

Programme Specification Leading to:

MEng (Hons) Civil Engineering

MEng (Hons) Civil Engineering with Placement

BEng (Hons) Civil Engineering

BEng (Hons) Civil Engineering with Placement

MEng (Hons) Civil Engineering (Environmental Engineering)

MEng (Hons) Civil Engineering (Environmental Engineering) with Placement

BEng (Hons) Civil Engineering (Environmental Engineering)

BEng (Hons) Civil Engineering (Environmental Engineering) with Placement

MEng (Hons) Civil Engineering (Flood and Coastal Engineering)

MEng (Hons) Civil Engineering (Flood and Coastal Engineering) with Placement

BEng (Hons) Civil Engineering (Flood and Coastal Engineering)

BEng (Hons) Civil Engineering (Flood and Coastal Engineering) with Placement

Applicable for all undergraduate students starting in September 2022

Version No.	<u>Date</u>	Notes – QUALITY ASSURANCE USE ONLY	<u>QA</u>
2022-23 v1	12 April 2022	New programme and award approved by Senate on 6 April 2022. Programme to commence in September 2022.	SK

Undergraduate Programme				
1. Awarding institution	Brunel University London (BUL)			
2. Teaching institution(s)	Brunel University London (BUL)			
Home College / Department / Division	College of Engineering, Design and Physical Sciences / Department of Civil and Environmental Engineering			
4. Contributing College / Department	Department of Mathematics; Department of Mechanical and Aerospace Engineering, Department of Electronic and Electrical Engineering, Department of Chemical Engineering			
5. Programme accredited by	The BEng/MEng Civil Engineering, BEng/MEng Civil Engineering (Environmental Engineering), and BEng/MEng Civil Engineering (Flood and Coastal Engineering) programmes will be submitted to the Joint Board of Moderators (JBM), on behalf of Institution of Civil Engineers, Institution of Structural Engineers, Chartered Institution of Highways and Transportation, Institute of Highway Engineers, and The Permanent Way Institution to perform conformity assessments.			
	The BEng/MEng Civil Engineering (Flood and Coastal Engineering) and BEng/MEng Civil Engineering (Environmental Engineering) programmes will be submitted to the Chartered Institution of Water and Environmental Management (CIWEM) for conformity assessments.			
6. Final award(s) and FHEQ Level of Award	MEng (Hons) Civil Engineering (FHEQ level 7) MEng (Hons) Civil Engineering with Placement (FHEQ level 7)) BEng (Hons) Civil Engineering (FHEQ level 6) BEng (Hons) Civil Engineering with Placement (FHEQ level 6) MEng (Hons) Civil Engineering (Environmental Engineering) (FHEQ level 7) MEng (Hons) Civil Engineering (Environmental Engineering) with Placement (FHEQ level 7))			
	BEng (Hons) Civil Engineering (Environmental Engineering) (FHEQ level 6)			

	BEng (Hons) Civil Engineering (Environmental Engineering) with Placement (FHEQ level 6)
	MEng (Hons) Civil Engineering (Flood and Coastal Engineering) (FHEQ level 7)
	MEng (Hons) Civil Engineering (Flood and Coastal Engineering) with Placement (FHEQ level 7))
	BEng (Hons) Civil Engineering (Flood and Coastal Engineering) (FHEQ level 6)
	BEng (Hons) Civil Engineering (Flood and Coastal Engineering) with Placement (FHEQ level 6)
	BEng/MEng (Hons) Civil Engineering
7. Programme title	BEng/MEng Civil Engineering (Environmental Engineering)
8. Programme type (Single	BEng/MEng Civil Engineering (Flood and Coastal Engineering)
honours/joint honours)	Single Honours
Normal length of programme for each mode of study	BEng - 36 months FT, 48 months sandwich MEng - 48 months FT, 60 months sandwich
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	Standard
13. Modes of delivery	Full Time and Thick Sandwich
	CertHE Civil Engineering (FHEQ level 4) DipHE Civil Engineering (FHEQ level 5)
	DipHE Civil Engineering with Placement (FHEQ level 5)
	BEng (Ord) Civil Engineering (FHEQ level 6)
	BEng (Ord) Civil Engineering (Environmental Engineering) (FHEQ level 6)
	BEng (Ord) Civil Engineering (Flood & Coastal Engineering) (FHEQ level 6)
	BEng (Ord) Civil Engineering with Placement (FHEQ level 6)
	BEng (Ord) Civil Engineering (Environmental Engineering) with Placement
	(FHEQ level 6) BEng (Ord) Civil Engineering (Flood & Coastal Engineering) with Placement
	(FHEQ level 6)
	BEng Engineering (Civil) (FHEQ level 6)
	BEng Engineering (Civil) with Placement (FHEQ level 6)
14. Other/Intermediate awards and	BEng Engineering (Civil – Environmental Engineering) (FHEQ level 6)
titles and FHEQ Level of Award	BEng Engineering (Civil – Environmental Engineering) with Placement (FHEQ
	level 6)
	BEng Engineering (Civil – Flood and Coastal Engineering) (FHEQ level 6)
	BEng Engineering (Civil – Flood and Coastal Engineering) with Placement
	(FHEQ level 6)
	MEng Engineering (Civil) (FHEQ level 7)
	MEng Engineering (Civil) with Placement (FHEQ level 7)
	MEng Engineering (Civil – Environmental Engineering) (FHEQ level 7)
	MEng Engineering (Civil – Environmental Engineering) with Placement (FHEQ
	level 7) MEng Engineering (Civil – Flood and Coastal Engineering) (FHEQ level 7)
	MEng Engineering (Civil – Flood and Coastal Engineering) (FREQ level 7) MEng Engineering (Civil – Flood and Coastal Engineering) with Placement
	(FHEQ level 7)
15. UCAS Code	
16. HECoS Code	100148
17. Route Code	
18. Relevant subject benchmark	UK Quality Code for Higher Education QAA Subject Benchmark Statement - Engineering
statements and other external and	Brunel 2030
	<u> 2.4.0. 2000</u>

internal reference points used to inform programme design UK Spec	The revised fourth edition of the Accreditation of Higher Education Programmes (or AHEP4) https://www.engc.org.uk/ahep Other useful information: The Framework for Higher Education Qualifications (https://www.qaa.ac.uk/docs/qaa/quality-code/qualifications-frameworks.pdf) Engineering Council: UK-Spec (https://www.engc.org.uk/ukspec) JBM guidance for accreditation, which includes programme design (https://www.jbm.org.uk/Accreditation-guidance) Brunel University London Senate Regulation (https://www.brunel.ac.uk/about/documents/pdf/Senate-Regulation-2-from-2019-2020-03-04.pdf) Brunel's Programme Approval Policy (https://staff.brunel.ac.uk/university-
	information/policy)
19. Admission Requirements	For all current entry requirements, please click here . Levels of English for non-native speakers are outlined on the University's language requirements pages.
20. Other relevant information (e.g. study abroad, additional information on placements)	Optional work placement year is available after completion Level 5 BEng (thick sandwich mode), or after completion Level 6 MEng (thick sandwich mode) leading to the award of BEng/MEng Civil Engineering with Placement
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.	 For an accredited award (by JBM), students must meet the following requirements (https://www.engc.org.uk/ahep): All AHEP4 learning outcomes (e.g. 'C' learning outcomes for the BEng degree programme and 'M' learning outcomes for the MEng degree programme) must be achieved; Students may not be allowed a compensated pass on any module or have more than 30 credits of allowed failure (E-, E or E+) throughout their whole profile. Any student failing to meet this criterion will need to be formally transferred to the non-accredited version of their degree at the next Board of Examiners; Major individual project (e.g. CE_31) and group-based project modules (e.g. CE_51) must not be compensated; No condonement of modules delivering AHEP4 learning outcomes is allowed. Variations to Senate Regulation 2: Level 6 and 7 core project assessment blocks are each required to be of at least 40 credits in volume. Variation to this stipulation is that the programmes' Level 6 Major individual project (CE_31) and Level 7 Group project (CE_51) will each be 30 credits. the maximum amount of reassessment blocks at Level 5, 6 and 7 is a total of 40 credits in volume. Variation to this is that the students will be permitted up to 45 credits of reassessment at each of these levels.
22. Further information about the programme:	Link to programme information on the College website (TBC)

23. EDUCATIONAL AIMS OF THE PROGRAMME

The main aim of the BEng/MEng Civil Engineering programme and the two pathway programmes is to produce graduates who possess a sound knowledge and understanding of civil engineering subjects and their application in the modern world. Graduates from these Civil Engineering programmes will be capable of addressing the needs of society and business, including, being: able to deploy appropriate engineering methods and technologies; skilled in solving complex engineering challenges; competent to work with the environment in a sustainable manner; effective in mitigating climate change impacts on infrastructure and human society. These learning outcomes (LOs) will be achieved by a range of specialist taught modules in the programmes and also by drawing on the internationally-renowned research expertise at Brunel University London (BUL).

Year 1 will include the common set of modules, applicable to all of the University's Engineering disciplines. This largely common year will allow students to gain a solid grounding in core areas of engineering science, including; solid body mechanics, thermodynamics, materials science, and the fundamentals of design and manufacturing.

Year 2 modules will be identical for all the Civil Engineering programme pathways. The modules will focus on providing the students with essential civil engineering subject knowledge in: structural mechanics, soil mechanics, mechanics of materials, survey, reinforced concrete design, design project and construction materials.

