



PROGRAMME SPECIFICATION

Part 1: Information	
Awarding Institution	UWE Bristol
Teaching Institution	UWE Bristol
Delivery Location	Frenchay Campus, UWE Bristol
Study abroad / Exchange / Credit recognition	None
Faculty responsible for programme	Faculty of Environment and Technology
Department responsible for programme	Department of Geography and Environmental Management
Professional Statutory or Regulatory Body Links	Joint Board of Moderators accreditation being sought
Highest Award Title	MEng Civil and Environmental Engineering
Default Award Title	
Interim Award Titles	BEng(Hons) Civil and Environmental Engineering BEng Civil and Environmental Engineering DipHE Civil and Environmental Engineering CertHE Civil and Environmental Engineering
UWE Progression Route	
Mode of Delivery	FT/PT/SW
ISIS code/s	H29C13 (FT/PT) H29C (SW)
For implementation from	September 2019

Part 2: Description

The award sets out to provide an accredited, intellectually demanding, engaging and outstanding learning experience enabling an outcome of ready and able graduates. The fundamental aims of the programme are to develop students':

1. Knowledge and understanding of engineering science necessary to develop engineering solutions and processes for an effective career in Civil and Environmental Engineering.
2. Knowledge and understanding of the engineering contribution to sustainable development.
3. Creative and innovative ability in the synthesis of solutions to complex problems with a holistic systems approach.
4. Ability to reflect critically upon their learning, as the foundation for continuing professional development and progression to Chartered Engineer.
5. Skills in communicating effectively with other professionals from a variety of disciplines, clients and the public, with understanding and respect for the objectives and values of other stakeholders.

To provide a learning environment based upon:

1. A variety of classroom, laboratory, and online learning experiences and resources, supported by the Faculty's Learning Innovation Unit and Technical Services team,
2. Industry standard laboratory equipment and IT software.
3. A variety of assessment approaches, linked to professional as well as academic standards (where appropriate).
4. A strong environmental thread to include inputs by the Department's Research Centres with expertise in Water, Transport, and Sustainable Materials.

And to provide the opportunity for:

1. Research and consultancy led case study and problem solving learning, led by the Department's Research Centres with expertise in Water, Transport, and Sustainable Materials.
2. Industrial interaction and experiential learning.
3. Hands on industry led case studies and problem based learning in the field and laboratory.
4. Career guidance and PSRB membership to Chartered level.

Programme requirements for the purposes of the Higher Education Achievement Record (HEAR)

This programme of study requires students to develop a sound intellectual knowledge and understanding of civil and environmental engineering science, design and application; enabling creative and innovative synthesis of holistic solutions to complex problems. Alongside these skills students are required to develop effective communication across multiple formats, to both technical and non-technical audiences.

Regulations

A: Approved to [University Regulations and Procedures](#)

Part 3: Learning Outcomes of the Programme

The award route provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas. The learning outcomes are mapped against the learning outcomes of the Engineering Council requirements for Accreditation of Higher Education Programme (AHEP). The AHEP learning outcomes are shown in brackets:

A. Knowledge and Understanding

1. A comprehensive knowledge and understanding of the scientific principles and methodology necessary to underpin their education in their engineering discipline, and an understanding and know-how of the scientific principles of related disciplines, to enable appreciation of the scientific and engineering context, and to support their understanding of relevant historical, current and future developments and technologies. (SM1m)
2. Knowledge and understanding of mathematical and statistical methods necessary to underpin their education in their engineering discipline and to enable them to apply mathematical and statistical methods, tools and notations proficiently in the analysis and solution of engineering problems (SM2m)
3. Ability to apply and integrate knowledge and understanding of other engineering disciplines to support study of their own engineering discipline and the ability to evaluate them critically and to apply them effectively (SM3m)
4. Awareness of developing technologies related to own specialisation (SM4m)
5. A comprehensive knowledge and understanding of mathematical and computational models relevant to the engineering discipline, and an appreciation of their limitations (SM5m)
6. Understanding of concepts from a range of areas, including some outside engineering, and the ability to evaluate them critically and to apply them effectively in engineering projects (SM6m)

