



Programme Specification

Energy Technology and Management {Foundation}

[Oct][FT][GCET][4yrs]

Version: 2021-22, v2.0, 15 Jul 2022

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Section 1: Key Programme Details

Part A: Programme Information

Programme title: Energy Technology and Management {Foundation}

[Oct][FT][GCET][4yrs]

Highest award: BSc (Hons) Energy Technology and Management {Foundation}

[Oct][FT][GCET][4yrs]

Interim award: BSc Energy Technology and Management

Interim award: DipHE Energy Technology and Management

Interim award: CertHE Energy Technology and Management

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 Geography & Environmental Mgmt, 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 September 2022

Programme code: J910-OCT-FT-GE-J910

Section 2: Programme Overview, Aims and Learning Outcomes

Part A: Programme Overview, Aims and Learning Outcomes

Overview: The programme is inter-disciplinary in its design and enables students to develop an understanding of the trends, policy and action relevant to energy systems today. It introduces students to key stages of the energy system, from generation and distribution, to storage and use. Students will be equipped with the knowledge and skills needed to understand the drivers, complexities and innovations of each stage and will be introduced to practical examples and a variety of national and global case studies. The programme identifies the importance of taking climate action and draws out the wide-ranging change that is underway across the world to transition away from hydrocarbons and to move towards a sustainable and zero carbon future. The programme considers the nature of this necessary change across all parts of the energy system, with this action targeting a multitude of domains and sectors across a range of spatial scales. Students will gain an understanding of the approaches used to gather, analyse and visualise energy data (e.g. through big data analytics), with a view to enhancing energy efficiency and improving demand-side management on small and large scales. Students will be introduced to current and emerging energy technologies, and to the type of professionals and innovators that are involved with their development and application. In addition to gaining an understanding of the science and technology underpinning this infrastructure, students will also be introduced to the steps for planning, delivering and managing energy projects. These projects can be large, complex and potentially contentious, so students will also be introduced to the importance of site design and location, environmental assessment, and stakeholder engagement. Students will also be introduced to the processes through which projects are funded, and the wide-ranging roles and responsibilities that different groups and actors have for ensuring project success (including end energy consumers).

Educational Aims: The programme aims to provide an academically rigorous and intellectually stimulating environment that is intended to develop graduates who:

Recognise the global priorities that exist for sustainable energy, and the nexus that energy has with other sustainable goals and challenges.

Identify the economic, policy and regulatory frameworks through which energy investments are channelled, and the processes through which energy projects are appraised, consented and delivered.

Evaluate options for the generation, distribution, storage and utilisation of energy and make recommendations for transitioning towards a zero-carbon world.

Consider the form that future energy infrastructure will take and appraise the potential social, economic and environmental implications that selected interventions or technologies could give rise to.

Articulate the opportunities and challenges for improving energy efficiency across a variety of sectors and spatial scales.

Understand science and technology relevant to the design and application of energy systems, and be able to interpret and recommend technical designs.

Identify and exhibit professional attributes commensurate with those who work in the field of energy and environmental management

Pursue independent study, research and investigations to undertake enquiry into novel and unfamiliar concepts.

Communicate and operate effectively either as individuals or as members of a team.

Programme Learning Outcomes:

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

Programme Learning Outcomes

- PO1. Recognise the global priorities that exist for sustainable energy, and the nexus that energy has with other sustainable goals and challenges.
- PO2. Identify the economic, policy and regulatory frameworks through which energy investments are channelled, and the processes through which energy projects are appraised, consented and delivered.
- PO3. Evaluate options for the generation, distribution, storage and utilisation of energy and make recommendations for transitioning towards a zero-carbon world.
- PO4. Consider the form that future energy infrastructure will take and appraise the potential social, economic and environmental implications that selected interventions or technologies could give rise to.
- PO5. Articulate the opportunities and challenges for improving energy efficiency across a variety of sectors and spatial scales.
- PO6. Understand science and technology relevant to the design and application of energy systems, and be able to interpret and recommend technical designs.
- PO7. Identify and exhibit professional attributes commensurate with those who work in the field of energy and environmental management.
- PO8. Pursue independent study, research and investigations to undertake enquiry into novel and unfamiliar concepts.
- PO9. Communicate and operate effectively either as individuals or as members of a team.

Part B: Programme Structure

Year 1

The student must take 120 credits from the modules in Year 1.