In Year 3, the pathways will begin to diverge. Four modules (worth 60 credits) will be common across the different pathways; Project Planning, Procurement and Risk, Geotechnical Engineering, Integrated design project and Resilient Infrastructure and Transport (15 credits each). Two modules (worth 30 credits) will be specific to any pathway chosen by the student; these specialist modules are based on different topics such as; advanced structural analysis, water resources, flood and coastal engineering. All students will undertake an individual research project (worth 30 credits), the topic chosen will be aligned to the programme pathway, allowing further specialisation of learning and distinction between the pathway outcomes. Students who successfully complete and exit the programme at this stage will be eligible for a BEng (Hons) award, fully meeting the educational base required for an Incorporated Engineer (IEng) and partially meeting the educational base required Engineer (CEng).

Year 4 of the programme is when students progress to the MEng level of study. In this year a wider range of specialist modules will be offered and 3 common modules are delivered to all pathways in the programme, i.e. Year-long Group Project (30 credits), Project Management (15 credits) and Civil Engineering with Artificial Intelligence (15 credits). A wider range of specialist modules covering varied topics in advanced structural design and retrofitting, environmental management and pollution control, advanced flood and coastal engineering design will be available for each specialised pathway. Students who successfully complete and exit the programme at this stage will be eligible for an MEng (Hons) award, fully meeting the educational base required for a Chartered Engineer (CEng).

24.1 PROGRAMME AND INTERMEDIATE LEARNING OUTCOMES - BEng/MEng Civil Engineering

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:

Year and FHEQ level	Category (K = knowledge and understanding, C = cognitive (thinking) skills, S = other skills and attributes)	Learning Outcome Group	Engineering Council AHEP 4 Learning Outcome	Associated Modular Blocks Code(s)
Year 1	and FHEQ Level 4			
	К	C1-1: Science, mathematics and engineering principles	Demonstrate knowledge of the underlying concepts of mathematics, statistics, natural science and engineering principles through the solution of engineering problems.	BE1601a BE1601b BE1603a BE1603b BE1604 BE1605 CE16XX
	С	C2-1: Problem analysis	Sketch problems to reach sound conclusions using first principles of mathematics, statistics, natural science and engineering principles.	BE_1601a BE_1601b BE_1602 BE_1603a BE_1603b BE1604 BE1605
	С	C3-1: Analytical tools and technics	Use appropriate computational and analytical techniques to model problems.	BE_1601a BE_1601b BE_1602 BE_1603a BE_1603b BE1604 BE1605
	K, C, S	C5-1: Design	Explain solutions for engineering and other problems, with consideration of a range of societal, environmental and professional factors.	BE1602 CE16xx
	K, C	C6-1: Integrated/systems approach	Use an integrated or systems approach to the solution of an engineering problem.	CE1602 CE16xx
	К	C7-1: Sustainability	Describe the environmental and societal context of solutions to complex engineering problems and minimise adverse impacts.	BE1602 BE1603a BE1603b CE16xx
	C, S	C8-1: Ethics	Identify ethical concerns in an engineering context.	BE1602 CE16xx
	K	C9-1: Risk	Explain the basic principles of risk management in an engineering context.	BE1601b BE1602

			CE16xx
К	C10-1: Security	Describe the nature of security risks in an engineering context.	BE_1602 BE_1603a BE_1603b CE16xx
C, S	C12-1: Practical and workshop skills	Effectively report on the use of practical laboratory and workshop skills to assess engineering problems.	BE_1603a BE_1603b BE1604 BE1605
K, S	C13-1: Materials, equipment, technologies and processes	Describe appropriate materials, equipment, engineering technologies and processes.	BE1604 BE1605 CE16xx
К	C15-1:	Demonstrate the knowledge of engineering management principles, commercial context, project and change management.	BE1602
S	C16-1: Teamwork	Demonstrate an understanding of how they function as an individual, and as a member of a team.	BE1602 CE16xx
S	C17-1: Communication	Use effective communication on engineering matters.	BE1601a BE1601b BE1602 BE1603a BE1603b BE1604 BE1605 CE16xx
S	C18-1: Lifelong learning	Demonstrate effective recording and reflection on self-learning and development.	BE1602 CE16xx
Year 2 and FHEQ Level	5	,	
K, C	C1-2: Science, mathematics and engineering principles	Apply knowledge of mathematics, statistics, natural science and engineering principles to the solution of complex civil engineering problems.	CE_23 CE_24 CE_25 CE_27 CE_28
K, C	C2-2: Problem analysis	Identify and examine complex problems to reach substantiated conclusions using first principles of mathematics, statistics, natural science and engineering principles.	CE_22 CE_23 CE_24 CE_25 CE_26 CE_28 CE_2555
K, C	C3-2: Analytical tools and technics	Select and apply appropriate computational and analytical techniques to model engineering problems, recognising the limitations of the techniques employed.	CE_21 CE_22 CE_23 CE_24 CE_25 CE_26 CE_28 CE_2555

K, C	C4-2: Technical literature	Select and use technical literature and other sources of information to address complex civil engineering problems	CE_21 CE_26
C, S	C5-2: Design	Analyse and evaluate design solutions for civil engineering problems that meet a combination of societal, user, business and customer needs, as appropriate. This will involve consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental and commercial matters, codes of practice and industry standards.	CE_21 CE_22 CE_26 CE_27 CE_28 CE_2555
K, C	C6-2: Integrated/systems approach	Apply an integrated or systems approach to the solution of civil engineering problems.	CE_22, CE_26, CE_27 CE 2555
K, C	C7-2: Sustainability	Appraise the environmental and societal impact of solutions to complex problems and how adverse impacts including climate change can be mitigated.	CE_21 CE_26 CE_27
C, S	C8-2: Ethics	Identify and examine ethical concerns and make reasoned ethical choices informed by professional codes of conduct.	CE_21 CE_26 CE_27
С	C9-2: Risk	Use risk management process to identify, risks (the effects of uncertainty) associated with a particular project or activity and propose appropriate mitigations.	CE_21 CE_23 CE_26 CE 2555
K, C	C10-2: Security	Identify and analyse the nature of security risks and appropriate mitigation in a civil engineering context.	CE_21
K, C	C11-2: Equality, diversity and inclusion	Employ understanding of an inclusive approach to civil engineering practice and recognise the responsibilities, benefits and importance of supporting equality, diversity and inclusion.	CE_26
С	C12-2: Practical and workshop skills	Use practical laboratory and workshop skills to investigate civil engineering problems.	CE_21 CE_23 CE_25 CE_27CE_28 CE_2555
K, S	C13-2: Materials, equipment, technologies and processes	Select and evaluate appropriate materials, equipment, engineering technologies and processes.	CE_21 CE_23 CE_27 CE 2555
С	C14-2: Quality management	Examine the role of quality management systems and continuous improvement in the context of civil engineering problems.	CE_21
K, C	C15-2: Engineering and project management	Analyse and evaluate engineering management principles, commercial context, project and change management, and relevant legal matters including intellectual property rights.	CE_26

C, S	C16-2: Teamwork	Apply relevant interpersonal, team and networking skills to reflect effectively on their performance as an individual, and as a member or leader of a team.	CE_21 CE_26 CE 2555
S	C17-2: Communication	Organise and effectively communicate information on civil engineering matters with technical and non-technical audiences.	CE_21 CE_23 CE_26 CE_28
C, S	C18-2: Lifelong learning	Take responsibility to plan and record self- learning and development as the foundation for lifelong learning/CPD.	CE_21 CE_26 CE 2555
Year 3 and FHEQ Level 6			
K, C	C1-3: Science, mathematics and engineering principles	Select and apply knowledge of mathematics, statistics, natural science and engineering principles to the solution of complex civil engineering problems. Some of the knowledge will be at the forefront of the particular subject of study	CE_31 CE_32 CE_33 CE_34 CE_35 CE_36
K, C	C2-3: Problem analysis	Critically analyse complex problems to reach substantiated conclusions using first principles of mathematics, statistics, natural science and engineering principles.	CE_31 CE_32 CE_33 CE_34 CE_35 CE_36 CE_37
K, C	C3-3: Analytical tools and technics	Select and apply appropriate computational and analytical techniques to model complex civil engineering problems, recognising the limitations of the techniques employed.	CE_31 CE_32 CE_34 CE_35 CE_36 CE_37
K, C	C4-3: Technical literature	Source and critically analyse technical literature and other sources of information to address complex civil engineering problems.	CE_31 CE_35 CE_36
K, C	C5-3: Design	Design solutions for complex civil engineering problems that meet a combination of societal, user, business and customer needs, as appropriate. This will involve consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental and commercial matters, codes of practice and industry standards.	CE_31 CE_32 CE_35 CE_36 CE_37
С	C6-3: Integrated/systems approach	Apply an integrated or systems approach to critically identify appropriate solutions of complex problems involving competing perspectives.	CE_31 CE_32 CE_34 CE_35 CE_36 CE_37
K, C	C7-3: Sustainability	Critical analyse and evaluate the environmental and societal impact of civil engineering solutions to complex problems and minimise adverse impacts including climate change.	CE_31 CE_32 CE_33 CE_35 CE_36 CE_37

