

Programme Specification for Undergraduate Programme Leading to: FdSc Flood and Coastal Engineering

Applicable for all undergraduate students **starting at FHEQ Level 4 in 2020**

<u>Version No.</u>	<u>Date</u>	<u>Notes – QA USE ONLY</u>	<u>QAO</u>
2020-21 v1	25 August 2020	Programme for new entrants in 2020.	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	HR Wallingford
5. Programme accredited by	Joint Board of Moderators (JBM).
6. Final award(s) and FHEQ Level of Award	FdSc Flood and Coastal Engineering - FHEQ Level 5
7. Programme title	Flood and Coastal Engineering
8. Programme type (Single honours/joint/major minor)	Foundation Degree
9. Normal length of programme (in months) for each mode of study	24 months
10. Maximum period of registration for each mode of study	Normal or standard duration plus 3 years
11. Variation(s) to September start	None
12. Modes of study	Full Time
13. Modes of delivery	University-based academic work (50% of time) and work-based learning (50% of time)
14. Intermediate awards and titles and FHEQ Level of Award	Certificate of Higher Education - FHEQ Level 4
15. UCAS code	F856
16. JACS Code	H220 (Environmental Engineering)
17. Route Code	H220UFLDCST

<p>18. Relevant subject benchmark statements and other external and internal reference points used to inform programme design.</p>	<p>UK Quality Code for Higher Education</p> <p>QAA Foundation Degree Characteristic Statement</p> <p>QAA Subject Benchmark Statement (Engineering)</p> <p>Joint Board of Moderators 144-Guidance for the Submission of Foundation Degrees in Civil Engineering for Accreditation</p> <p>Joint Board of Moderators Guidelines for Education Providers</p> <p>Brunel University London 2030</p> <p>Brunel Placement Learning Policy, as published under the 'Placements' section of the 'Managing Higher Education Provision with Others' page.</p>
<p>19. Admission Requirements</p>	<p>Details of entry requirements are provided on the University website.</p> <p>Levels of English for non-native speakers are outlined on Brunel International's language requirements pages.</p>
<p>20. Other relevant information (e.g. study abroad, additional information on placements)</p>	<p>See Section 24: Learning/teaching strategies and methods</p>
<p>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.</p>	<p>None</p>
<p>22. Further information about the programme is available from the College website.</p>	<p>https://www.brunel.ac.uk/study/undergraduate/Flood-and-Coastal-Engineering-FdSc</p>

23. EDUCATIONAL AIMS OF THE PROGRAMME

The overall aim of this programme is to generate a stream of job-ready FdSc level graduates (at level 5 of the FHEQ) equipped with the skills necessary to deal more effectively with the issues of flooding and coastal management. The programme:

- Integrates academic and work-based learning through close collaboration with partner and other external organisations
- Supports widening participation and lifelong learning through an applied curriculum focused on the flooding hazard
- Provides sufficient technical basis in civil engineering subjects in general, and flood and coastal engineering in particular, so that graduates can complete a bachelor's degree with honours through one additional year of study

It is intended that students graduating from this programme will have the full educational base to make them eligible for accreditation at the EngTech level, and partial educational base for IEng, as defined in UK-SPEC.

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)
4					
	K	Demonstrate sound ability in the theory of mathematics			CE1604_CB
	K	Demonstrate sound ability in the application of mathematics	CE1801_CN CE1802_CN CE1804_CN	CE1701_SB CE1704_SB CE1702_SB	CE1604_CB
	K	Demonstrate sound understanding of the fundamental engineering and scientific concepts, principles and theories used in flood and coastal engineering	CE1801_CN CE1802_CN CE1803_CN	CE1701_SB CE1704_SB CE1702_SB	
	C	Report and reflect on personal work based learning	CE1805_CB	CE1705_SB CE1706_SB	
	C, S	Explain and apply the principles of collecting, processing and representing spatial data.	CE1802_CN CE1804_CN	CE1704_SB	
	K, S	Demonstrate awareness of, and apply, the professional and ethical responsibilities of engineers in the context of sustainable engineering	CE1803_CN CE1805_CB	CE1703_SB CE1706_SB	
	C, S	Correctly generate, process, and represent quantitative and qualitative laboratory and site data	CE1802_CN CE1804_CN	CE1701_SB CE1704_SB CE1702_SB	

	C	Demonstrate the ability to assess situations requiring engineering solutions	CE1802_CN CE1803_CN CE1805_CB	CE1701_SB CE1703_SB CE1705_SB	
	C	Demonstrate team working and management skills required to work within and build successful teams and groups	CE1804_CN CE1805_CB	CE1704_SB CE1702_SB CE1705_SB CE1706_SB	
5					
	C	Produce and evaluate a sound design solution for a river or coastal site	CE2804_CB	CE2701_SB CE2702_SB CE2703_SB CE2704_SB CE2705_SB	
	K	Demonstrate sound understanding of the principles of designing and assessing structures	CE2801_CN CE2802_CN N CE2804_CB	CE2701_SB CE2702_SB	
	K	Demonstrate knowledge of the regulatory, policy and strategic context of river and coastal management.	CE2803_CN CE2804_CB CE2805_CB	CE2704_SB CE2705_SB CE2xxf_SB	
	C, S	Effectively collect, interpret, use and present a variety of evidence relevant to flood and coastal risk assessment	CE2802_CN N CE2803_CN CE2804_CB CE2805_CB	CE2701_SB CE2702_SB CE2703_SB	
	C	Demonstrate the ability to assess situations requiring engineering solutions in the field	CE2803_CN CE2xxe CE2805_CB	CE2701_SB CE2703_SB	
	C,S	Demonstrate an ability to reflect on professional experience and identify areas for development	CE2805_CB	CE2xxf_SB	
	S	Prepare engineering drawings and reports in a systematic and creative manner	CE2801_CN CE2802_CN N CE2803_CN CE2805_CB	CE2801_CN CE2802_CNN CE2xxf_SB	

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

The FdSc programme is led by Brunel University London, in partnership with Hydraulics Research Wallingford Ltd (HRW). All modules, study and assessment blocks are coordinated by Brunel staff.

