

# Programme Specification for Undergraduate Programme

## Leading to:

### BEng Civil Engineering with Sustainability



Applicable for all undergraduate students **starting at Level 1** on or after 1<sup>st</sup> September 2018

Version No.	Date	Notes – Q&S USE ONLY	AO
2018.19 v1	20 April 2018	Minor modification, CE3605 Construction Contracts, Business and Sustainability retitled CE3609 Construction Contracts, Business and Management	JP

Undergraduate Programme	
1. Awarding institution	Brunel University London
2. Teaching institution(s)	Brunel University London
3. Home college/department/division	College of Engineering, Design and Physical Sciences/ Department of Civil and Environmental Engineering
4. Contributing college/department/division /associated institution	None
5. Programme accredited by	Joint Board of Moderators, for Institution of Civil Engineers, Institution of Structural Engineers, Chartered Institution of Highways and Transportation and Institute of Highways Incorporated Engineers (current)
6. Final award(s)	BEng Civil Engineering with Sustainability BEng Civil Engineering with Sustainability and Professional Development
7. Programme title and FHEQ Level of Award	Civil Engineering with Sustainability (FHEQ level 6)
8. Programme type (Single honours/joint)	Single Honours
9. Normal length of programme for each mode of study	4 years 5 years (Thick Sandwich)
10. Maximum period of registration for each mode of study	5 years 6 years (Thick Sandwich)
11. Variation(s) to September start	none
12. Modes of study	Full time and thick sandwich
13. Modes of delivery	Standard
14. Other / intermediate awards and titles with FHEQ Level of Award	Certificate of Higher Education in Civil Engineering (FHEQ level 4) Diploma of Higher Education in Civil Engineering (FHEQ level 5) Diploma of Higher Education in Civil Engineering with Professional Development (FHEQ level 5) BEng (Ord) Civil Engineering (FHEQ level 6) BEng (Ord) Civil Engineering with Professional Development (FHEQ level 6)
15. UCAS Code	H200
16. JACS Code	H200
17. Route Code	H200UECVENG

18. Relevant subject benchmark statements and other external and internal reference points used to inform programme design	<a href="#">QAA UK Quality Code for Higher Education</a> <a href="#">QAA Framework for Higher Education Qualifications</a> <a href="#">Engineering QAA Subject Benchmark Statement 2015</a> <a href="#">UK Standards for Professional Engineering Competence (UK SPEC)</a> <a href="#">Brunel University London 2030</a> <a href="#">Placement Learning Policy September 2014</a> <a href="#">Joint Board of Moderators Guidelines on Degrees (approved under UK-SPEC)</a>
19. Admission Requirements	Details of <a href="#">entry requirements</a> are provided on the University's and College website. Levels of English for non-native speakers are outlined on Brunel International's <a href="#">language requirements</a> pages.
20. Other relevant information (e.g. study abroad, additional information on placements)	None
21.. Programme regulations not specified in Senate Regulation 2. Any departure from regulations specified in Senate Regulation 2 must be stated here and approved by Senate.	None
22. Further information about the programme is available from:	Course <a href="#">webpage</a>

### 23. EDUCATIONAL AIMS OF THE PROGRAMME

- Produce civil engineering graduates equipped for professional roles in industry and public service;
- Encompass traditional civil engineering principles while, in addition, embracing a wide range of construction and infrastructure issues to produce graduates with the knowledge and skills defined by the professional Institutions and demanded by industry.
- Develop new areas of teaching in response to the needs of industry and the community.