B. Intellectual Skills

1. Understanding of engineering principles and the ability to apply them to undertake critical analysis of key engineering processes (EA1m)
2. Ability to identify, classify and describe the performance of systems and components through the use of analytical methods and modelling techniques (EA2)
3. Ability to apply quantitative and computational methods, using alternative approaches and understanding their limitations, in order to solve engineering problems and implement appropriate action (EA3m)
4. Understanding of, and the ability to apply, an integrated or systems approach to solving engineering problems (EA4)
5. Ability to use fundamental knowledge to investigate new and emerging technologies (EA5m)
6. Ability to extract and evaluate pertinent data and to apply engineering analysis techniques in the solution of unfamiliar problems (EA6m)
7. Understand and evaluate business, customer and user needs, including considerations such as the wider engineering context, public perception and aesthetics (D1)
8. Investigate and define the problem, identifying any constraints including environmental and sustainability limitations; ethical, health, safety, security and risk issues; intellectual property; codes of practice and standards (D2)
9. Work with information that may be incomplete or uncertain, quantify the effect of this on the design and, where appropriate, use theory or experimental research to mitigate deficiencies (D3m)

10. Apply advanced problem-solving skills, technical knowledge and understanding, to establish rigorous and creative solutions that are fit for purpose for all aspects of the problem including production, operation, maintenance and disposal (D4)
11. Demonstrate the ability to generate an innovative design for products, systems, components or processes to fulfil new needs (D8m)

C. Subject/Professional/Practical Skills

1. Plan and manage the design process, including cost drivers, and evaluate outcomes (D5)
2. Communicate their work to technical and non-technical audiences (D6)
3. Demonstrate wide knowledge and comprehensive understanding of design processes and methodologies and the ability to apply and adapt them in unfamiliar situations (D7m)
4. Understanding of the need for a high level of professional and ethical conduct in engineering, a knowledge of professional codes of conduct and how ethical dilemmas can arise (EL1m)
5. Knowledge and understanding of the commercial, economic and social context of engineering processes (EL2)
6. Knowledge and understanding of management techniques, including project and change management, that may be used to achieve engineering objectives, their limitations, and how they may be applied appropriately (EL3m)
7. Understanding of the requirement for engineering activities to promote sustainable development and ability to apply quantitative techniques where appropriate (EL4)
8. Awareness of relevant legal requirements governing engineering activities, including personnel, health & safety, contracts, intellectual property rights, product safety and liability issues, and an awareness that these may differ internationally (EL5m)
9. Knowledge and understanding of risk issues, including health and safety, environmental and commercial risk, risk assessment and risk management techniques and an ability to evaluate commercial risk (EL6m)
10. Understanding of the key drivers for business success, including innovation, calculated commercial risks and customer satisfaction (EL7m)
11. Understanding of contexts in which engineering knowledge can be applied (for example operations and management, application and development of technology, etc.) (P1)
12. Knowledge of characteristics of particular equipment, processes or products, with extensive knowledge and understanding of a wide range of engineering materials and components (P2)
13. Ability to apply relevant practical and laboratory skills (P3)
14. Understanding of the use of technical literature and other information sources (P4)
15. Knowledge of relevant legal and contractual issues (P5)
16. Understanding of appropriate codes of practice and industry standards (P6)
17. Awareness of quality issues and their application to continuous improvement (P7)
18. Ability to work with technical uncertainty (P8)
19. A thorough understanding of current practice and its limitations, and some appreciation of likely new developments (P9m)
20. Ability to apply engineering techniques taking account of a range of commercial and industrial constraints (P10m)
21. Understanding of different roles within an engineering team and the ability to exercise initiative and personal responsibility, which may be as a team member or leader (P11m)

D. Transferable Skills and other attributes

1. Apply their skills in problem solving, communication, information retrieval, working with others and the effective use of general IT facilities (G1)
2. Plan self-learning and improve performance, as the foundation for lifelong learning/CPD (G2)
3. Monitor and adjust a personal programme of work on an ongoing basis (G3m)
4. Exercise initiative and personal responsibility, which may be as a team member or leader (G4)