C, S	C8-3: Ethics	Apply an in-depth awareness of ethical concerns with critical analysis to make reasoned ethical choices in contexts of varying complexity, informed by professional codes of conduct.	CE_31 CE_33 CE_35 CE_37
C	C9-3: Risk	Synthesise relevant information and use a risk management process to identify, evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity in contexts of varying complexity.	CE_31 CE_33 CE_35 CE_36 CE_37
C	C10-3: Security	Adopt a holistic and proportionate approach to the mitigation of security risks.	CE_31 CE_33 CE_35
C, S	C11-3: Equality, diversity and inclusion	Adopt an inclusive approach to civil engineering practice and recognise the responsibilities, benefits and importance of supporting equality, diversity and inclusion.	CE_31 CE_33 CE_35
C, S	C12-3: Practical and workshop skills	Evaluate and use practical laboratory and workshop skills to investigate complex problems.	CE_31 CE_34 CE_36
K, C	C13-3: Materials, equipment, technologies and processes	Select and apply appropriate materials, equipment, engineering technologies and processes, recognising their limitations and evaluating the validity of results in contexts of varying complexity.	CE_31 CE_32 CE_35 CE_36
K, C	C14-3: Quality management	Discuss the role of quality management systems and continuous improvement in the context of complex civil engineering problems.	CE_31 CE_33
K, C	C15-3: Engineering and project management	Apply specialist knowledge of civil engineering management principles, commercial context, project and change management, and relevant legal matters including intellectual property rights.	CE_31 CE_33 CE_35
C, S	C16-3: Teamwork	Take responsibility for the critical evaluation of own and others' capabilities and development using selected management approaches in complex and inter-related contexts	CE_31 CE_35
C, S	C17-3: Communication	Organise and communicate specialist and inter-related information, using selected criteria, to audiences in complex contexts.	CE_31 CE_35 CE_37
C, S	C18-3: Lifelong learning	Plan, record and evaluate self-learning and development as the foundation for lifelong learning/CPD.	CE_31 CE_35
Year 4 and FHEQ Level 7		- roanning, or Di	
K, C	M1: Science, mathematics and engineering principles	Apply a systematic understanding of knowledge and specialist theoretical and methodological approaches, suggesting and incorporating interrelationships with other relevant disciplines in abstract and unpredictably complex contexts.	CE_51 CE5010 CE_54 CE5652
K, C	M2: Problem analysis	Select and adapt appropriate advanced problem-solving strategies, methods and techniques to design systematic investigations that define and critically evaluate problems, using specialist	CE_51 CE5010 CE_54 CE5008 CE5652 CE_55

		information and data in unpredictable and	
		complex contexts.	
K, C	M3: Analytical tools	Systematically and critically analyse and	CE_51
	and technics	evaluate, incomplete and/or contradictory	CE5010
		data and evidence, developing effective	CE_54
		and advanced methodologies to explain	CE5652
		and support conclusions and	
		recommendations in unpredictably complex	
1/ 0	M4. Toological	Contexts	05.54
K, C	M4: Technical	Systematically synthesise advanced and	CE_51
	literature	specialist information and ideas, and	CE_54 CE5008
		formulate and develop innovative proposals to address strategic issues or opportunities	CE_55
		in unpredictably complex contexts.	CE_55
V C	M5: Design	Design and develop advanced specialist	CE_51
K, C	Wis. Design	projects and/or activities to strategically	CE5015
		enhance own and/or others learning, work	CE5008
		or practice within unpredictably complex	CE5652
		contexts	OL3032
С	M6:	Operate in abstract and unpredictably	CE_51
~	Integrated/systems	complex learning, work or practice	
	approach	contexts, requiring selection and	
	••	application of advanced and specialist	
		techniques and information sources	
K, C	M7: Sustainability	Apply an understanding of knowledge	CE_51
,	-	about sustainability issues, recognising	CE5015
		those areas where theories, ideas and	CE5008
		concepts are most/least secure in contexts	CE_55
		of varying complexity	
C, S	M8: Ethics	Apply knowledge of a range of relevant	CE_51
		ethical and professional values and codes	CE5015
		of conduct to personal and/or group	CE5008
		decisions, actions, responsibilities and	
		outcomes in contexts of varying complexity.	0= -4
C	M9: Risk	Synthesise Information and ideas and	CE_51
		formulates creative proposals to address a	CE5015
		range of risk management issues in	CE_54
0	M10: Security	contexts of varying complexity Act with partial self-direction within	CE_55 CE_51
C	Wito. Security	relevant guidelines and accept	CE5015
		responsibility for achieving safe and secure	CE_54
		personal and/or group outcomes/outputs in	CE5008
		wide-ranging contexts of varying	02000
		complexity	
C, S	M11: Equality,	Apply an awareness values and codes of	CE_51
J., J	diversity and	conduct related to equality, diversity and	CE5015
	inclusion	inclusion to personal and/or group	CE5008
		decisions, actions, responsibilities and	
		outcomes in contexts of varying complexity	
C, S	M12: Practical and	Operate in work or practice contexts of	CE_51
	workshop skills	varying complexity requiring the application	CE5652
		of a wide range of techniques and skills.	CE_55
K, C	M13: Materials,	Apply an understanding of wide-ranging	CE_51
	equipment,	areas of knowledge to formulates creative	CE5652
	technologies and	proposals that address a range of issues or	
	processes	opportunities in contexts of varying	
W 0	M44. Overliter	Complexity	OF 54
K, C	M14: Quality	Design and develop a range of relevant	CE_51
	management	projects and/or activities to improve	CE5015

		personal and/or group outcomes/outputs in wide-ranging contexts of varying complexity.	CE_55
K, C	M15: Engineering and project management	Design and develop a range of relevant projects and/or activities to define and investigate problems, patterns and relationships using information and data in contexts of varying complexity.	CE_51 CE5015 CE_55
C, S	M16: Teamwork	Take responsibility for leading the systematic and critical evaluation of own and others' capabilities, performance and development, applying strategic management approaches in unpredictably complex contexts.	CE_51 CE_54 CE5008 CE_55
C, S	M17: Communication	Organise and communicate information, using a range of relevant criteria, to a variety of audiences in contexts of varying complexity.	CE_51 CE_54 CE5008 CE_55
C, S	M18: Lifelong learning	Apply a systematic understanding of knowledge and specialist theoretical and methodological approaches, suggesting and incorporating interrelationships with other relevant disciplines in abstract and unpredictably complex contexts.	CE_51

24.2 PROGRAMME AND INTERMEDIATE LEARNING OUTCOMES – BEng/MEng Civil Engineering (Environmental Engineering pathway) programme

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:

Year	Category	Learning	Outcome	Engineering Council AHEP 4 Learning	Associated
and	(K = knowledge	Group		Outcome	Modular
FHEQ	and	-			Blocks
level	understanding,				Code(s)
	C = cognitive				, ,
	(thinking) skills,				
	S = other skills				
	and attributes)				

Year 1 and FHEQ Level 4 (), see Table 24.1.

Identical to BEng/MEng Civil Engineering, see Table 24.1.

Year 2 and FHEQ Level 5

Identical to BEng/MEng Civil Engineering, see Table 24.1.

K, C C1-3: Science, mathematics and engineering principles Select and apply specialist knowledge of mathematics, statistics, natural science and engineering principles to the solution of complex civil engineering problems. Some of the knowledge will be at the forefront of the particular subject of study. CE_39 CE_40 CE_43 CE_31	Year 3 and FHEQ Level 6			
K C C2-3: Problem CF 31	K, C	mathematics and	mathematics, statistics, natural science and engineering principles to the solution of complex civil engineering problems. Some of the knowledge will be at the forefront of	CE_40
analysis Critically analyse complex problems involving synthesis of specialist information to reach substantiated conclusions using CE_37 CE_39 CE_40	K, C	C2-3: Problem analysis	involving synthesis of specialist information	CE_35 CE_37 CE_39

		first principles of mathematics, statistics, natural science and engineering principles.	CE_43
K, C	C3-3: Analytical tools and technics	Select and apply specialist computational and analytical techniques to model complex civil engineering problems, recognising the limitations of the techniques employed, both in general and specific to a given practical context	CE_31 CE_35 CE_37 CE_39 CE_40 CE_43
K, C	C4-3: Technical literature	Source and critically analyse relevant technical literature together with other sources of specialist information and ideas to address civil engineering problems in complex and inter-related contexts.	CE_31 CE_35
K, C	C5-3: Design	Design solutions for complex civil engineering problems that meet a combination of societal, user, business and customer needs, as appropriate. This will involve consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental and commercial matters, codes of practice and industry standards.	CE_31 CE_35 CE_37 CE_39 CE_40 CE_43
С	C6-3: Integrated/systems approach	Apply an integrated or systems approach to critically identify appropriate solutions of complex problems involving competing perspectives.	CE_31 CE_35 CE_37 CE_39 CE_40 CE_43
K, C	C7-3: Sustainability	Critically analyse and evaluate the environmental and societal impact of civil engineering solutions to complex problems and minimise adverse impacts including climate change.	CE_31 CE_33 CE_35 CE_37 CE_39 CE_40 CE_43
C, S	C8-3: Ethics	Apply an in-depth awareness of ethical concerns with critical analysis to make reasoned ethical choices in contexts of varying complexity, informed by professional codes of conduct.	CE_31 CE_33 CE_35 CE_37 CE_39 CE_40 CE_43
С	C9-3: Risk	Synthesise relevant information and use a risk management process to identify, evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity in contexts of varying complexity.	CE_31 CE_33 CE_35
С	C10-3: Security	Adopt a holistic and proportionate approach to the mitigation of security risks.	CE_31 CE_33 CE_35
C, S	C11-3: Equality, diversity and inclusion	Adopt an inclusive approach to civil engineering practice and recognise the responsibilities, benefits and importance of supporting equality, diversity and inclusion.	CE_31 CE_35
C, S	C12-3: Practical and workshop skills	Evaluate and use practical laboratory and workshop skills to investigate complex problems.	CE_31 CE_39