Year 1 Compulsory Modules

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

Module Code	Module Title	Credit
UBGMPR-30-0	Environment and Sustainability 2021-22	30

UFMFBG-30-0	Foundation Mathematics: Algebra and Calculus 2021-22	30
UFMFAG-30-0	Foundation Mechanics 2021-22	30
UBLMPA-30-0	Foundation Year Project 2021-22	30

Year 2

The student 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
UFMFN3-30-1	Design, Materials and Manufacturing 2022-23	30
UFMFF3-15-1	Energy and Thermodynamics 2022-23	15
UBGLR1-30-1	Energy: Systems, Trends and Policies 2022-23	30
UBGMJ9-30-1	Environmentalism, Society and Governance 2022-23	30
UBGMHM-15-1	Sustainable Technologies 2022-23	15

Year 3

The student must take 120 credits from the modules in Year 3.

Year 3 Compulsory Modules

The student must take 105 credits from the modules in Compulsory Modules.

Module Code	Module Title	Credit
UBLMMU-30-2	Energy Conservation in the Built Environment 2023-24	30
UBLMH8-15-2	Energy Transformations 2023-24	15
UBGLS1-15-2	Energy: Planning and Assessment 2023-24	15

UBGMU9-15-2	Project and Risk Management 2023-24	15
UBGMKR-30-2	Researching Environmental Technology and Management 2023-24	30

Year 3 Options

The student must take 15 credits from the modules in Year 3 optional modules.

Module Code	Module Title	Credit
UBGMWJ-15-2	Environmental Management in Organisations 2023-24	15
UBLLYF-15-2	Sustainability and Energy Simulations 2023-24	15

Year 4

The student must take 120 credits from the modules in Year 4.

Year 4 Compulsory Modules

The student must take 60 credits from the modules in Compulsory Modules.

Module Code	Module Title	Credit
UBLMGP-15-3	Energy Management and Performance Evaluation 2024-25	15
UFMFD7-15-3	Energy Technologies 2024-25	15
UFCF95-15-3	Entrepreneurial Skills 2024-25	15
UBGLY9-15-3	Infrastructure Design and Implementation Project 2024-25	15

Year 4 Options

The student must select 60 credits from:

Options must include either UBGMQD-30-3 or UBGMVD-15-3.

Module Code	Module Title	Credit
UBGMQD-30-3	Final Year Project 2024-25	30

UBGMVD-15-3	Independent Project (DGEM) 2024-25	15
UBLMN7-30-3	Low Carbon Building Services 2024-25	30
UBGMYQ-15-3	Professional Experience 2024-25	15
UBGMME-30-3	Water and Energy Futures 2024-25	30

Part C: Higher Education Achievement Record (HEAR) Synopsis

This programme responds to the global challenge for tackling climate change and to the need for developing new and innovative energy technologies that can effectively deliver a sustainable and zero carbon future. The programme develops an understanding of energy systems, and the trends, policies and actions that are transforming the generation, supply, storage and use of energy at a range of spatial scales. The programme is interdisciplinary with equally strong emphasis on integrated learning from and about how to conduct rigorous academic research and how it can be applied in practice. Professional, self-reflective skills are central to this programme which is designed to produce highly employable graduates.

Part D: External Reference Points and Benchmarks

Given its broad nature, the programme has been informed by the knowledge, understanding and skills presented by a variety of Benchmark Statements, including the following:

Earth sciences, environmental sciences and environmental studies (2019)

Engineering (2019)

Geography (2019)

Land, Construction, Real Estate and Surveying (2019)

Town and Country Planning (2019)

With respect to skills, the programme has sought to incorporate a variety of subject-based skills, such as those relating to academic research and professional investigation; collecting, analysing, evaluating and synthesising data; the

identification and articulation of issues relating to energy technology and environmental management; the translation of theory and knowledge into practical policies and actions; creative problem-solving skills and making propositions for action; and communicating with multi-disciplinary professionals and diverse stakeholder groups.

With respect to generic skills, the programme has sought to develop capabilities relating to preparing and presenting arguments; numeracy and use of statistical and quantitative data; numeracy and use of statistical and quantitative data; critical reflection with an understanding of the need for lifelong learning; managing and producing work to time on an individual basis; and working effectively in and with groups.

The programme is also lead by UWE's core principle of 'Advancing knowledge, inspiring people, transforming futures' and the guiding principles contained within Strategy 2030. Regard has also been had to UWE's Graduate Attributes Framework and the prompts for developing graduates that are self-reliant and connected; ready and able; enterprising; globally responsible; and future-facing.

Programme development has also been informed by the principles of Education for Sustainable Development and will also compliment and include the Sustainable Development Goals.

Part E: Regulations

Approved to University Regulations and Procedures.

It is the Award Board's responsibility to determine whether the student's attainment at FHEQ Level 3 is sufficient to progress to Level 4.