Learning outcome	UBGMXQ-30-1	UBGMYD-15-1	UFMFF7-15-2	UBGMV9-15-2	UBGMVQ-15-2	UBGMUJ-15-2	UBGMU9-15-2	UBGMNU-30-2	UBGLX8-15-2	UBGMTQ-15-2	UBGMLU-15-2	UBGMWQ-15-3	UBGLY9-15-3	UBGMQP-30-3	UBGMW9-15-3	UBGMM3-15-3	UBGLXP-15-3	UBGMX9-15-3	UBGMPP-15-3	UBGLVX-15-3	UBGMGR-15-3	UBGMTA-15-M	UBGMUA-15-M	UBGMSR-15-M	UBLM7A-15-M	UBGMVA-	UBLMGW-15-M	UBGMFX-15-M	UBGMUR-15-M	UBGMTR-15-M	
A1	X			X	X		X				X		X		X						X	X	X								
A2	X		X	X	X	X		X	X	X	X	X		X	X	X						X	X	X					X	X	X
A3		X			X		X						X	X	X					X	X				X	X	X				
A4									X	X	X			X			X	X	X							X	X	X	X	X	X
A5	X		X	X	X	X			X	X		X			X	X	X	X				X	X						X	X	X
A6	X	X		X	X	X	X	X	X	X	X	X		X		X	X	X	X			X	X	X		X	X	X	X	X	X
B1	X		X	X	X	X		X	X	X	X	X		X	X	X	X	X				X	X	X					X	X	X
B2	X		X	X	X	X		X	X	X		X			X	X	X	X				X	X	X					X	X	
B3	X		X	X	X	X		X	X	X	X	X		X	X	X	X	X				X	X	X					X	X	X
B4													X	X							X	X				X	X				
B5														X								X				X					
B6					X							X	X			X										X			X	X	X
B7							X						X								X	X			X	X					
B8					X		X	X	X	X		X	X	X			X	X			X	X			X	X	X				
B9					X							X	X	X						X							X				
B10		X			X		X	X				X	X	X						X						X					
C1							X						X	X												X					
C2		X					X		X	X			X	X			X	X		X					X	X		X	X	X	X
C3									X	X							X	X								X		X	X	X	X
B11																										X		X	X	X	X
C4							X													X	X				X						

STUDENT AND ACADEMIC SERVICES

2017-18

C5						X											X	X				X						
C6						X						X						X	X				X	X				
C7		X																	X	X				X				
C8						X						X											X	X				
C9						X																	X					
C10						X																	X	X				
C11						X						X	X						X					X				
C12					X	X					X	X								X	X	X						
C13	X					X		X															X					
C14		X				X	X	X		X	X						X							X		X	X	X
C15						X													X				X					
C16					X		X	X		X	X				X	X	X								X			
C17						X																	X					
C18					X						X		X											X				
C19					X						X	X	X											X				
C20					X			X	X	X		X	X			X	X						X		X	X	X	
C21		X										X												X				
D1		X				X						X	X											X				
D2													X					X	X					X				
D3													X											X				
D4		X				X													X					X				

Part 4: Programme Structure

This structure diagram demonstrates the student journey from Entry through to Graduation for a typical **full time undergraduate student** including:

- level and credit requirements
- interim award requirements
- module diet, including compulsory and optional modules.

The programme is available to full-time students and to part-time students on a day release basis. The programme is designed as a MEng degree allowing students to progress to study at Masters level and hence complete the Educational requirements for Chartered Engineer status.

ENTRY		Compulsory Modules	Optional Modules	Interim Awards
	Level 1	UFMFYG-15-1 Mathematics for Civil and Environmental Engineering UBGMXQ-30-1 Engineering Principles for Civil Engineering UBGMT9-15-1 Surveying UBGMYD-15-1 Environmental Engineering Field Study UBGMY9-15-1 Construction and Environmental Materials UBGMKD-15-1 Civil Engineering Technology and Design UBGMSSQ-15-1 Engineering Communication	None	CertHE Civil and Environmental Engineering (120 credits with at least 100 credits at level 1 or above)

