University of the West of Scotland
Postgraduate Programme Specification

Session: 2023/24

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Status: Validated

Named Award Title:	**MSc Sustainable Technology (and pathways)**
Award Title for Each Award:	**MSc Sustainable Technology (and pathways)** **PG Cert Sustainability/Sustainable Systems/Technology** **PG Dip Sustainable Technology (and pathway)**
Date of Validation:	February 2023
Details of Cohorts Applies to:	Not applicable

Awarding Institution/Body:	University of the West of Scotland
Teaching Institution:	University of the West of Scotland
Language of Instruction & Examination:	English
Award Accredited By:	
Maximum Period of Registration:	Sept intake: 1 year full-time, typically 2 years part-time / Jan intake: 1.5 years full-time, typically 2 years part-time
Mode of Study:	Full Time Part Time
Campus:	London Paisley
School:	School of Computing, Engineering and Physical Sciences
Programme Board	Engineering
Programme Leader:	Dr Cristina Rodriguez

Admission Criteria

Candidates must be able to satisfy the general admission requirements of the University of the West of Scotland as specified in Chapter 2 of the University Regulatory Framework together with the following programme requirements:

Appropriate Undergraduate Qualification

MSc Sustainable Technology (and environment / management): 2:2 or above in an appropriate discipline from a United Kingdom University or an equivalent institution. MSc Sustainable Technology and Energy: 2:2 or above in an appropriate engineering discipline from a United Kingdom University or an equivalent institution.

Other Required Qualifications/Experience

Non-standard Entry: entry to the postgraduate course may be open to holders of an HND or DipHE award in an appropriate discipline, or a professional qualification accepted as of equivalent status and usually at least three years' relevant experience. Candidates without formal qualifications who possess extensive professional experience deemed to equip the applicant with the necessary knowledge and skills to successfully complete the course (normally at least eight years) may also be admitted to the

postgraduate programme. The Recognition of Prior Learning (RPL) Guidelines will be followed.

Applicants may also be considered with other academic, vocational or professional qualifications deemed to be equivalent.

We welcome applications from international students with equivalency of qualifications.

Further desirable skills pre-application
It is desirable that all entrants to SCQF level 11 have skills in the following areas: numeracy, communications (including report writing and presentations) and investigation techniques.

General Overview
The teaching and assessment methods are used to develop you as independent, critial thinkers who analyse problems and create innovative solutions as part of collaborative and individual learning activities. This programme takes a total approach that considers impact on society, economy and the environment.
The aim is to produce graduates who are knowledgeable in the UN Sustainable Development Goals and the global context in which they operate including the challenges that face humanity during our 'climate emergency' in the areas of water, food, energy, environment and well-being, who strive to lead, influence and dare to make transformational changes while being ethically-minded, socially responsible, critically aware of the environmental and social impacts of their decisions and actions, and culturally sensitive.

Graduate Attributes, Employability & Personal Development Planning

UWS' Graduate Attributes focus on academic, personal and professional skills and throughout the programmes that these skills develop competent and innovative graduates who are universally prepared, work-ready and successful (https://www.uws.ac.uk/current-students/your-graduate-attributes/). On completion of the MSc Sustainable Engineering programme you will gain the following Graduate Attributes:

- You will be a **critical thinker** working **collaboratively** with colleagues on **research-minded** projects
- You will be an **amibitious, motivated work ready professional**, able to show future employers you are a **problem solver** and an **effective communicator**
- Your research will be **innovative** and **creative** producing **resilient** solutions to current problems in a more sustainable world.

The programme develops critical thinking and analytical skills that develop your ability to deal with complicated world issues, helping you to become problem sovlers who are innovative, autonomous, inquisitive, creative and imaginative.
The learning and teaching approaches encourage collaborative working, effective communication, resilience and perseverance, and development of research and inquiry skills.
Working with industry partners, you will be shown the real-world context of the theory, i.e. here's how it is done in the real world. Personal Development is built into this programme and through our partners and professional body networks, you will have the opportunity to develop the meta-skills of networking, employability preparing you for your future career.

Work Based Learning/Placement Details

While there is no specific programme of industrial placement, you will have access to business and industry and there is potential to carry out MSc research with case studies taken from local agencies and companies. The incorporation of current examples provide you with opportunities to contact regulatory agencies and businesses and independently enquire about potential for involvement. Further work-based learning is experienced virtually through a case-study approach and exposure to professional speakers.

