



Programme Specification

Building Services Engineering {Foundation} [GCET]

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Section 1: Key Programme Details

Part A: Programme Information

Programme title: Building Services Engineering {Foundation} [GCET]

Highest award: DipHE Building Services Engineering

Interim award: CertHE Building Services Engineering

Awarding institution: UWE Bristol

Affiliated institutions: Global College of Engineering and Technology (GCET)

Teaching institutions: Global College of Engineering and Technology (GCET)

Study abroad: No

Year abroad: No

Sandwich year: No

Credit recognition: No

Department responsible for the programme: FET Dept of Architecture & Built Environ, Faculty of Environment & Technology

Contributing departments: Not applicable

Professional, statutory or regulatory bodies: Not applicable

Apprenticeship: Not applicable

Mode of delivery: Full-time

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

For implementation from: 01 October 2023

Programme code: K29J00

Section 2: Programme Overview, Aims and Learning Outcomes

Part A: Programme Overview, Aims and Learning Outcomes

Overview: Students can expect to have a choice of established career alternatives (mechanical building services engineer, electrical building services engineer, construction manager, facility manager), as well as a range of emerging and specialist career opportunities. (sustainability engineer, renewable energy design consultant, engineer specialising in lighting, acoustics, fire, security or public health.) This programme has been devised to incorporate elements from across the field, providing students with an excellent foundation on which to found continuing professional development (CPD) and career progression within an employment market that values multi-skilled personnel capable of working in, and managing, diverse engineering environments.

Engineers who pursue a technician level career in building services can expect to become involved in a broad range of activities demanding not only a progressive approach to technical innovation, but also a clear understanding of the operational and commercial aspects of the construction industry.

Educational Aims: The aim of the programme is to provide an outstanding educational experience that will prepare students for related careers in the field of building services engineering, giving them the requisite knowledge, skills, creativity and enthusiasm to make a meaningful contribution to their discipline.

The educational aims of the programme are as follows:

Develop the requisite science based knowledge and analytical skills for the formulation of appropriate, effective and sustainable solutions to engineering problems.

Equip students engineers with the management skills and personal attributes needed to provide leadership in the work environment, to meet the challenges, and recognise opportunities presented in a Building Information Modelling context.

Provide opportunities to enable engineering students to advance their creative instinct, and apply multi-dimensional thinking in design and problem solving.

Engender in students a sense of enquiry in all aspects of the subject, and provide tools to enable personal research to be undertaken in pursuit of answers to

questions, and as a foundation to life-long learning.

Develop such practical competences as are necessary to participate in activity undertaken in the laboratory, the engineering workshop, and the workplace generally.

Enable students to demonstrate competent application of computer based skills, such as engineering simulations and encourage multi-perspective exploration and experimentation with related new technologies.

Programme Learning Outcomes:

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

Programme Learning Outcomes

- PO1. Professional Practice: Demonstrate the knowledge, skills and behaviours associated with the latest in professional practice in the field of building services engineering as defined by recognised industry bodies; and demonstrate an ability to work independently as problem solvers in both a professional context.
- PO2. Collaborative Practice: Discuss the alternative points of view that the typical stakeholders may have in the process of developing buildings; and conduct a simulated group-work exercise focusing on the communication skills required to develop a collaborative project.
- PO3. Ethics: Identify and describe examples of unethical behaviours in the process of building engineering; and demonstrate an ability to complete an engineering design project within a policy framework defined by the latest code of ethics considerations for equality, diversity, and inclusion.
- PO4. Economic: Demonstrate a knowledge of management and procurement aspects of building development; and put into practice economic skills associated with tendering and administering construction contracts.
- PO5. Technical: Demonstrate a robust knowledge of the mathematical, scientific and engineering principles, methods and modelling that underpin the design of complex building services systems; and put into practice technical design skills relating to mechanical, electrical or public health engineering services for case study sites.
- PO0 6. Legal: Demonstrate a robust knowledge of how government health and safety regulations impact the process of building design; and put into practice design techniques associated with fire and life safety considerations in buildings.

- PO7. Sustainability: Demonstrate an awareness of the environmental context of building services engineering and how it is influenced by the political, economic, social and technological aspects as part of the wider sustainability agenda; and compare and contrast different services strategies for a given client's brief in terms of sustainable performance indicators.
- PO8. Digital: Demonstrate an ability to work with numeric analytical techniques required to design/engineer buildings in a digital environment; and put in practice the digital skills required to undertake a wide range of computer aided engineering tasks using industry standard software.

Part B: Programme Structure

Year 1

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

Year 1 Compulsory Modules

Full-time students must take 120 credits from the modules in Compulsory Modules.

Module Code	Module Title	Credit
UFMFEG-30-0	Engineering Experimentation 2023-24	30
UFMFBG-30-0	Foundation Mathematics: Algebra and Calculus 2023-24	30
UFMFAG-30-0	Foundation Mechanics 2023-24	30
UBLMPA-30-0	Foundation Year Project 2023-24	30

Year 2

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

Year 2 Compulsory Modules

The student must take 120 credits from the modules in Compulsory Modules.

Module Code	Module Title	Credit
UBLMYS-30-1	Construction Technology and Services 2024-25	30

UBLLWQ-15-1	Engineering Principles (Building Engineering) 2024-25	15
UBLMSS-30-1	Environmental Physics and Materials 2024-25	30
UBLMPC-30-1	Law, Economics and Management 2024-25	30
UFMFYG-15-1	Mathematics for Civil and Environmental Engineering 2024-25	15

Year 3

Year 3 Compulsory Modules

Full-time students must take 120 credits from the modules in Compulsory Modules.

Module Code	Module Title	Credit
UFMFF7-15-2	Applications of Mathematics in Civil and Environmental Engineering 2025-26	15
UBLMTB-30-2	Building Services Applications 2025-26	30
UBLMH8-15-2	Energy Transformations 2025-26	15
UFMCF95-15-3	Entrepreneurial Skills 2025-26	15
UBLMRT-30-2	Procurement and Contract Practice 2025-26	30
UBLLYF-15-2	Sustainability and Energy Simulations 2025-26	15

Part C: Higher Education Achievement Record (HEAR) Synopsis

Programme learning outcomes are broadly aligned with UK-SPEC and expressed in terms of knowledge and skills encompassing engineering analysis and design, social and economic context, and engineering practice.

Part D: External Reference Points and Benchmarks

The programme draws on the:

CIBSE Guidance Notes to the Academic Content Requirements for qualifications in Building Services Engineering. Stated requirements regarding academic content and skills development have been rigorously implemented.

QAA Engineering/Building and Surveying benchmark statements. The generic statements expressed in QAA subject benchmarks for engineering are largely derived from the Engineering Council's statements of output standards for competence in the engineering professions, and to this extent need not be considered in isolation. Reference to the QAA benchmark statements for construction, property and surveying has been made to confirm that no significant omissions or contradictions have been made in compiling the generic or programme specific learning outcomes, or in the strategies adopted for teaching, learning and assessment across programmes.

Engineering Council UK Standard for Professional Engineering Competence. The output statements, as interpreted by the professional body to be approached for accreditation, the Chartered Institution of Building Services Engineers, have been the critical driver for both generic and programme specific learning outcomes. Skills matrices have been compiled to demonstrate comprehensive inclusion of the broad range of outcomes over the modular structure are based on these statements.

UWE Bristol, Strategy 2030 Through its constituent teaching and learning elements, assessment strategies, practical focus and learning outcomes, the programme intends to support the achievement of the workstreams defined in the UWE Bristol Strategy 2030.

Part E: Regulations