K, C	C13-3: Materials, equipment,	Select and apply appropriate materials, equipment, engineering technologies and	CE_31 CE_35
	technologies and processes	processes, recognising their limitations and evaluating the validity of results in contexts of varying complexity.	CE_39 CE_40 CE_43
K, C	C14-3: Quality management	Discuss the role of quality management systems and continuous improvement in the context of complex civil engineering problems.	CE_31 CE_33
K, C	C15-3: Engineering and project management	Apply specialist knowledge of civil engineering management principles, commercial context, project and change management, and relevant legal matters including intellectual property rights.	CE_31 CE_33 CE_35
C, S	C16-3: Teamwork	Take responsibility for the critical evaluation of own and others' capabilities and development using selected	CE_31 CE_35
C, S	C17-3: Communication	Organise and communicate specialist and inter-related information, using selected criteria, to audiences in complex contexts	CE_31 CE_35 CE_39
C, S	C18-3: Lifelong learning	Plan, record and evaluate self-learning and development as the foundation for lifelong learning/CPD.	CE_31 CE_35
Year 4 and FHEQ Level 7	T		
K, C	M1: Science, mathematics and engineering principles	Apply a systematic understanding of knowledge and specialist theoretical and methodological approaches, suggesting and incorporating interrelationships with other relevant disciplines in abstract and unpredictably complex contexts.	CE_51 CE_54 CE_58 CE_61
K, C	M2: Problem analysis	Select and adapt appropriate advanced problem-solving strategies, methods and techniques to design systematic investigations that define and critically evaluate problems, using specialist information and data in unpredictable and complex contexts.	CE_51 CE_54 CE_58 CE5008
K, C	M3: Analytical tools and technics	Systematically and critically analyse and evaluate, incomplete and/or contradictory data and evidence, developing effective and advanced methodologies to explain and support conclusions and recommendations in unpredictably complex contexts	CE_51 CE_54 CE_58 CE_60 CE_61
K, C	M4: Technical literature	Systematically synthesise advanced and specialist information and ideas, and formulate and develop innovative proposals to address strategic issues or opportunities in unpredictably complex contexts.	CE_51 CE_54 CE5008 CE_60 CE_61
K, C	M5: Design	Design and develop advanced specialist projects and/or activities to strategically enhance own and/or others learning, work or practice within unpredictably complex contexts	CE_51 CE5015 CE_58 CE5008 CE_60 CE_61
C	M6: Integrated/systems approach	Operate in abstract and unpredictably complex learning, work or practice contexts, requiring selection and application of advanced and specialist techniques and information sources	CE_51 CE_60 CE_61

K, C	M7: Sustainability	Apply an understanding of knowledge about sustainability issues, recognising those areas where theories, ideas and concepts are most/least secure in contexts of varying complexity	CE_51 CE5015 CE_58 CE5008 CE_60 CE_61
C, S	M8: Ethics	Apply an awareness of a range of relevant ethical and professional values and codes of conduct to personal and/or group decisions, actions, responsibilities and outcomes in contexts of varying complexity.	CE_51 CE5015 CE5008
С	M9: Risk	Synthesise information and ideas, and formulate creative proposals to address a range of risk management issues in contexts of varying complexity	CE_51 CE5015 CE_54 CE_60 CE_61
C	M10: Security	Act with partial self-direction within relevant guidelines and accepts responsibility for achieving safe and secure personal and/or group outcomes/outputs in wide-ranging contexts of varying complexity	CE_51 CE5015 CE_54 CE_58 CE5008 CE_60
C, S	M11: Equality, diversity and inclusion	Apply an awareness values and codes of conduct related to equality, diversity and inclusion to personal and/or group decisions, actions, responsibilities and outcomes in contexts of varying complexity.	CE_51 CE5015 CE5008
C, S	M12: Practical and workshop skills	Operate in work or practice contexts of varying complexity requiring the application of a wide range of techniques and skills.	CE_51 CE_61
K, C	M13: Materials, equipment, technologies and processes	Apply an understanding of wide-ranging areas of knowledge to formulate creative proposals that address a range of issues or opportunities in contexts of varying complexity	CE_51 CE_58 CE_60 CE_61
K, C	M14: Quality management	Design and develop a range of relevant projects and/or activities to improve personal and/or group outcomes/outputs in wide-ranging contexts of varying complexity.	CE_51 CE5015 CE_61
K, C	M15: Engineering and project management	Design and develop a range of relevant projects and/or activities to define and investigate problems, patterns and relationships using information and data in contexts of varying complexity.	CE_51 CE5015 CE_58 CE_60 CE_61
C, S	M16: Teamwork	Take responsibility for leading the systematic and critical evaluation of own and others' capabilities, performance and development, applying strategic management approaches in unpredictably complex contexts.	CE_51 CE_54 CE_58 CE5008
C, S	M17: Communication	Organise and communicate information, using a range of relevant criteria, to a variety of audiences in contexts of varying complexity.	CE_51 CE_54 CE_58 CE5008 CE_60 CE_61
C, S	M18: Lifelong learning	Apply a systematic understanding of knowledge and specialist theoretical and	CE_51

	methodological approaches, suggesting and incorporating interrelationships with other relevant disciplines in abstract and unpredictably complex contexts.	
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24.3 PROGRAMME AND INTERMEDIATE LEARNING OUTCOMES - BEng/MEng Civil Engineering (Flood and Coastal Engineering pathway) programme

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:

Year	Category	Learning	Outcome	Engineering Council AHEP 4 Learning	Associated
and	(K = knowledge	Group		Outcome	Modular
FHEQ	and				Blocks
level	understanding,				Code (s)
	C = cognitive				
	(thinking)				
	skills,				
	S = other				
	skills and				
	attributes)				

Year 1 and FHEQ Level 4 (), see Table 24.1.

Identical to BEng/MEng Civil Engineering, see Table 24.1.

Year 2 and FHEQ Level 5

Identical to BEng/MEng Civil Engineering, see Table 24.1.

Year 3 and FHEQ Level 6			
K, C	C1-3: Science, mathematics and engineering principles	Select and apply specialist knowledge of mathematics, statistics, natural science and engineering principles to the solution of complex civil engineering problems. Some of the knowledge will be at the forefront of the particular subject of study	CE_36 CE_40 CE_41
K, C	C2-3: Problem analysis	Critically analyse complex problems involving synthesis of specialist information to reach substantiated conclusions using first principles of mathematics, statistics, natural science and engineering principles.	CE_31 CE_33 CE_35 CE_36 CE_40 CE_41
K, C	C3-3: Analytical tools and technics	Select and apply specialist computational and analytical techniques to model complex civil engineering problems, recognising the limitations of the techniques employed, both in general and specific to a given practical context.	CE_31 CE_35 CE_36 CE_40 CE_41
K, C	C4-3: Technical literature	Source and critically analyse relevant technical literature together with other sources of specialist information and ideas to address civil engineering problems in complex and inter-related contexts.	CE_31 CE_35 CE_41
K, C	C5-3: Design	Design solutions for complex civil engineering problems that meet a combination of societal, user, business and	CE_31 CE_35 CE_36

		customer needs, as appropriate. This will involve consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental and commercial matters, codes of practice and industry standards.	CE_40 CE_42
C	C6-3: Integrated/systems approach	Apply an integrated or systems approach to critically identify appropriate solutions of complex problems involving competing perspectives.	CE_31 CE_35 CE_36 CE_40 CE_42
K, C	C7-3: Sustainability	Critically analyse and evaluate the environmental and societal impact of civil engineering solutions to complex problems and minimise adverse impacts including climate change.	CE_31 CE_33 CE_35 CE_36 CE_40 CE_41 CE_42
C, S	C8-3: Ethics	Apply an in-depth awareness of ethical concerns with critical analysis to make reasoned ethical choices in contexts of varying complexity, informed by professional codes of conduct.	CE_31 CE_33 CE_35 CE_40 CE_42
С	C9-3: Risk	Synthesise relevant information and use a risk management process to identify, evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity in contexts of varying complexity.	CE_31 CE_33 CE_35 CE_41 CE_42
C	C10-3: Security	Adopt a holistic and proportionate approach to the mitigation of security risks.	CE_31 CE_33 CE_35 CE_41 CE_42
C, S	C11-3: Equality, diversity and inclusion	Adopt an inclusive approach to civil engineering practice and recognise the responsibilities, benefits and importance of supporting equality, diversity and inclusion.	CE_31 CE_35 CE_42
C, S	C12-3: Practical and workshop skills	Evaluate practical laboratory and workshop skills to investigate complex problems.	CE_31 CE_36 CE_42
K, C	C13-3: Materials, equipment, technologies and processes	Select and apply appropriate materials, equipment, engineering technologies and processes, recognising their limitations and evaluating the validity of results in contexts of varying complexity.	CE_31 CE_35 CE_36 CE_40 CE_41
K, C	C14-3: Quality management	Discuss the role of quality management systems and continuous improvement in the context of complex civil engineering problems.	CE_31 CE_33 CE_42
K, C	C15-3: Engineering and project management	Apply specialist knowledge of civil engineering management principles, commercial context, project and change management, and relevant legal matters including intellectual property rights.	CE_31 CE_33 CE_35 CE_42
C, S	C16-3: Teamwork	Take responsibility for the critical evaluation of own and others' capabilities and development using selected management approaches in complex and inter-related contexts.	CE_31 CE_35

