Programme Specification

Civil Engineering {Foundation} [Frenchay]

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Section 1: Key Programme Details

Part A: Programme Information

Programme title: Civil Engineering {Foundation} [Frenchay]

Highest award: MEng Civil Engineering

Interim award: BEng Civil Engineering

Interim award: DipHE Civil Engineering

Interim award: CertHE Civil Engineering

Awarding institution: UWE Bristol

Teaching institutions: UWE Bristol

Study abroad: No

Year abroad: No

Sandwich year: Yes

Credit recognition: No

School responsible for the programme: CATE School of Engineering, College of Arts, Technology and Environment

Professional, statutory or regulatory bodies:

Joint Board of Moderators

Modes of delivery: Full-time, Sandwich

Entry requirements: For the current entry requirements see the UWE public website.

For implementation from: 01 September 2021

Programme code: H29Q13

Section 2: Programme Overview, Aims and Learning Outcomes

Part A: Programme Overview, Aims and Learning Outcomes

Overview: The award sets out to provide an accredited, intellectually demanding, engaging and outstanding learning experience enabling an outcome of ready and able graduates.

Features of the programme:

Educational Aims: The fundamental aims of the programme are to develop students:

Knowledge and understanding of engineering science necessary to develop engineering solutions and processes for an effective career in Civil and Environmental Engineering.

Knowledge and understanding of the engineering contribution to sustainable development.

Creative and innovative ability in the synthesis of solutions to complex problems with a holistic systems approach.

Ability to reflect critically upon their learning, as the foundation for continuing professional development and progression to Chartered Engineer.

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:

A variety of classroom, laboratory, and online learning experiences and resources, supported by the Faculty's Learning Innovation Unit and Technical Services team

Industry standard laboratory equipment and IT software.

A variety of assessment approaches, linked to professional as well as academic standards (where appropriate).

A strong environmental thread to include inputs by the Departments' Research Centres with expertise in Water, Transport, and Sustainable Materials.

And to provide the opportunity for:

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.

Industrial interaction and experiential learning.

Hands on industry led case studies and problem based learning in the field and laboratory.

Career guidance and PSRB membership to Chartered level.

Programme Learning Outcomes:

On successful completion of this programme graduates will achieve the following learning outcomes.

Knowledge and Understanding

A1. 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)

A2. 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)

A3. 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)

A4. Awareness of developing technologies related to own specialisation (SM4m)

A5. A comprehensive knowledge and understanding of mathematical and computational models relevant to the engineering discipline, and an appreciation of their limitations (SM5m)

A6. 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)

Intellectual Skills

B1. Understanding of engineering principles and the ability to apply them to undertake critical analysis of key engineering processes (EA1m)

B2. Ability to identify, classify and describe the performance of systems and components through the use of analytical methods and modelling techniques (EA2)

B3. 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)

B4. Understanding of, and the ability to apply, an integrated or systems approach to solving engineering problems (EA4)

B5. Ability to use fundamental knowledge to investigate new and emerging technologies (EA5m)

B6. Ability to extract and evaluate pertinent data and to apply engineering analysis techniques in the solution of unfamiliar problems (EA6m)

B7. Understand and evaluate business, customer and user needs, including considerations such as the wider engineering context, public perception and aesthetics (D1)

B8. 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)

B9. 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)

B10. 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)

B11. Demonstrate the ability to generate an innovative design for products, systems, components or processes to fulfil new needs (D8m)

Subject/Professional Practice Skills

C1. Plan and manage the design process, including cost drivers, and evaluate outcomes (D5)

C2. Communicate their work to technical and non-technical audiences (D6)

C3. Demonstrate wide knowledge and comprehensive understanding of design processes and methodologies and the ability to apply and adapt them in unfamiliar situations (D7m)

C4. 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)

C5. Knowledge and understanding of the commercial, economic and social context of engineering processes (EL2)

C6. 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)

C7. Understanding of the requirement for engineering activities to promote sustainable development and ability to apply quantitative techniques where appropriate (EL4)

C8. 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)

C9. 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)

