advice to help you for searching for and applying for an internship. The PLU is in regular contact with companies and other organisations concerning the availability of training opportunities and will advise you on making applications.

You are welcome to make your own applications but you will be asked to discuss these with the PLU's Work Based Learning Advisor. Support is provided in the MCSE Placement & Internships Resource Centre module on Moodle.

If you are on an approved Professional Placement then your experience will be graded on the basis of (i) reports from two visits made by the Visiting Tutor (a member of academic staff) familiar to the subject and (ii) your final report. Informal contact is maintained throughout the 12 months, as necessary. Although your placement is reported on the degree transcript, the grading does not contribute to the final degree result.

Placement guidelines are issued to you and your employer at the commencement of training, and these include a placement health and safety booklet. The guidelines also include a section on workplace learning. Early in the placement year, you are required to produce a placement plan in conjunction with your Workplace Supervisor and the Visiting Tutor.

## **WILL I GET ANY PROFESSIONAL RECOGNITION?**

**Accrediting Body:** Joint Board of Moderators (Institution of Civil Engineers, Institution of Structural Engineers, Institute of Highway Engineers, The Chartered Institution of Highways and Transportation)

### **Nature of Accreditation**

When accredited this degree will:

1. Fully satisfy the educational base for an Incorporated Engineer (IEng).
2. Partially satisfy the educational base for a Chartered Engineer (CEng). A programme of accredited Further Learning will be required to complete the educational base for CEng.

See [www.jbm.org.uk](http://www.jbm.org.uk) for further information and details of Further Learning programmes for CEng.

Our current Civil Engineering degrees are accredited by the above institutions, providing a path for you to gain Chartered Engineering status. We have every expectation that these degrees will similarly receive full accreditation

## HOW DO I ENTER THE PROGRAMME?

The following entrance requirements typically apply.

### UCAS Tariff points

128.

### A-levels

ABB; including A-Level Mathematics and Physics. You are also required to have passed GCSE English Language at grade 4, or higher.

### IB

32 points total including Higher Level Mathematics and Physics at grade 6.

### English language requirements

For overseas candidates, an IELTS score of 6.0 (with a minimum of 5.5 in all components) is required. TOEFL is not accepted as evidence of English language ability for students that require a Confirmation of Acceptance for Studies.

### Entry via Foundation Course

You will be offered a place on the BEng (Hons) degree in Civil Engineering should you both (i) successfully satisfy the City University London interview panel and (ii) obtain an

overall grade of at least 65% on an Engineering Foundation programme at: Westminster-Kingsway College, INTO City University London International or Kaplan International College.

### RPL/RPEL

Direct entry into Programme Stage 2 may be considered for candidates who have successfully completed the first year of a similar accredited MEng or BEng degree.

### Scholarships

Undergraduate students are considered for a wide range of awards (scholarships, bursaries and prizes) throughout their studies in the School. These (internally and externally funded) awards range from £500-£9000 and they are based on a combination of academic merit and hardship. A number of these awards are also available to international students. Further information can be found at:

<http://www.city.ac.uk/study/undergraduate/funding-and-financial-support/scholarships-and-bursaries>

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