### 24. PROGRAMME AND INTERMEDIATE LEARNING OUTCOMES

The programme provides opportunities for students to develop and demonstrate knowledge and understanding (K) cognitive (thinking) skills (C) and other skills and attributes (S) in the following areas:

Level	Category (K = knowledge and understanding, C = cognitive (thinking) skills, S = other skills and attributes)	Learning Outcome	Associated Assessment Blocks Code(s)	Associated Study Blocks Code(s)	Associated Modular Blocks Code(s)
1	K	Sound ability in Mathematics			CE1602
1	K	Fundamental concepts, principles and theories of civil engineering			CE1603 CE1002 CE1003 CE1600 CE1601
1	C	Application of fundamental design principles			CE1603
1	C	Gather, integrate and evaluate information and data from a variety of sources			CE1603 CE1002
1	S	Use laboratory and site equipment to generate data			CE1002 CE1600 CE1602
1	S	Use basic surveying instrument			CE1002
1	S	Work as a member of a team			CE1603
2	K	The professional and ethical responsibilities of engineers in the global and social context of sustainable civil engineering			CE2603

2	K	The role of engineering leadership in construction and the constraints within which their engineering judgment will be exercised			CE2603
2	K	The operation of a business in the Civil Engineering sector (Professional Development route)			CE2555
2	C	Design elements and structures to meet specified requirements			CE2003
2	C	Evaluate designs and processes and make improvements			CE2601
2	C	Plan and reflect on workplace experience (Professional Development route)			CE2555
2	S	Plan and execute safely a series of experiments and evaluate results			CE2002 CE2004
2	S	Prepare engineering drawings and technical reports			CE2601
2	S	Use appropriate information and communications technology (ICT) tools			CE2603, all modules
2	S	Work as part of a professional team (Professional Development route)			CE2555
3	K	Business, management and law relevant to construction engineering and engineers			CE3609
3	K	Role of systematic processes, analysis and creativity in Civil Engineering design and materials selection			CE3003 CE3606
3	K	Additional facts, concepts, methods, procedures and techniques relevant to the individual projects chosen at Level 3			CE3009
3	C	Plan, conduct and report on a significant project in civil engineering as an individual			CE3009
3	C	Analyse and solve engineering problems			CE3608 CE3003 CE3606
3	C	Employ a structured, logical, critical and scientific approach to the solution of problems			CE3009
3	C	Apply knowledge and skills in new situations			CE3009
3	S	Prepare and give technical presentations			CE3009
3	S	Use computational tools and packages;			CE3606
3	S	Manage time and resources within given constraints			CE3009
3	S	Communicate effectively in a range of media and modes			All modules

**Learning/teaching strategies and methods** to enable learning outcomes to be achieved, including formative assessments

- Study

Students will be introduced to subject material, including key concepts, information and approaches, through a mixture of standard lectures, tutorials and seminars, laboratory practicals, field work, self study and individual research reports. Supporting material will be provided via the University's e-Learning platform. The aim is to challenge students and inspire them to expand their own knowledge and understanding.

- Work

Preparation for work will be achieved through the development of 'soft' skills such as communication, planning, management and team work. This will be supported by the University's central services, principally the Library and ASK teams. In addition, guest speakers from industry will provide a valuable insight into the real world of civil engineering.

- Play

Many of the practical activities in which the students engage develop into enjoyable experiences, for example working in teams for laboratory work and field work. A Civil Engineering Society, *CivSoc*, run by the students (with staff support) forms the focus for many extra-curricular, and fun, activities.

- Grow

We encourage students to develop personal responsibility throughout the course. Many elements of coursework involve, and reward, the use of initiative and imagination. Students are guided into this through the use of assessed Personal Development Logs at Levels 1 and 2 which are linked to one-to-one tutorials. This aids them in developing reflective skills. Students on the Professional Development route record their personal development as part of the placement assessment, and are assisted in this by their industrial placement tutor and employer.

**Summative assessment strategies and methods** to enable learning outcomes to be demonstrated.

- Examinations will be used to assess knowledge and understand, ability to solve numerical and qualitative engineering problems, and present a reasoned argument.
- Essays – to develop skills in research (collecting, managing and interpreting evidence)
- Laboratory reports – to develop skills in communicating a systematic process and results
- Oral presentations – to develop verbal presentation skills
- Designs – to develop design skills and visual and written communication
- Research report – to develop advanced abilities in research and communication
- Group report – to develop team skills
- Personal log – to develop reflective skills and professional development planning

## 25. Programme Structure, progression and award requirements

Programme structures and features: levels, assessment blocks, credit and progression and award requirements