C10. Understanding of the key drivers for business success, including innovation, calculated commercial risks and customer satisfaction (EL7m)

C11. Understanding of contexts in which engineering knowledge can be applied (for example operations and management, application and development of technology, etc.) (P1)

C12. Knowledge of characteristics of particular equipment, processes or products, with extensive knowledge and understanding of a wide range of engineering materials and components (P2)

C13. Ability to apply relevant practical and laboratory skills (P3)

C14. Understanding of the use of technical literature and other information sources (P4)

C15. Knowledge of relevant legal and contractual issues (P5)

C16. Understanding of appropriate codes of practice and industry standards (P6)

C17. Awareness of quality issues and their application to continuous improvement (P7)

C18. Ability to work with technical uncertainty (P8)

C19. A thorough understanding of current practice and its limitations, and some appreciation of likely new developments (P9m)

C20. Ability to apply engineering techniques taking account of a range of commercial and industrial constraints (P10m)

C21. 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)

Transferable Skills and other attributes

D1. Apply their skills in problem solving, communication, information retrieval, working with others and the effective use of general IT facilities (G1)

D2. Plan self-learning and improve performance, as the foundation for lifelong learning/CPD (G2)

D3. Monitor and adjust a personal programme of work on an ongoing basis (G3m)

D4. Exercise initiative and personal responsibility, which may be as a team member or leader (G4)

Assessment strategy: The assessment strategy has been designed to test the programme learning outcomes.

Student support: Student support includes:

The info point services: This comprehensive student support service includes : Advice on Academic regulations and procedures, Extenuating circumstances, Module choices, student records including enrolment, and accessing student's records and what to do if unforeseen circumstances affect their studies..

Induction: All students will be introduced to the faculty and its resource centres via a series of Health and Safety and introductory sessions. All teaching is sequential and students will be fully supported in acquiring and applying the necessary learning skills.

The Library: The library offers information skills workshops to students. There are opportunities in the curriculum that enable students to develop information retrieval and evaluation skills in order to identify appropriate resources effectively. Such support is available through the Library Services web pages, including interactive tutorials on finding books and journals, evaluating information and referencing. Students will also be introduced to and encouraged to use online databases such as WGSN, Style Sight and Women's wear daily.

UWE careers offer a wide range of accessible resources and services including one-one coaching, vacancy advertising, workshops and extensive website and recruiter events including fairs and work experience programmes. The Department of Art and Design also hosts a 'Professional Practice week', a symposium type event open to all students with a diverse Programme of speakers and advice sessions from experts

in the creative industries.

Support for students with additional needs: Consideration will be given to ensure and enable students with additional needs are able to participate in all aspects of the academic and social life of the institution. The Programme team will monitor the effectiveness of provision for students with additional needs and identify opportunities for enhancement. There is a comprehensive and robust student support structure throughout the University that the students can access at any time.

Part B: Programme Structure

Year 1
The Student must take 120 credits from the modules in Year 1

Year 1 Compulsory Modules (Full Time and Sandwich)
Students must take 120 credits from the modules in year 1

Module Code	Module Title	Credit
UFMFHG-15-0	Foundation Group Project 2021-22	15
UFMFBG-30-0	Foundation Mathematics: Algebra and Calculus 2021-22	30
UFMFAG-30-0	Foundation Mechanics 2021-22	30
UFMFCG-15-0	Introduction to Mechatronics 2021-22	15
UFMFEG-30-0	Engineering Experimentation 2021-22	30

Year 2
Full-time and Sandwich students must take 120 credits from the modules in Year 1.

Year 2 Compulsory Modules (Full-time and Sandwich)
Full-time and Sandwich students must take 120 credits from the modules in Compulsory Modules (Full-time and Sandwich).

Module Code	Module Title	Credit

UBGMYD-15-1	Civil and Environmental Engineering Field Study 2022-23	15
UBGMKD-15-1	Civil Engineering Technology and Design 2022-23	15
UBGMY9-15-1	Construction and Environmental Materials 2022-23	15
UBGMSQ-15-1	Engineering Graphics and Communication 2022-23	15
UBGMXQ-30-1	Engineering Principles for Civil Engineering 2022-23	30
UFMFYG-15-1	Mathematics for Civil and Environmental Engineering 2022-23	15
UBGMT9-15-1	Surveying 2022-23	15

Year 3
Full-time and Sandwich students must take 120 credits from the modules in Year 2.