Engagement

In line with the Academic Engagement Procedure, Students are defined as academically engaged if they are regularly engaged with timetabled teaching sessions, course-related learning resources including those in the Library and on the relevant learning platform, and complete assessments and submit these on time.

Equality and Diversity

The University's Equality, Diversity and Human Rights Procedure can be accessed at the following link: UWS Equality and Diversity Policy

Aligned with the University's commitment to equality and diversity, this programme supports equality of opportunity for students from all backgrounds and learning needs. Using the VLE, material will be presented electronically in formats that allow flexible access and manipulation of content.

The programme complies with University regulations and guidance on inclusive learning and teaching practice. There will be modules on this programme that have lab-based teaching or has site visits associated with it. In all cases you are advised to speak to the relevant Module Co-ordinator to ensure that specialist assistive equipment, support provision and adjustment to assessment practice can be put in place, in accordance with the University's policies and regulations.

More information on the University's EDI policies can be accessed at: https://www.uws.ac.uk/about-uws/uws-commitments/equality-diversity-inclusion/

Programme structures and requirements, SCQF level, term, module name and code, credits and awards (Chapter 1, Regulatory Framework)

A. PG Cert
Learning Outcomes (Maximum of 5 per heading)

Knowledge and Understanding	
A1	Gain a critical understanding of the principles of sustainability (economy, environment, society) and the circular economy.
A2	Develop a deep knowledge of environmental issues and the scientific basis of major impacts of human activities on the environment.
Practice - Applied Knowledge and Understanding	
B1	Critically apply the skills needed for academic study, enquiry and synthesis of information.
B2	Apply strategies for the appropriate selection of relevant information from a wide range of sources and a large body of knowledge.
B3	Critically evaluate approaches to sustainability through current environmental legislation, research and case studies.
B4	Develop a thorough understanding of current practice, limitations, and knowledge of future likely developments.
Communication, ICT and Numeracy Skills	
C1	Demonstrate advanced communication skills through appropriate written and oral methods to audiences of varying backgrounds, experience and expertise.
C2	Communicate effectively with peers, more senior colleagues and specialists to drive change.
Generic Cognitive Skills - Problem Solving, Analysis, Evaluation	

D1	Synthesis information from a number of sources in order to gain a coherent understanding of theory and practice.
D2	Demonstrate advanced problem solving skills to develop creative responses to problems and issues within sustainability and the circular economy.
Autonomy, Accountability and Working With Others	
E1	Working with others to understand and develop teamwork and leadership skills.
E2	Develop independent learning skills and to take responsibility for your own work.

Core Modules

SCQF Level	Module Code	Module Name	Credit	Term			Footnotes
				1	2	3	
		Sustainability Principles					new module developed from CEWM11010 Principles of Sustainability
		Sustainable Energy Sources and Storage					New module.

* Indicates that module descriptor is not published.

Footnotes

Core modules are for PgC Sustainability

Optional Modules

SCQF Level	Module Code	Module Name	Credit	Term			Footnotes
				1	2	3	
11	ENGG11032	Advanced Heat Transfer and Energy Recovery	20				
11	CEWM11008	Clean Technology and Resource Management	20				
11	CEWM11001	Environmental Systems	20				
11	QUAL11020	Managing Quality	20				
11	QUAL11001	Operations Management for Sustainability	20				
		PG Research Methods					New Module
11	CEWM11006	Pollution Control	20				
11	ENGG11037	Process Design, Sustainability and Safety	20				

11	QUAL11013	Project Management Fundamentals	20				
		Stakeholder Management and Governance					New Module

* Indicates that module descriptor is not published.

Footnotes

For PgC Sustainable Systems: Sustainable Energy Sources & Storage; Stakeholder Management & Governance; Process Sustainability and Safety; Environmental Systems; Project Management Fundamentals; Pollution Control; Managing Quality

For PgC Sustainable Technology: Sustainable Principles; Clean Technology and Resource Management; PG Research Methods; Advanced Heat Transfer & Energy Recovery; Operations Management for Sustainability

Criteria for Progression and Award

B. PG Dip

Learning Outcomes (Maximum of 5 per heading)