C, S	C17-3: Communication	Organise and communicate specialist and inter-related information, using selected criteria, to audiences in complex contexts.	CE_31 CE_35 CE_36 CE_42
C, S	C18-3: Lifelong learning	Plan, record and evaluate self-learning and development as the foundation for lifelong learning/CPD.	CE_31 CE_35
Year 4 and FHEQ Level 7			
K, C	M1: Science, mathematics and engineering principles	Apply a systematic understanding of knowledge and specialist theoretical and methodological approaches, suggesting and incorporating interrelationships with other relevant disciplines in abstract and unpredictably complex contexts.	CE_51 CE_54 CE_62 CE_66
K, C	M2: Problem analysis	Select and adapt appropriate advanced problem-solving strategies, methods and techniques to design systematic investigations that define and critically evaluate problems, using specialist information and data in unpredictable and complex contexts.	CE_51 CE_54 CE_62 CE_66
K, C	M3: Analytical tools and technics	Systematically and critically analyse and evaluate incomplete and/or contradictory data and evidence, developing effective and advanced methodologies to explain and support conclusions and recommendations in unpredictably complex contexts	CE_51 CE_54 CE_66
K, C	M4: Technical literature	Systematically synthesise advanced and specialist information and ideas, and formulate and develop innovative proposals to address strategic issues or opportunities in unpredictably complex contexts.	CE_51 CE_54 CE_62 CE_66
K, C	M5: Design	Design and develop advanced specialist projects and/or activities to strategically enhance own and/or others learning, work or practice within unpredictably complex contexts	CE_51 CE_62 CE_68 CE_64 CE_66
С	M6: Integrated/systems approach	Operate in abstract and unpredictably complex learning, work or practice contexts, requiring selection and application of advanced and specialist techniques and information sources	CE_51 CE_62 CE_68 CE_64 CE_66
K, C	M7: Sustainability	Apply an understanding of knowledge about sustainability issues, recognising those areas where theories, ideas and concepts are most/least secure in contexts of varying complexity	CE_51 CE_62 CE_68 CE_64 CE_66
C, S	M8: Ethics	Apply an awareness of a range of relevant ethical and professional values and codes of conduct to personal and/or group decisions, actions, responsibilities and outcomes in contexts of varying complexity.	CE_51 CE_68 CE_64
С	M9: Risk	Synthesise information and ideas, and formulate creative proposals to address a range of risk management issues in contexts of varying complexity	CE_51 CE_54 CE_62 CE_64 CE_66
C	M10: Security	Act with partial self-direction within relevant guidelines, and accept responsibility for	CE_51 CE_54

0.0	M11: Equality,	achieving safe and secure personal and/or group outcomes/outputs in wide-ranging contexts of varying complexity Apply an awareness values and codes of	CE_64 CE_66 CE_68 CE_51CE_62
C, S	diversity and inclusion	conduct related to equality, diversity and inclusion to personal and/or group decisions, actions, responsibilities and outcomes in contexts of varying complexity	CE_51CE_62 CE_64 CE_66 CE_68
C, S	M12: Practical and workshop skills	Operate in work or practice contexts of varying complexity requiring the application of a wide range of techniques and skills	CE_51 CE_64 CE_66
K, C	M13: Materials, equipment, technologies and processes	Apply an understanding of wide-ranging areas of knowledge to formulate creative proposals that address a range of issues or opportunities in contexts of varying complexity	CE_51 CE_62 CE_64 CE_66
K, C	M14: Quality management	Design and develop a range of relevant projects and/or activities to improve personal and/or group outcomes/outputs in wide-ranging contexts of varying complexity	CE_51 CE_62 CE_66 CE_68
K, C	M15: Engineering and project management	Design and develop a range of relevant projects and/or activities to define and investigate problems, patterns and relationships using information and data in contexts of varying complexity	CE_51 CE_62 CE_64 CE_66 CE_68
C, S	M16: Teamwork	Take responsibility for leading the systematic and critical evaluation of own and others' capabilities, performance and development, applying strategic management approaches in unpredictably complex contexts.	CE_51 CE_54 CE_62 CE_68
C, S	M17: Communication	Organise and communicate information, using a range of relevant criteria, to a variety of audiences in contexts of varying complexity.	CE_51 CE_54 CE_62 CE_68 CE_64 CE_66
C, S	M18: Lifelong learning	Take responsibility for the evaluation of own and/or others' capabilities and development using wide-ranging approaches and criteria in contexts of varying complexity.	CE_51

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

Years 1 and 2 (FHEQ Level 4 and 5) will provide students with fundamental knowledge of core engineering subjects, e.g. engineering mathematics, structural mechanics, construction materials science, hydraulics etc. Course delivery will be based on a combination of theory, practical sessions and project work. Students will be introduced to industry-relevant software tools, which will be followed by the process of developing their skills through the practical use of the software when solving engineering problems. Field trips will be employed to enable students to witness how engineering projects are practically designed and implemented in real-life settings. Assessments will include individual and group coursework/assignments, and exams. Individual coursework/assignments and exams will test knowledge and understanding of fundamental principles of engineering science and mathematics. Group projects will provide students with opportunities to learn how complex engineering problems are solved through the combined application of specialist knowledge in a range of different subject areas.

Year 3 and 4 (FHEQ Level 6 and 7) will continue the strategy of using mixed teaching and learning techniques, and assessment methods. Students will deepen their knowledge and understanding of various systems used to design sustainable solutions to engineering problems. An integrated design project will give students an opportunity to develop skills in the design of solutions to more complex civil engineering problems. These years will also include an option for students who wish to learn more about the application of Building Information Modelling (BIM), a software-based technique used to manage engineering projects. Research, independent learning and critical analysis skills will be further developed when students complete an individual dissertation project.

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

The summative assessment strategy is designed to ensure that students are provided with more than one opportunity to achieve a learning outcome at each level of the programme. The strategy will also ensure that most learning outcomes are assessed at least once at each level of the programme.

As a general strategy, teaching blocks will include both coursework and examination methods of summative assessments. Modules that only use coursework-based summative assessments are restricted to the engineering practice modules in Year 1, the group design project in Year 2, the final year dissertation and integrated design project in Year 3 and the group project in Year 4.

25. Programme Structure, progression and award requirements

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

- **Compulsory block:** one that 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 that students choose from an 'option range'. These will be listed in the right-hand column;
- 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 in order to be eligible for the final award. Core assessments may be described in one of three ways:
 - Where students are expected to pass the block at D- or better, but not necessarily all elements of assessment, then the block itself is core.
 e.g. AB3000 Project (40 credits)

Core: Block

2. Where only some elements of assessments are required to be passed at D- or better, these will be identified by listing each element of assessment that is core e.g. AB3001 Title (20 credits)

Core: 1 & 4

3. 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. e.g. AB3002 Title (20 credits)

Core: All, Block

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.

Year 1 (FHEQ Level 4) – same for all 3 pathways	
Compulsory modular block codes, titles and credits BE1603a Engineering Systems and Energy I (15 credits) BE1603b Engineering Systems and Energy II (15 credits) BE1604 Engineering Mechanics - Statics (15 credits) BE1605 Engineering Mechanics and Materials I (15 credits) Core assessment modular blocks: BE1601a Engineering Mathematics and Programming I (15 credits) BE1601b Engineering Mathematics and Programming II (15 credits) BE1602 Engineering Practice (15 credits) CE16XX Civil Engineering Principles and Practice (15 credits)	Optional modular block codes, titles and credits

Level 4 Progression and Award Requirements

As per **Senate Regulation 2**

Voor 2 (EHEO Lovel 5) come for all 2 nothways	
Year 2 (FHEQ Level 5) – same for all 3 pathways	
Compulsory assessment block codes, titles and credits	Optional assessment block codes, titles and credits
Compulsory study block codes, titles and credit volume	Optional Study block codes, titles and credit volume
Compulsory modular block codes, titles and credits CE_21 Civil Engineering Toolbox & Surveying (15 credits) CE_22 Reinforced Concrete Design (15 credits) CE_23 Soil Mechanics (15 credits) CE_24 Structural Mechanics 1 (15 credits) CE_25 Structural Mechanics 2 (15 credits) CE_27 Construction Materials & Sustainability (15 credits) CE_28 Fluid Mechanics and Hydraulics (15 credits) Core assessment modular blocks: CE_26 Design Project (15 credits)	Optional modular block codes, titles and credits

Level 5 Progression and Award Requirements

As per **Senate Regulation 2**

Level 5 - Placement - same for all 3 pathways	
Compulsory assessment block codes, titles and credits	Optional assessment block codes, titles and credits
Compulsory study block codes, titles and credit volume	Optional study block codes, titles and credit volume

Compulsory modular block codes, titles and credits	Optional modular block codes, titles and credits
CE2555 Civil Engineering Placement (120) Core: Block	

Level 5 Placement Progression and Award Requirements

As per Senate Regulation 2

For students who are registered to the following BEng programmes, CE2555 will contribute 25% of the FHEQ Level 5 profile and 8.3% of the overall degree calculation; CE2555 must be undertaken between Levels 5 & 6.

- BEng (Hons) Civil Engineering (Flood and Coastal Engineering) with Placement (FHEQ level 6)
- BEng (Hons) Civil Engineering with Placement (FHEQ level 6)
- BEng (Hons) Civil Engineering (Environmental Engineering) with Placement (FHEQ level 6)

For students who are registered to the following MEng programmes, CE2555 will contribute 25% of the FHEQ Level 5 profile and 5% of the overall degree calculation; CE2555 must be undertaken between Levels 5 & 6 or 6 & 7.

- MEng (Hons) Civil Engineering with Placement (FHEQ level 7))
- MEng (Hons) Civil Engineering (Environmental Engineering) with Placement (FHEQ level 7))
- MEng (Hons) Civil Engineering (Flood and Coastal Engineering) with Placement (FHEQ level 7))

If a student fails CE2555 (e.g. E+ or less), she/he may be allowed to be re-registered to the BEng or MEng programme (but without "with Placement" in the final award).