Year 3 Compulsory Modules (Full-time and Sandwich)
Full-time and Sandwich students must take 105 credits from the modules in Compulsory Modules (Full-time and Sandwich).

The UWEBIC cohort in Year 2 in 2021/22 who could not complete the level 1 UBGMT9-15-1 Surveying module or equivalent on the UWEBIC programme due to Covid-19 will take UBGM71-15-1 Surveying Practice. This will be an additional 15 credits on their programme.

Students who completed the level 1 UBGMT9-15-1 Surveying module or equivalent on the UWEBIC programme are not required to take UBGM71-15-1 Surveying Practice.

Module Code	Module Title	Credit
UFMFF7-15-2	Applications of Mathematics in Civil and Environmental Engineering 2023-24	15
UBGMVQ-15-2	Design of Structural Elements 2023-24	15

UBGMNU-30-2	Hydraulics and Engineering Applications 2023-24	30
UBGMU9-15-2	Project and Risk Management 2023-24	15
UBGMUQ-15-2	Soil Mechanics 2023-24	15
UBGMV9-15-2	Structural Analysis 2023-24	15

Year 3 Compulsory Modules Group 2 (Full-time and Sandwich)
The UWEBIC cohort in Year 2 in 2021/22 who could not complete the level 1 UBGMT9-15-1 Surveying module or equivalent on the UWEBIC programme due to Covid-19 will take UBGM71-15-1 Surveying Practice. This will be an additional 15 credits on their programme.

Students who completed the level 1 UBGMT9-15-1 Surveying module or equivalent on the UWEBIC programme are not required to take UBGM71-15-1 Surveying Practice.

Module Code	Module Title	Credit
UBGM71-15-1	Surveying Practice 2023-24	15

Year 3 Optional Modules (Full-time and Sandwich)
Full-time and Sandwich students must take 15 credits from the modules in Optional Modules (Full-time and Sandwich).

Module Code	Module Title	Credit
UBGMLU-15-2	Engineering Geology Design Project 2023-24	15
UBGMTQ-15-2	Hydrology and Flood Risk Estimation 2023-24	15
UBGLX8-15-2	Transport Engineering Design 2023-24	15

Year 4
Full-time students must take 120 credits from the modules in Year 3.

Sandwich students must take 15 credits from the modules in Year 3.

Year 4 Compulsory Modules (Full-time)
Full-time students must take 105 credits from the modules in Compulsory Modules (Full-time).

Module Code	Module Title	Credit
UBGMM3-15-3	Advanced Structural Analysis 2024-25	15
UBGMW9-15-3	Computational Civil Engineering 2024-25	15
UBGMWQ-15-3	Geotechnics 2024-25	15
UBGMQP-30-3	Individual Civil Engineering Project 2024-25	30
UBGLY9-15-3	Infrastructure Design and Implementation Project 2024-25	15
UBGMGR-15-3	Strategic Issues in Engineering 2024-25	15

Year 4 Compulsory Modules (Sandwich)
Sandwich students must take 15 credits from the modules in Compulsory Modules (Sandwich).

Module Code	Module Title	Credit
UBGLVX-15-3	Placement 2024-25	15

Year 4 Optional Modules (Full-time)
Full-time students must take 15 credits from the modules in Optional Modules (Full-time).

Module Code	Module Title	Credit
UBGMPD-15-3	Environmental Assessment 2024-25	15
UBGMX9-15-3	Hydraulic Modelling for Flood Risk Management - WITHDRAWN 2024-25	15
UBGLXP-15-3	Traffic Management and Safety 2024-25	15

Year 5
Full-time students must take 120 credits from the modules in Year 4.

Sandwich students must take 105 credits from the modules in Year 4.

Year 5 Compulsory Modules (Full-time)
Full-time students must take 105 credits from the modules in Compulsory Modules (Full-time).