Knowledge and Understanding	
A1	Develop a deep understand techniques for the analysis of environmental and sustainability controls.
A2	Demonstrate a critical understanding of the implication of global trends and governance for environment, society and the economy.
A3	Develop a sound understanding of industrial processes and technologies used to minimise environmental impact and enhance efficiency.
A4	Gain an extensive and detailed understanding of the principles and practices in development of clean technologies and sustainable engineering practices.
Practice - Applied Knowledge and Understanding	
B1	Apply the skills needed for academic study and enquiry into environmental and societal protection through waste reduction, treatment and disposal along with technologies relevant to industrial development and alternative energy sources.
B2	Apply strategies for the appropriate selection of relevant information from a wide source and large body of knowledge.
B3	Critically review current, relevant sustainable development practices.
Communication, ICT and Numeracy Skills	
C1	Apply statistical techniques for improvement and sustainable decision making.
C2	Use a wide range of ICT applications to support and enhance work at an advanced level.
Generic Cognitive Skills - Problem Solving, Analysis, Evaluation	
D1	Demonstrate advanced problem-solving skills with reference to industrial settings and complex issues in sustainability.
D2	Develop and demonstrate original and creative thinking and responses in dealing with complex or novel problems and issues related to the pillars of sustainability.

D3	Critically review, consolidate and extend knowledge, skills, practices and thinking within sustainability and the circular economy.
Autonomy, Accountability and Working With Others	
E1	Demonstrate leadership and good communication skills within a team, to resolve differences and manage conflict.
E2	Deal with complex ethical and professional issues in a business context and make informed judgements on issues not addressed by current professional and/or ethical codes or practices.

Core Modules

SCQF Level	Module Code	Module Name	Credit	Term			Footnotes
				1	2	3	
11	ENGG11032	Advanced Heat Transfer and Energy Recovery	20				
11	CEWM11008	Clean Technology and Resource Management	20				
11	QUAL11001	Operations Management for Sustainability	20				Title to be updated: Sustainable Operations Management
11	ENGG11037	Process Design, Sustainability and Safety	20				
		Sustainability Principles					New 20 credit module
		Sustainable Energy Sources and Storage					New 20 credit module

* Indicates that module descriptor is not published.

Footnotes

PgD Sustainable Technology: Sustainable Energy Sources and Storage; Sustainability Principles; Clean Technology and Resource Management

PgD Sustainable Technology and energy: Sustainable Energy Sources and Storage; Sustainability Principles; Advanced Heat Transfer and Energy Recovery

PgD Sustainable Technology and environment: Sustainable Energy Sources and Storage; Sustainability Principles; Clean Technology and Resource Management

PgD Sustainable Technology and management: Sustainable Energy Sources and Storage; Sustainability Principles; Operations Management for Sustainability

Optional Modules

SCQF Level	Module Code	Module Name	Credit	Term			Footnotes
				1	2	3	
		Dissertation Module					New 60 credit module

11	CEWM11001	Environmental Systems	20				
11	QUAL11020	Managing Quality	20				
11	CEWM11006	Pollution Control	20				
		Postgraduate Research Methods					New 20 credit module
11	ENGG11037	Process Design, Sustainability and Safety	20				
11	QUAL11013	Project Management Fundamentals	20				
		Stakeholder Management and Governance					

* Indicates that module descriptor is not published.

Footnotes

PgD Sustainable Technology: Stakeholder Management and Governance; Managing Quality; PG Research Methods; Dissertation Module

PgD Sustainable Technology and energy: Stakeholder Management and Governance; Process Sustainability and Safety; PG Research Methods; Dissertation Module

PgD Sustainable Technology and environment: Stakeholder Management and Governance; Environmental Systems; Pollution Control; PG Research Methods; Dissertation Module

PgD Sustainable Technology and management: Stakeholder Management and Governance; Project Management Fundamentals; Managing Quality; PG Research Methods; Dissertation Module

Criteria for Progression and Award

C. Masters

Learning Outcomes (Maximum of 5 per heading)

Knowledge and Understanding	
A1	A critical understanding and embedment of the main theories, concepts and principles of sustainability and the circular economy towards professional practice.
A2	Critically evaluate evidence from the most relevant science, policy and regulation in order to synthesis information and gain a coherent understanding of theory and practice.
A3	Extensive, detailed and critical knowledge and understanding of the importance of the role that a sustainability engineer plays in creating a more sustainable future.
Practice - Applied Knowledge and Understanding	
B1	Independently, apply a range of research methods and techniques to collect appropriate data for the dissertation.
B2	Consolidate and integrate knowledge gained from the taught modules and provide practical experience in applying effective and creative strategies within sustainable engineering.
B3	Formulate and present a substantive written volume of work.