Year 3 (FHEQ Level 6) – BEng/MEng Civil Engineering	
Compulsory assessment block codes, titles and credits	Optional assessment block codes, titles and credits
Compulsory study block codes, titles and credit volume	Optional study block codes, titles and credit volume
Compulsory modular block codes, titles and credits	Optional modular block codes, titles and credits
CE_33 Project Planning, Procurement and Risk (15 credits) CE_36 Geotechnical Engineering (15 credits) CE_37 Resilient Infrastructure and Transport (15 credits) CE_35 Integrated design project (15 credits)	
Core assessment modular blocks: CE_31 Final Year Individual Project (30 credits) CE_32 Design of Steel and Timber Structures (15 credits) CE_34 Computational Structural Analysis (15 credits)	

Level 6 Progression and Award Requirements

As per <u>Senate Regulation 2</u>

Students must achieve all AHEP learning outcomes (see attachment) to get an accredited degree.

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.

Year 3 (FHEQ Level 6) - BEng/MEng Civil Engineering (Er	nvironmental Engineering)
Compulsory assessment block codes, titles and credits	Optional assessment block codes, titles and credits
Compulsory study block codes, titles and credit volume	Optional study block codes, titles and credit volume
Compulsory modular block codes, titles and credits	Optional modular block codes, titles and credits
CE_37 Resilient Infrastructure and Transport (15 credits)	
CE_33 Project Planning, Procurement and Risk (15 credits)	
CE_35 Integrated design project (15 credits)	
Core assessment modular blocks:	
CE_31 Final Year Individual Project (Environmental	
Engineering) (30 credits)	
CE_39 Water and Wastewater Infrastructure Design (15	
credits)	
CE_43 Geo-energy Engineering (15 credits)	
CE_40 Environmental Management and Pollution Control (15 credits)	

Level 6 Progression and Award Requirements

As per Senate Regulation 2

Students must achieve all AHEP learning outcomes (see attachment) to get an accredited degree.

Year 3 (FHEQ Level 6) – BEng/MEng Civil Engineering (Flood and Coastal Engineering)											
Compulsory assessment block codes, titles and credits	Optional assessment block codes, titles and credits										
Compulsory study block codes, titles and credit volume	Optional study block codes, titles and credit volume										

Compulsory modular block codes, titles and credits	Optional modular block codes, titles and credits
CE_33 Project Planning, Procurement and Risk (15 credits)	
CE_35 Integrated design project (15 credits) CE_36 Geotechnical Engineering (15 credits)	
oz_oo oodooniinaal zhiginooning (10 draala)	
Core assessment modular blocks:	
CE_31 Final Year Individual Project (Flood and Coastal	
Engineering) (30 credits)	
CE_40 Environmental Management and Pollution Control	
(15 credits)	
CE_41 Flood modelling and analysis (15 credits)	
CE_42 Flood and coastal infrastructure Design (15 credits)	

Level 6 Progression and Award Requirements

As per Senate Regulation 2

Students must achieve all AHEP learning outcomes (see attachment) to get an accredited degree.

Year 4 (FHE	Q Level 7) – MEng Civil Engineering	
Compulsor	y assessment block codes, titles and credits	Optional assessment block codes, titles and credits
Compulsor	y study block codes, titles and credit volume	Optional study block codes, titles and credit volume
Compulsor	y modular block codes, titles and credits	Optional modular block codes, titles and credits
CE5015	Project Management (15 credits)	
CE5010	Advanced structural Design and FEA (15	
credits)		
CE_54 Civil credits)	Engineering with Artificial Intelligence (15	
CE5008	Geo-Environmental Engineering (15 credits)	
CE5652 credits)	Structural Dynamics and Seismic Design (15	
CE_55 Adva	nced construction materials and retrofitting (15	
credits)		
Core asses	sment modular blocks:	
CE_51 Year	-long Group Project (30 credits)	

Level 7 Progression and Award Requirements

As per Senate Regulation 2

Students must achieve all AHEP learning outcomes (see attachment) to get an accredited degree.

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.

Year 4 (FHEQ Level 7) - MEng Civil Engineering (Environ	mental Engineering)
Compulsory assessment block codes, titles and credits	Optional assessment block codes, titles and credits
	titles and credits
Compulsory study block codes, titles and credit volume	Optional study block codes, titles and credit volume
Compulsory modular block codes, titles and credits	Optional modular block codes, titles and credits
CE5015 Project Management (15 credits)	
CE_54 Civil Engineering with Artificial Intelligence (15 credits)	
CE5008 Geo-Environmental Engineering (15 credits)	
CE_58 Water Infrastructure Engineering (15 credits)	
CE_60 Water Process Engineering (15 credits)	
CE_61 Climate Change and the Environment (15 credits)	
Core assessment modular blocks:	
CE_51 Year-long Group Project (30 credits)	

Level 7 Progression and Award Requirements

As per Senate Regulation 2

Students must achieve all AHEP learning outcomes (see attachment) to get an accredited degree.

Year 4 (FHEQ Level 7) – MEng Civil Engineering (Flood and Coastal Engineering)											
Compulsory assessment block codes, titles and credits	Optional assessment block codes, titles and credits										
Compulsory study block codes, titles and credit volume	Optional study block codes, titles and credit volume										

Compulsory modular block codes, titles and credits

CE_54 Civil Engineering with artificial intelligence (15 credits)

CE_62 Advanced Flood and coastal engineering Design (15 credits)

CE_68 Sustainable infrastructure project (15 credits)

CE_61 Climate change and the environment (15 credits)

CE_66 Smart and resilient flood and coastal engineering (15 credits)

CE 64 Flood and coastal asset management (15 credits)

Core assessment modular blocks:

CE_51 Year-long Group Project (30 credits)

Optional modular block codes, titles and credits

Level 7 Progression and Award Requirements

As per Senate Regulation 2

Students must achieve all AHEP learning outcomes (see attachment) to get an accredited degree.

Appendix: Mapping to AHEP4 Learning Outcomes (JBM Appendix C Mapping to AHEP4 Learning Outcomes)