A formative 'bootcamp' induction experience will be held at the start of the programme to: introduce the programme format and requirements; start to develop cohort identity; and introduce the students to major themes in the flood and coastal engineering sector.

Students will be introduced to subject material such as 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. Students will be prepared for summative assessment through formative learning activities. The aim is to challenge students and inspire them to expand their own knowledge and understanding.

In accordance with the ethos of foundation degrees, a substantial element of learning and associated assessment will be through application of knowledge and understanding. This will be supported by facilities at Brunel and HRW,

together with site visits. Case examples, including for the second year design project, will come from industry partners, such as the Environment Agency.

Preparation for work will be achieved within the programme 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, ASK team and Professional Development Centre, as well as personal tutors. In addition, guest speakers from industry, such as senior personnel from the Environment Agency, will provide a valuable insight into the real world of civil engineering.

Alongside the curriculum, a formative professional development programme will take place – supported by personal tutor meetings, input from external professionals (e.g. from the Environment Agency) – via talks, workshops and site visits, and central University activities such as the Brunel+ award.

Finally, the 6-month placement rotations at the ends of the first and second years, supported by pre-placement learning and the first year summer school, play a major role in developing students' professional attributes and readiness for work. The summer school involves an intensive 5 days of contact time at HR Wallingford (with preparatory and follow up work), and allows for: an interim review of the first year placements and experience of world class experimental facilities and contact with senior industry figures.

All students will be able to benefit and contribute to the peer-assisted learning (PAL) programme. They are also able to engage with extra-curricular activities e.g. those held by CivSoc, the civil engineering student society and Innovia, and the women in STEM and Design society. Students will be encouraged to join and become involved with activities organised by the professional institutions.

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

Assessment will allow students to demonstrate their abilities in a range of styles relevant to professional Engineers.

- Assignments – demonstration of depth and breadth of knowledge and written communication skills
- Technical analytical reports/lab reports – ability to collect, analyse and interpret a range of evidence, including in the field, laboratory and workplace
- Design reports – ability to use imagination, creativity, innovation and judgement to address a specification
- Individual Project – ability to plan, execute and communicate an advanced piece of research
- Individual report – based on contribution as a team member to a collaborative challenge
- Personal Development Log – develop ability to reflect on learning and planning development goals
- Presentations and posters – ability to summarise and communicate orally and visually
- Closed book examinations – ability to quickly formulate arguments and solve problems; testing knowledge, understanding and problem solving in the main subject areas in flood & coastal engineering
- Work-based learning performance portfolio –Risk assessment report; professional development record; reflective report, technical report, oral presentation

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 4	
<p>Compulsory assessment block codes, titles and credit</p> <p>CE1801_CN - River and Coastal Science Theory (10 credits) CE1802_CN – Engineering Methods (20 credits) CE1803_CN - Project Management, Health & Safety Risk Management (10 credits) CE1804_CN – Integrated Projects (20 credits) CE1805_CB - Year 1 Placement and Summer School (40 credits) - CORE</p>	<p>Optional assessment block codes, titles and credits</p>
<p>Compulsory study block codes, titles and credit volume</p> <p>CE1701_SB - River and Coastal Engineering Science (20 credits) CE1704_SB - Surveying, Drawing, GIS and CAD for Flood and Coastal Engineering (20 credits) CE1702_SB - Engineering and Environmental Materials (20 credits) CE1703_SB - Project Management, Health & Safety Risk Management (20 credits) CE1705_SB - Flood and Coastal Engineering placement 1 (50 credits) CE1706_SB – Flood and Coastal Engineering Summer School (10 credits)</p>	<p>Optional Study block codes, titles and credit volume</p>

Compulsory modular block codes, titles and credits CE1604_CB - Analytical Methods and Skills for Flood & Coastal Engineers (20 credits) – CORE	Optional modular block codes, titles and credits
Level 4 Progression and Award Requirements As per Senate Regulation 2	

Level 5	
Compulsory assessment block codes, titles and credit CE2801_CN - Structural and Geotechnical Engineering Theory (10 credits) CE2802_CNN - Hydrological Modelling, Hydraulics & Flood Estimation (20 credits) CE2803_CN - River and Coastal Assets and Risk Management (20 credits) CE2804_CB - Flood and Coastal Engineering Design Project (30 credits) - CORE CE2805_CB - Flood and Coastal Engineering Placement and professional development (40 credits) - CORE	Optional assessment block codes, titles and credits
Compulsory study block codes, titles and credit volume CE2701_SB - Structural and Geotechnical Design and Flood Defence Structures (20 credits) CE2702_SB - Environmental Hydraulics and Design (20 credits) CE2703_SB - Hydrological Modelling & Flood Estimation (20 credits) CE2704_SB – River and Coastal Asset Management, Legal matters and Governance (20 credits) CE2705_SB Civil Contingencies, Flood Resilience and Local Flood Risk Design (20 credits) CE2704_SB Flood and Coastal Engineering Placement 2	Optional Study block codes, titles and credit volume
Compulsory modular block codes, titles and credits	Optional modular block codes, titles and credits
Level 5 Award Requirements As per Senate Regulation 2	

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.