Module Code	Module Title	Credit
UBGMSR-15-M	Advanced Construction Materials and Technology 2025-26	15
UBGMTA-15-M	Advanced Soil Mechanics and Foundation Design 2025-26	15
UBLMGW-15-M	BIM in Design Coordination 2025-26	15
UBGMVA-30-M	Group Civil and Environmental Engineering Project 2025-26	30
UBGMUA-15-M	Non Linear Structural Analysis 2025-26	15
UBLM7A-15-M	Project Management Principles 2025-26	15

Year 5 Compulsory Modules (Sandwich)
Sandwich students must take 90 credits from the modules in Compulsory Modules (Sandwich).

Module Code	Module Title	Credit
UBGMM3-15-3	Advanced Structural Analysis 2025-26	15
UBGMW9-15-3	Computational Civil Engineering 2025-26	15
UBGMWQ-15-3	Geotechnics 2025-26	15
UBGMQP-30-3	Individual Civil Engineering Project 2025-26	30
UBGLY9-15-3	Infrastructure Design and Implementation Project 2025-26	15

Year 5 Optional Modules (Full-time)
Full-time students must take 15 credits from the modules in Optional Modules (Full-time).

Module Code	Module Title	Credit
UBGMUR-15-M	Advanced Water and Wastewater Engineering Design 2025-26	15
UBGMTR-15-M	Bridge Engineering 2025-26	15
UBGMFX-15-M	Transport Infrastructure Design 2025-26	15

Year 5 Optional Modules (Sandwich)
Sandwich students must take 15 credits from the modules in Optional Modules (Sandwich).

Module Code	Module Title	Credit
UBGMPD-15-3	Environmental Assessment 2025-26	15
UBGMX9-15-3	Hydraulic Modelling for Flood Risk Management 2025-26	15
UBGLXP-15-3	Traffic Management and Safety 2025-26	15

Year 6
Sandwich students must take 120 credits from the modules in Year 5.

Year 6 Compulsory Modules (Sandwich)
Sandwich students must take 105 credits from the modules in Compulsory Modules (Sandwich).

Module Code	Module Title	Credit
UBGMSR-15-M	Advanced Construction Materials and Technology 2026-27	15
UBGMTA-15-M	Advanced Soil Mechanics and Foundation Design 2026-27	15
UBLMGW-15-M	BIM in Design Coordination 2026-27	15

UBGMVA-30-M	Group Civil and Environmental Engineering Project 2026-27	30
UBGMUA-15-M	Non Linear Structural Analysis 2026-27	15
UBLM7A-15-M	Project Management Principles 2026-27	15

Year 6 Optional Modules (Sandwich)
Sandwich students must take 15 credits from the modules in Optional Modules (Sandwich).

Module Code	Module Title	Credit
UBGMUR-15-M	Advanced Water and Wastewater Engineering Design 2026-27	15
UBGMTR-15-M	Bridge Engineering 2026-27	15
UBGMFX-15-M	Transport Infrastructure Design 2026-27	15

Part C: Higher Education Achievement Record (HEAR) Synopsis

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.

Part D: External Reference Points and Benchmarks

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

The programme draws on the benchmark statements in Engineering as shown in the Learning Outcomes.

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.

The programme is underpinned by staff consultancy, professional practice and research.

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.

Professional body requirements: The programme (all modes of study) is to be assessed for accreditation by the Joint Board of Moderators.

Part E: Regulations

Approved to variant University Academic Regulations and Procedures.

The following variant regulation for condoned credit (E4) applies to students on this award which has been accredited by a PSRB that comes under the auspices of Engineering Council UK.

The variant applied to Level 4 September 2020 intake onwards.

- The permitted maximum condoned credit is 30 credits for a Bachelors or Integrated Masters degree and a maximum of 20 credits in a Masters degree.

- The awarding of condoned credit may be considered for an overall module mark in

the range 30% to 39%.

As a consequence Engineering Council UK regulations about the offer of excused credit for modules critical to the awarding of accreditation, excused credit will not be available on this award.