B4	Critically evaluate the limits of available technology and of the potential of new and emerging technologies in different geographical and socioeconomic environments.
Communication, ICT and Numeracy Skills	
C1	Present a clear, concise and substantive written report which includes quantitative or qualitative critical analysis of research findings.
C2	Communicate effectively to a wide range of expertise including peers, specialists and senior colleagues.
Generic Cognitive Skills - Problem Solving, Analysis, Evaluation	
D1	Undertake skilled, competent, safe, evaluative and reflective sampling and critical analysis of relevant indicators within the principles of sustainability.
D2	Critically evaluate and interpret data, draw conclusions and make appropriate and original recommendations.
D3	Critically review, consolidate and extend knowledge and thinking in sustainable technologies and associated areas.
D4	Develop and demonstrate original and creative thinking and responses in dealing with complex or novel problems and issues within the sustainability agenda.
Autonomy, Accountability and Working With Others	
E1	Manage time, prioritise workloads and recognise and manage personal emotions and stress.
E2	Take responsibility for personal and professional learning and development.

Core Modules

SCQF Level	Module Code	Module Name	Credit	Term			Footnotes
				1	2	3	
11	ENGG11032	Advanced Heat Transfer and Energy Recovery	20				
11	CEWM11008	Clean Technology and Resource Management	20				
		Masters Dissertation Module					New 60 credit module
11	QUAL11001	Operations Management for Sustainability	20				
		Postgraduate Research Methods					New 20 credit module
11	ENGG11037	Process Design, Sustainability and Safety	20				
		Stakeholder Management and Governance					New 20 credit module

		Sustainability & Circular Economy					New 20 credit module
		Sustainable Energy Sources and Storage					New 20 credit module

* Indicates that module descriptor is not published.

Footnotes

PgD Sustainable Technology: Sustainable Energy Sources and Storage; Stakeholder Management and Governance; Sustainability Principles; Clean Technology and Resource Management; PG Research Methods; Dissertation Module

PgD Sustainable Technology and energy: Sustainable Energy Sources and Storage; Stakeholder Management and Governance; Process Sustainability and Safety; Sustainability Principles; Advanced Heat Transfer and Energy Recovery; PG Research Methods; Dissertation Module

PgD Sustainable Technology and environment: Sustainable Energy Sources and Storage; Stakeholder Management and Governance; Sustainability Principles; Clean Technology and Resource Management; PG Research Methods; Dissertation Module

PgD Sustainable Technology and management: Sustainable Energy Sources and Storage; Stakeholder Management and Governance; Sustainability Principles; Operations Management for Sustainability; PG Research Methods; Dissertation Module

Optional Modules

SCQF Level	Module Code	Module Name	Credit	Term			Footnotes
				1	2	3	
11	CEWM11001	Environmental Systems	20				
11	QUAL11020	Managing Quality	20				
11	CEWM11006	Pollution Control	20				
11	ENGG11037	Process Design, Sustainability and Safety	20				
11	QUAL11013	Project Management Fundamentals	20				

* Indicates that module descriptor is not published.

Footnotes

PgD Sustainable Technology: Process Sustainability and Safety; Managing Quality

PgD Sustainable Technology and environment: Environmental Systems; Pollution Control;

PgD Sustainable Technology and management: Project Management Fundamentals; Managing Quality

Criteria for Award

Regulations of Assessment
Candidates will be bound by the general assessment regulations of the University as specified in the University Regulatory Framework. An overview of the assessment details is provided in the Student Handbook and the assessment criteria for each module is provided in the module descriptor which forms part of the module pack issued to students. For further details on assessment please refer to Chapter 3 of the Regulatory Framework. To qualify for an award of the University, students must complete all the programme requirements and must meet the credit minima detailed in Chapter 1 of the Regulatory Framework.
Combined Studies
There may be instances where a student has been unsuccessful in meeting the award criteria for the named award and for other more generic named awards existing within the School. Provided that they have met the credit requirements in line with the SCQF credit minima (please see Regulation 1.21), they will be eligible for an exit award of PgCert/ PgDip in Combined Studies.

Changes

Changes made to the programme since it was last published:

Version Number: 1