BEng Civil Er	ix C Mapping to AHEP4 Learning Outcomes for igineering	i(0)	alue	Science and Maths	E	Engineering Analys	sis	Design and Inno	ration		TI	he Engineer and So	ciety					Engineering Practi	ce		
Module code	Module title	Core (C)	redit V	- C3	C2	83	40	55	90	C7	80	s ပ	C10	1 5	212	13	40	916	91.0	242	81.0
				Apply knowledge of mathematics, statistics, natural science and engineering principles to the solution of complex problems. Some of the knowledge will be at the forefront of the particular subject of study	Analyse complex problems to reach substantiated conclusions using first principles of mathematics, statistics, natural science and engineering principles	Select and apply appropriate computational and analytical techniques to model complex problems, recognising the limitations of the techniques employed	Select and evaluate technical literature and other sources of information to address complex problems	Design solutions for complex problems that meet a combination of societal, user, business and customer needs as appropriate. This will involve consideration of applicable health & safety, diversily, include, cultural, societal, environmental and commercial matters, codes of practice and industry standards	Apply an integrated or systems approach to the solution of complex problems		Identify and analyse ethical concerns and make reasoned ethical choices informed by professional codes of conduct	Use a risk management process to identify, evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity	Adopt a holistic and proportionate approach to the miligation of security risks (new for AHEP4)	Adopt an inclusive approach to engineering practice and recognise the responsibilities, benefits and importance of supporting equality, diversity and inclusion (new for AHEP4)	Use practical laboratory and workshop skills to investigate complex problems	Select and apply appropriate materials, equipment, equipment, engineering technologies and processes, recognising their limitations	Discuss the role of quality management systems and continuous improvement in the context of complex problems			Communicate effectively on complex engineering matters with technical and non- technical audiences	Plan and record self learning and development as the foundation for lifelong learning/CPD
	Engineering Mathematics and Programming I (15 credits) Engineering Mathematics and Programming II (15 credits)		15 E		Yes Yes	Yes Yes						Yes								Yes Yes	
	Engineering Mainematics and Programming II (15 credits) Engineering Practice (15 credits)		15 E		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes					Yes	Yes	Yes	Yes
BE_1603a	Engineering Systems and Energy I (15 credits)	С	15 E	/C Yes	Yes	Yes				Yes			Yes		Yes					Yes	
	Engineering Systems and Energy II (15 credits)	С			Yes	Yes				Yes			Yes		Yes					Yes	
BE1604	Engineering Mechanics - Statics (15 credits) Engineering Mechanics and Materials I (15 credits)		15 E		Yes Yes	Yes									Yes Yes	Yes Yes				Yes Yes	
	Civil Engineering Principles and Practice (15 credits)		15 (100	100		Yes	Yes	Yes	Yes	Yes	Yes			Yes			Yes	Yes	Yes
	Civil Engineering Toolbox & Surveying (15 credits)		15 (Yes	Yes	Yes		Yes	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes	Yes
	Reinforced Concrete Design (15 credits) Soil Mechanics (15 credits)		15 E		Yes Yes	Yes Yes		Yes	Yes			Yes			Yes	Yes				Yes	
CE_24	Structural Mechanics 1 (15 credits)		15 E		Yes	Yes						165			165	165				165	
N CE_25	Structural Mechanics 2 (15 credits)		15 E		Yes	Yes									Yes						
© CE_26 CE_27	Design Project (15 credits) Construction Materials & Sustainability (15 credits)		15 C		Yes	Yes	Yes	Yes Yes	Yes Yes	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes	Yes	Yes
CE_27	Fluid Mechanics and Hydraulics (15 credits)		15 E		Yes	Yes		Yes Yes	Yes	Yes	Yes				Yes	Yes				Yes	
	(10000)	Ť																			
	Civil Engineering Placement		120 (Yes	Yes		Yes	Yes			Yes			Yes	Yes			Yes		Yes
CE_31 CE_32	Final Year Individual Project (30 credits) Design of Steel and Timber Structures (15 credits)	С	30 (Yes Yes	Yes Yes	Yes	Yes Yes	Yes Yes	Yes Yes	Yes	Yes	Yes	Yes	Yes	Yes Yes	Yes	Yes	Yes	Yes	Yes
	Project Planning, Procurement and Risk (15 credits)		15 E		Yes	res		res	res	Yes	Yes	Yes	Yes	Yes		res	Yes	Yes			
E CE_34	Computational Structural Analysis (15 credits)	С	15 E	/C Yes	Yes	Yes			Yes						Yes						
CE_35	Integrated design project (15 credits)		15 (Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes		Yes	Yes	Yes	Yes
	Geotechnical Engineering (15 credits) Resilient Infrastructure and Transport (15 credits)		15 E		Yes Yes	Yes Yes	Yes	Yes Yes	Yes Yes	Yes Yes	Yes	Yes Yes			Yes	Yes				Yes	
														!			!		!		
MEng Civil Eng	gineering			ž	M2	M3	M 4	MS	9W	M7	W 8	M9	M10	1 N	M12	М13	M14	M15	M16	M17	M 18
	Year-long Group Project (30 credits)		30 (Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Project Management (15 credits) Advanced structural Design and FEA (15 credits)		15 E		Yes	Yes		Yes		Yes	Yes	Yes	Yes	Yes			Yes	Yes			
CE_54	Civil Engineering with Artificial Intelligence (15 credits)				Yes	Yes	Yes					Yes	Yes						Yes	Yes	
ÇE5008	Geo-Environmental Engineering (15 credits)		15 E		Yes		Yes	Yes		Yes	Yes		Yes	Yes					Yes	Yes	
	Structural Dynamics and Seismic Design (15 credits)		15 E		Yes Yes	Yes		Yes							Yes Yes	Yes		Yes		Yes	
CE_55	Advanced construction materials and retrofitting (15 credits)	C	15 E	ic .	Yes		Yes			Yes		Yes			Yes		Yes	Yes	Yes	Yes	
				Acpty a comprehensive knowledge of manufacture knowledge of manufacture knowledge of manufacture knowledge of manufacture knowledge of comprex proposes. Much of the knowledge manufacture knowledge and informed by a comprehensive knowledge and informed by a comprehensive knowledge of a study and informed by a comprehensive knowledge of the particular subject of a study and informed by a comprehensive knowledge of the particular subject of a study and informed by a comprehensive knowledge of the subject of the su	Formulate and analyse complex problems to reach substantiated conclusions. This will involve evaluating available data using first principles of mathematics, statestics, natural science and engineering principles, and using first the problems of the science and engineering principles, and using involve the science and engineering judgment of the science and engineering the science and engineering the science and engineering the science and engineering the science and the sc	Select and apply appropriate computational and analytical techniques to model complex model complex discontinues to model complex discontinues to model complex of the complex discussing the limitations of the techniques employed	Select and critically evaluate technical literature and other sources of information to solve conflict problems problems	Design substance for complex problems that evidence some originality complex problems that evidence some originality and meet a combination of societic, user, business and customer needs as since the consideration of customer needs as since the consideration of the complex problems or consideration of consideration of contraction and reliable to the complex problems of contraction and reliable to the complex problems of contraction and reliable to the contraction of contraction of contraction and reliable to the contraction of contraction of contraction and reliable to the contraction of	Apply an integrated or systems approach to the solution of complex problems	Evaluate the environment al and societal impactal impact of solutions to complex problems (to include the entire life-cycle of a product or process) and minimise adverse impacts	Sentify and analyse ethical concerns and make reasoned ethical choices informed to professional color of conduct	Use a raix management process to identify, management process to identify, evolution and militages raise (the effects of the e	Adopt a holistic and proportionate approach to the miligation of security risks	Adopt an inclusive approach to engineering practice and recognise the responsibilities, benefits and recognise the responsibilities, benefits and supporting equality, devently and inclusion	Use practical laboratory and workshop skills to investigate complex problems	Select and apply appropriate materials, appropriate materials, equipment, engineering, equipment, engineering, engineering materials, engineering and recogniting their limitations	Discuss hereis of quality management systems and continuous improvement in the continuous improvement in the continuous problems	Apply novindepe of engineering management principles. commercial context, project and charge project and charge relevant legal matters including intellectual property rights	Function effectively, as an individual manifest of the member or loader of a team. Evaluate and member of the memb	Communicate effectively on effectively on complex engineering matters with technical software. See the control of effective and software effectiveness of the methods used	Plan and record self- learning and development as the foundation for fletong learning CPD

JBM Appendix C Mapping to AHEP4 Learning Outcomes for BEng Civil Engineering (Environmental Engineering)

evel	Module code	Module title	Core (C) or Optional (O) Credit Value	ssment	Science and Maths	Í	Engineering Analys	sis	Design and Innovation			The	Engineer and So	ciety				E	ngineering Practi	ce		
٦	code	'	Cor Optio	Asse	C1	C2	C3	C4	C5	C6	C7	C8	С9	C10	C11	C12	C13	C14	C15	C16	C17	C18
	BE_1601a	Engineering Mathematics and Programming I (15 credits)	C 15	5 E/C	Yes	Yes	Yes														Yes	
	BE_1601b	Engineering Mathematics and Programming II (15 credits)	C 15	E/C	Yes	Yes	Yes						Yes								Yes	
	BE_1602	Engineering Practice (15 credits)	C 15	5 E/C		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes					Yes	Yes	Yes	Yes
-	BE_1603a	Engineering Systems and Energy I (15 credits)	C 15		Yes	Yes	Yes				Yes			Yes		Yes					Yes	
ear	BE_1603b	Engineering Systems and Energy II (15 credits)	C 15	5 E/C	Yes	Yes	Yes				Yes			Yes		Yes					Yes	
>	BE1604	Engineering Mechanics - Statics (15 credits)	C 15	E/C	Yes	Yes	Yes									Yes	Yes				Yes	
	BE1605	Engineering Mechanics and Materials I (15 credits)	C 15	5 E/C	Yes	Yes	Yes									Yes	Yes				Yes	
	CE16XX	Civil Engineering Principles and Practice (15 credits)	C 15	5 C	Yes				Yes	Yes	Yes	Yes	Yes	Yes			Yes			Yes	Yes	Yes
	CE_21	Civil Engineering Toolbox & Surveying (15 credits)	C 15	5 C			Yes	Yes	Yes		Yes	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes	Yes
	CE_22	Reinforced Concrete Design (15 credits)	C 15			Yes	Yes		Yes	Yes												
	CE_23	Soil Mechanics (15 credits)	C 15	5 E/C	Yes	Yes	Yes						Yes			Yes	Yes				Yes	
	CE_24	Structural Mechanics 1 (15 credits)	C 15	5 E/C	Yes	Yes	Yes															
~	CE_25	Structural Mechanics 2 (15 credits)	C 15	5 E/C	Yes	Yes	Yes									Yes						
ear	CE_26	Design Project (15 credits)	C 15			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes				Yes	Yes	Yes	Yes
_	CE_27	Construction Materials & Sustainability (15 credits)	C 15	5 E/C	Yes				Yes	Yes	Yes	Yes				Yes	Yes					
	CE_28	Fluid Mechanics and Hydraulics (15 credits)	C 15	E/C	Yes	Yes	Yes		Yes							Yes					Yes	
	CE2555	Civil Engineering Placement	12	0 C		Yes	Yes		Yes	Yes			Yes			Yes	Yes			Yes		Yes
	CE_31	Final Year Project (30 credits)	C 30		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	CE_33	Project Planning, Procurement and Risk (15 credits)	C 15		Yes	Yes					Yes	Yes	Yes	Yes	Yes			Yes	Yes			
	CE_35	Integrated design project (15 credits)	C 15		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes		Yes	Yes	Yes	Yes
	CE_37	Resilient Infrastructure and Transport (15 credits)	C 15	5 E/C		Yes	Yes		Yes	Yes	Yes	Yes	Yes									
Year	CE_39	Water and Wastewater Infrastructure Design (15 credits)	C 15	E/C	Yes	Yes	Yes		Yes	Yes	Yes	Yes				Yes	Yes				Yes	
	CE_40	Environmental Management and Pollution Control (15 credits)	C 15	5 E/C	Yes	Yes	Yes		Yes	Yes	Yes	Yes					Yes					
	CE_43	Geo-energy Engineering (15 credits)	C 15	E/C	Yes	Yes	Yes		Yes	Yes	Yes	Yes					Yes					