	Compulsory Modules	Optional Modules	Interim Awards
Level 2	UBGMV9-15-2 Structural Analysis UBGMVQ-15-2 Design of structural elements UBGMUQ-15-2 Soil Mechanics UBGMNU-30-2 Hydraulics and Engineering Applications UBGMU9-15-2 Project and Risk Management UFMFF7-15-2 Application of Mathematics for Civil and Environmental Engineering	UBGMLU-15-2 Engineering Geology Design Project <u>OR</u> UBGLX8-15-2 Transport Engineering Design <u>OR</u> UBGMTQ-15-2 Hydrology and Flood Risk Estimation	DipHE Civil and Environmental Engineering 240 credits with at least 100 at level 2 and a further 120 at level 1 or above
<p>Year Out: Students undertaking the Sandwich degree with a placement year take: UBGLVX-15-3 Placement</p> <p>Students who select to study through a placement are not required to study the module UBGMGR-15-3 Strategic Issues in Engineering in their final year of attendance.</p>			

	Compulsory Modules	Optional Modules	Interim Awards
	UBGMQP-30-3 Individual Civil Engineering Project UBGLY9-15-3 Design and Implementation Project UBGMM3-15-3 Advanced Structural Analysis UBGMW9-15-3 Computational Civil Engineering UBGMWQ-15-3 Geotechnics	15 credits to be selected from Pool A and 15 credits from Pool B. <u>POOL A:</u> UBGLXP-15-3 Traffic Management and Safety <u>OR</u> UBGMX9-15-3 Hydraulic Modelling for Flood Risk Management <u>OR</u> UBGMPD-15-3 Environmental Assessment <u>POOL B:</u> UBGLVX-15-3 Placement <u>OR</u> UBGMGR-15-3 Strategic Issues in Engineering	BEng Civil and Environmental Engineering 300 credits of which at least 60 must be level 3 or above, a further 100 credits at level 2 or above and further 140 at level 1 or above. BEng(Hons) Civil and Environmental Engineering 360 credits of which at least 100 must be level 3 or above, a further 100 credits at level 2 or above and further 140 at level 1 or above.
	Compulsory Modules	Optional Modules	Interim Awards
	UBGMVA-30-M Group Civil and Environmental Engineering Project UBGMTA-15-M Advanced soil mechanics UBGMUA-15-M Non-linear structural analysis UBGMSR-15-M Advanced construction materials and technology UBLM7A-15-M Project Management Principles UBLMGW-15-M BIM in Design Coordination	UBGFMFX-15-M Transport infrastructure engineering <u>OR</u> UBGMUR-15-M Advanced water and wastewater engineering design <u>OR</u> UBGMTR-15-M Bridge engineering	Highest award MEng Civil and Environmental Engineering 480 credits of which at least: 120 must be level M, 100 credits at level 3 or above, 100 at level 2 or above and a further 140 credits at level 1.

Part time:

The following structure diagram demonstrates the student journey from Entry through to Graduation for a typical **part time student**. **The programme is available to part-time students on a day release basis and block release basis.**

The programme is designed as a BEng Honours degree allowing students to progress to study at Masters level and hence complete the Educational requirements for Chartered Engineer status.

ENTRY		Compulsory Modules	Optional Modules	Interim Awards
	Level 1 (Part Time 1.1)	UBGMT9-15-1 Surveying UBGMY9-15-1 Construction and Environmental Materials UBGMKD-15-1 Civil Engineering Technology and Design UBGMSQ-15-1 Engineering Communication	None	CertHE Civil and Environmental Engineering <i>(120 credits with at least 100 credits at level 1 or above)</i>
	Year 2 (Part Time 1.2)	Compulsory Modules UFMFYG-15-1 Mathematics for Civil and Environmental Engineering UBGMXQ-30-1 Engineering Principles for Civil Engineering UBGMYD-15-1 Environmental Engineering Field Study	Optional Modules	Interim Awards
	Year 3 (Part Time 2.1)	Compulsory Modules UFMFF7-15-2 Application of Mathematics for Civil and Environmental UBGMV9-15-2 Structural Analysis UBGMVQ-15-2 Design of Structural Elements UBGMUQ-15-2 Soil Mechanics UBGMU9-15-2 Project and Risk Management	Optional Modules	Interim Awards