- **Compulsory block:** one which all students registered for the award are required to take as part of their programme of study. These will be listed in the left hand column;
- **Optional block:** one which students choose from an 'option range'. These will be listed in the right hand column;
- A **core assessment** is an assessment identified within an assessment block or modular block (either compulsory or optional) which must be passed (at grade D- or better) in order to be eligible to progress and to be eligible for the final award. All core assessments must be specified on the programme specification next to the appropriate assessment or modular block:

Where students are expected to pass the block at D- or better, but not necessarily all elements, then the block itself is core.

e.g. AB3000 Project (40)

Core: Block

Where only some elements of assessments are required to be passed at D- or better, these will be identified by listing each element that is core

e.g. ABXXX1 Title (XX credits)

Core: 1 & 4

Where students are expected to pass all assessments in a block then this will be identified. By setting the assessment this way, students are also required to pass the block by default. This will be identified thus:

e.g. ABXXXX Title (XX credits)

Core: All, Block

- A **non-core assessment** does not have to be passed at grade D- or better, but must be better than a grade F, in order to progress and to be eligible for the final award.

Level 1	
<b>Compulsory modular block codes, titles and credits</b>  <b>All modular blocks are 20 credits</b> CE1002 Fundamentals of Geotechnical Engineering and Surveying CE1003 Construction and Sustainability CE1600 Fundamentals of Fluid Mechanics CE1601 Fundamentals of Structures CE1603 Professional Skills  <b>CE1602 Analytical Methods and Skills for Civil Engineers</b> <b>Core: Block</b>	<b>Optional modular block codes, titles and credits</b>  <b>None</b>
<b>Level 1 Progression and Award Requirements</b>  <b>As per <a href="#">Senate Regulation 2</a></b>	

Level 2	
<b>Compulsory modular block codes, titles and credits</b>  <b>All modular blocks are 20 credits</b> CE2001 Civil Engineering Hydraulics CE2002 Civil Engineering Materials CE2003 Structural Mechanics CE2004 Geotechnical Engineering CE2601 Structural Design  <b>CE2603 Sustainable Infrastructure and Professional Skills</b> <b>Core: Block</b>  <b>Students from Civil Engineering (H200UECVLENG/H200UMCVLENG) who have taken CE2602 are eligible to transfer to Civil Engineering with Sustainability (H200UECVENGs/H200UMCVENGs) at the beginning of Level 3.</b>	<b>Optional modular block codes, titles and credits</b>  <b>None</b>
<b>Level 2 Progression and Award Requirements</b>  <b>As per <a href="#">Senate Regulation 2</a></b>	

Level 2 – Placement	
<b>Compulsory modular block codes, titles and credits</b>  <b>CE2555 Civil Engineering Placement</b> <b>Core: Block – 120 Credits</b>	<b>Optional modular block codes, titles and credits</b>  <b>None</b>
<b>Level 2 Placement Progression and Award Requirements</b>  <b>As per <a href="#">Senate Regulation 2</a></b>  For DipHE Civil Engineering, CE2555 will contribute 33% of the Level 2 profile	

Level 3	
<b>Compulsory modular block codes, titles and credits</b>  <b>All modular blocks are 20 credits unless otherwise specified</b> CE3608 Water and Wastewater Engineering CE3003 Steel and Concrete Design CE3609 Construction Contracts, Business and Management CE3606 Sustainable Infrastructure Development  <b>CE3009 Individual Project (BEng)</b> <b>Core: Block (40 Credits)</b>	<b>Optional modular block codes, titles and credits</b> <b>None</b>
<b>Level 3 Progression and Award Requirements</b>  <b>As per <a href="#">Senate Regulation 2</a></b>  For BEng Civil Engineering with Professional Development, CE2555 will contribute 1/3 of the Level 2 profile and 11% of the overall degree calculation.	

Please note: this specification provides a concise summary of the main features of the programme and the learning outcomes that a student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes, content and teaching, learning and assessment methods can be found in the modular block, assessment and study block outlines and other programme and block information. The accuracy of the information contained in this document is reviewed by the University from time to time and whenever a modification occurs.