MEng Civil Engineering (Environmental Engineering)			M1	M2	М3	M4	M5	M6	M7	М8	М9	M10	M11	M12	M13	M14	M15	M16	M17	M18
CE_51 Year-long Group Project (30 credits)	C :	30 C	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CE5015 Project Management (15 credits)	C	15 E/C	:				Yes		Yes	Yes	Yes	Yes	Yes			Yes	Yes			
CE_54 Civil Engineering with Artificial Intelligence (15 credits)	С	15 E/C	Yes	Yes	Yes	Yes					Yes	Yes						Yes	Yes	
CE_58 Water Infrastructure Engineering (15 credits)	C ·	15 E/C	Yes	Yes	Yes		Yes		Yes			Yes			Yes		Yes	Yes	Yes	
CE5008 Geo-Environmental Engineering (15 credits)	C ·	15 E/C	3	Yes		Yes	Yes		Yes	Yes		Yes	Yes					Yes	Yes	
CE_60 Water Process Engineering (15 credits)	C ·	15 E/C	3		Yes	Yes	Yes	Yes	Yes		Yes	Yes			Yes		Yes		Yes	
CE_61 Climate Change and the Environment (15 credits)	C ·	15 E/C	Yes		Yes	Yes	Yes	Yes	Yes		Yes			Yes	Yes	Yes	Yes		Yes	
			Apply a comprehensive knowledge of mathematics, statistics, natural science and engineering principles to the solution of the knowledge will be at the forefront of the particular subject of study and informed by a critical awareness of new developments and the wider context of engineering	Formulate and analyse complex problems to reach substantiated conclusions. This will involve evaluating available data using first principles of mathematics, statistics, natural science and engineering principles, and using engineering judgment to work with information that may be uncertain or incomplete, discussing the techniques employed	Select and apply appropriate computational and analytical techniques to model complex problems, discussing the limitations of the techniques employed	Select and critically evaluate technical literature and other sources of information to solve complex problems	Design solutions for complex problems that evidence some originally and meet a combination of societal, user, business and customer needs as appropriate. This will involve consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental and commercial and terms of practice and industry standards	Apply an integrated or systems approach to the solution of complex problems	Evaluate the environmental and societal impact of solutions to complex problems (to complex problems (to complex problems (to product or process) and minimise adverse impacts	Identify and analyse ethical concerns and make reasoned ethical choices informed by professional codes of conduct	Use a risk management process to identify, evaluate and mitigate risk of uncertainty) associated with a particular project or activity	and proportionate approach to the mitigation of security risks	Adopt an inclusive approach to engineering practice and recognise the responsibilities, benefits and importance of supporting equality, diversity and inclusion	Use practical laboratory and workshop skills to investigate complex problems	Select and apply appropriate materials, equipment, equipment, engineering technologies and processes, recognising their limitations	Discuss the role of quality management systems and continuous improvement in the context of complex problems	Apply knowledge of engineering management principles, commercial context, project and change management, and relevant legal matters including intellectual property rights	Function effectively as an individual, and as a member or leader of a team. Evaluate effectiveness of own and team performance	Communicate effectively on complex engineering matters with technical and non technical audiences, evaluating the effectiveness of the methods used	Plan and record self-learning acidevelopment as the foundation for lifetiong learning/CPD

JBM Appendix C Mapping to AHEP4 Learning Outcomes for

evel	Module	Module title	Core (C) or Optional (O)	it Value	Science and Maths	Engineering Analysis			Design and	d Innovation	The Engineer and Society						Engineering Practice						
ادا	code			Cred	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	
В	_1601a	Engineering Mathematics and Programming I (15 credits)	С	15 E/C	Yes	Yes	Yes														Yes		
В	_1601b	Engineering Mathematics and Programming II (15 credits)	С	15 E/C	Yes	Yes	Yes						Yes								Yes		
В	_1602	Engineering Practice (15 credits)	С	15 E/C	:	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes					Yes	Yes	Yes	Yes	
- B	_1603a	Engineering Systems and Energy I (15 credits)	С	15 E/C	Yes	Yes	Yes				Yes			Yes		Yes					Yes		
B ear	_1603b	Engineering Systems and Energy II (15 credits)	С	15 E/C	Yes	Yes	Yes				Yes			Yes		Yes					Yes		
≻ Β	1604	Engineering Mechanics - Statics (15 credits)	С	15 E/C	Yes	Yes	Yes									Yes	Yes				Yes		
В	1605	Engineering Mechanics and Materials I (15 credits)	С	15 E/C	Yes	Yes	Yes									Yes	Yes				Yes		
С	16XX	Civil Engineering Principles and Practice (15 credits)	С	15 C	Yes				Yes	Yes	Yes	Yes	Yes	Yes			Yes			Yes	Yes	Yes	
С	_21	Civil Engineering Toolbox & Surveying (15 credits)	С	15 C			Yes	Yes	Yes		Yes	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes	Yes	
С	_22	Reinforced Concrete Design (15 credits)	С	15 E/C	:	Yes	Yes		Yes	Yes													
С	_23	Soil Mechanics (15 credits)	С	15 E/C	Yes	Yes	Yes						Yes			Yes	Yes				Yes		
С	_24	Structural Mechanics 1 (15 credits)	С	15 E/C	Yes	Yes	Yes																
2 0	_25	Structural Mechanics 2 (15 credits)	С	15 E/C	Yes	Yes	Yes									Yes							
ag C	_26	Design Project (15 credits)	С	15 C		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes				Yes	Yes	Yes	Yes	
[≻] c	_27	Construction Materials & Sustainability (15 credits)	С	15 E/C	Yes				Yes	Yes	Yes	Yes				Yes	Yes						
С	_28	Fluid Mechanics and Hydraulics (15 credits)	С	15 E/C	Yes	Yes	Yes		Yes							Yes					Yes		
c	2555	Civil Engineering Placement		120 C		Yes	Yes		Yes	Yes			Yes			Yes	Yes			Yes		Yes	
	_31	Final Year Project (30 credits)	-	30 C	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
		Project Planning, Procurement and Risk (15 credits)		15 E/C		Yes	100	100	100	100	Yes	Yes	Yes	Yes	Yes	100	100	Yes	Yes	100	100	100	
-		Integrated design project (15 credits)		15 C		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes		Yes	Yes	Yes	Yes	
-	_	Geotechnical Engineering (15 credits)		15 E/C		Yes	Yes	Yes	Yes	Yes	Yes	.63	Yes	.63	.00	Yes	Yes		.63	.63	Yes	163	
		Environmental Management and Pollution Control (15 credits)		15 E/C		Yes	Yes		Yes	Yes	Yes	Yes	.00			.00	Yes				.00		
< ⊢		Flood modelling and analysis (15)		15 E/C		Yes	Yes	Yes			Yes		Yes	Yes			Yes						
- 1		Flood and coastal infrastructure Design (15)		15 E/C					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes		
Æ																							

MEng Civil	l Engineering	(Flood and	Coastai	Engineering)

CE_51	Year-long Group Project (30 credits)	С	30 C	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CE_54	Civil Engineering with Artificial Intelligence (15 credits)	С	15 E/C	Yes	Yes	Yes	Yes					Yes	Yes						Yes	Yes	
CE_61	Climate Change and the Environment (15 credits)	С	15 E/C	Yes		Yes	Yes	Yes	Yes	Yes		Yes			Yes	Yes	Yes	Yes		Yes	
₹ CE_62	Advanced Flood and coastal engineering Design (15)	С	15 E/C	Yes	Yes		Yes	Yes	Yes	Yes		Yes		Yes		Yes	Yes	Yes	Yes	Yes	
> CE_68	Sustainable infrastructure project (15 credits)	С	15 E/C					Yes	Yes	Yes	Yes		Yes	Yes			Yes	Yes	Yes	Yes	
CE_64	Flood and coastal asset management (15 credits)	С	15 E/C					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes		Yes	
CE_66	Smart and resilient flood and coastal engineering (15)	С	15 E/C	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	
				Apply a	Formulate and	Select and apply	Select and	Design solutions	Apply an	Evaluate the	Identify and	Use a risk	Adopt a holistic	Adopt an inclusive	Use practical	Select and apply	Discuss the role	Apply knowledge	Function	Communicate	Plan and record
				comprehensive	analyse complex	appropriate	critically evaluate	for complex	integrated or	environmental	analyse ethical	management	and proportionate	approach to	laboratory and	appropriate	of quality	of engineering	effectively as an	effectively on	self-learning and
				knowledge of	problems to	computational	technical	problems that	systems	and societal	concerns and	process to	approach to the	engineering	workshop skills to	materials,	management	management	individual, and as	complex	development as
				mathematics,	reach	and analytical	literature and	evidence some	approach to the	impact of	make reasoned	identify, evaluate	mitigation of	practice and	investigate	equipment,	systems and	principles,	a member or	engineering	the foundation for
				statistics, natural	substantiated	techniques to	other sources of	originality and	solution of	solutions to	ethical choices	and mitigate risks	s security risks	recognise the	complex	engineering	continuous	commercial	leader of a team.	matters with	lifelong
				science and	conclusions. This	model complex	information to	meet a	complex	complex	informed by	(the effects of		responsibilities,	problems	technologies and	improvement in	context, project	Evaluate	technical and non-	learning/CPD
				engineering	will involve	problems,	solve complex	combination of	problems	problems (to	professional	uncertainty)		benefits and		processes,	the context of	and change	effectiveness of		
				principles to the	evaluating	discussing the	problems	societal, user,		include the entire	codes of conduct			importance of		recognising their		management,	own and team	audiences,	
				solution of	available data	limitations of the		business and		life-cycle of a		particular project		supporting		limitations	problems	and relevant legal	l performance	evaluating the	
				complex	using first	techniques		customer needs		product or		or activity		equality, diversity			1	matters including	4	effectiveness of	
				problems. Much	principles of	employed		as appropriate.		process) and				and inclusion				intellectual		the methods used	
				of the knowledge	mathematics,			This will involve		minimise adverse								property rights		/	
				will be at the	statistics, natural			consideration of		impacts							1			/	
				forefront of the	science and			applicable health												/	
				particular subject				& safety,												/	
				of study and informed by a	principles, and			diversity, inclusion, cultural									1			/	
				critical	using engineering judgment to work			societal.	,											/	
					with information	1		environmental												/	
				awareness of new	that may be			and commercial									1			/	
				developments	uncertain or			matters, codes of									1			/	
				and the wider	incomplete.																
				context of	discussing the			practice and industry													
				engineering	limitations of the			standards													
				origineering	illilitations of the			otal ludius										4		4	

M7

M8

М9

M10

M11

M12

M13

M14

M15

M16

M17

M18

М5

M6