		Compulsory Modules	Optional Modules	Interim Awards
	Year 4 (Part Time 2.2)	UBGMNU-30-2 Hydraulics and Engineering Applications Engineering UBGMGR-15-3 Strategic Issues in Engineering UBGMWQ-15-3 Geotechnics UBGLY9-15-3 Design and Implementation Project	UBGMLU-15-2 Engineering Geology Design Project <u>OR</u> UBGMTQ-15-2 Hydrology and Flood Risk Estimation <u>OR</u> UBGLX8-15-2 Transport Engineering Design	DipHE Civil and Environmental Engineering 240 credits with at least 100 at level 2 and a further 120 at level 1 or above
	Year 5 (Part Time 3.1)	UBGMQP-30-3 Individual Civil Engineering Project UBGMW9-15-3 Computational Civil Engineering UBGMM3-15-3 Advanced Structural Analysis	UBGMPD-15-3 Environmental Assessment <u>OR</u> UBGMX9-15-3 Hydraulic modelling for Flood Risk Management <u>OR</u> UBGLXP-15-3 Traffic Management and Safety	BEng Civil and Environmental Engineering 300 credits of which at least 60 must be level 3 or above, a further 100 credits at level 2 or above and further 140 at level 1 or above. BEng(Hons) Civil and Environmental Engineering 360 credits of which at least 100 must be level 3 or above, a further 100 credits at level 2 or above and further 140 at level 1 or above

	Year 6 (Part Time 4.1)	Compulsory Modules	Optional Modules	Interim awards
		UBGMTA-15-M Advanced Soil Mechanics UBGMSR-15-M Advanced Construction Materials and Technology UBGMUA-15-M Non-linear Structural Analysis	UBGMTR-15-M Bridge Engineering <u>OR</u> <i>One of the two options in Part time 4.2</i>	
	Year 7 (Part Time 4.2)	Compulsory Modules	Optional Modules	Awards
		UBGMVA-30-M Group Civil and Environmental Engineering Project UBLMGW-15-M BIM in Design Coordination UBLM7A-15-M Project Management Principles	Advanced Water and Wastewater Engineering Design <u>OR</u> UBGMTX-15-M Transport Infrastructure Engineering	Highest award MEng Civil and Environmental Engineering 480 credits of which at least: 120 must be level M, 100 credits at level 3 or above, 100 at level 2 or above and a further 140 credits at level 1.

Part 5: Entry Requirements

The University's Standard Entry Requirements apply with the following additions/exceptions*:

All applicants for entry to the first year of the full time programme must have A-level in Mathematics or equivalent. Additionally they must meet the 'UK-SPEC' requirements for CEng accredited programmes. Candidates from Foundation Programmes within the Faculty will be accepted provided they meet the Mathematics requirement and achieve an overall grade of at least 50%.

Candidates may be admitted to Level 2, subjected to module mapping, with:

- Higher National Diploma (HND) in Civil Engineering (or equivalent) with at least 4 merits
- Foundation Degree in Civil Engineering (or equivalent) with a grade of at least 50%.

Tariff points as appropriate for the year of entry - up to date requirements are available through the [courses database](#).

Part 6: Reference Points and Benchmarks

Set out which reference points and benchmarks have been used in the design of the programme:

[QAA UK Quality Code for HE](#)

- Framework for higher education qualifications (FHEQ)
- Subject benchmark statements
- Qualification characteristics for [Foundation degrees](#) and [Master's degrees](#)

[Strategy 2020](#)

[University policies](#)

Staff research projects

1. The programme draws on the benchmark statements in Engineering as shown in the Learning Outcomes above.
2. Faculty and University policies on teaching, learning and assessment including a strong emphasis on formative work, skills development and innovative approaches to teaching and learning.
3. The programme is underpinned by staff consultancy, professional practice and research.
4. The course team have excellent links with local employers who advise the course team on the content and structure of the programme through an Industrial Advisory Board that meets three times a year.
5. Professional body requirements: The programme (all modes of study) is to be assessed for accreditation by the Joint Board of Moderators.

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First Approval Date			
Revision Approval Date <i>Update this row each time a change goes to CAP</i>		Version	Link to PAMI & Business Case (ID 4684)
Next Periodic Curriculum Review due date			
Date of last Periodic Curriculum Review			