Module specification

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Module Code	ENG788
Module Title	Climate Change, Consequences, Solution & Policies
Level	7
Credit value	20
Faculty	FAST
HECoS Code	101070
Cost Code	GAME

Programmes in which module to be offered

Programme title	Is the module core or option for this programme
MSc Engineering (Renewable & Sustainable Energy) MSc Engineering (Renewable & Sustainable Energy) with Advanced Practice MEng Renewable & Sustainable Engineering	Core

Pre-requisites

None

Breakdown of module hours

Learning and teaching hours	30 hrs
Placement tutor support	0 hrs
Supervised learning e.g., practical classes, workshops	0 hrs
Project supervision (level 6 projects and dissertation modules only)	0 hrs
Total active learning and teaching hours	**30** hrs
Placement / work-based learning	0 hrs
Guided independent study	170 hrs
Module duration (total hours)	200 hrs

For office use only	
Initial approval date	22nd Aug 2022
With effect from date	Sept 22
Date and details of revision	
Version number	1

Module aims

The aim of this module is to equip the student with a mastery of the current scientific position on climate change and its solutions. This will require the student display the capability to master the complex interrelationship with other relevant disciplines with an overarching background of mitigating climate change. The student will be required to act on their own investigations and initiative in decision making to design optimum solutions in government policy that will effectively form a reduction in greenhouse gasses. This aims to challenge the student to develop critical evaluation and selection skills of specialist low carbon solutions, and carbon engineering through self-created methodologies, synthesising ideas, and information to generate a transformative workable solution.

Module Learning Outcomes - at the end of this module, students will be able to:

In addition to the module learning outcomes, students will also cover the following accreditation of higher education programme (AHEP) fourth edition learning outcomes: **M4** & **M7**

1	Demonstrate a deep and systematic knowledge, and critically challenge, the current complex scientific understanding of climate change.
2	Interpret and apprise various future carbon representative pathways and the predicted consequences of inaction.
3	Use ideas of a high level of abstraction to appraise using self-created methodologies, solutions to meaningful greenhouse gas mitigation in a variety of fields.

Assessment

Indicative Assessment Tasks:

This section outlines the type of assessment task the student will be expected to complete as part of the module. More details will be made available in the relevant academic year module handbook.

Assessment One: A time constrained examination covering all learning outcomes. Analytical and descriptive problem-based questions proposed, the student will not have the choice in the questions to be answered to fully assess the whole learning outcomes. Assessment one is a written examination (3 hrs.) and represents 100% of the overall module mark.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	1-3	Examination	100%

Derogations

A derogation from regulations has been approved for this programme which means that whilst the pass mark is 50% overall, each element of assessment (where there is more than one assessment) requires a minimum mark of 40%.

Learning and Teaching Strategies

A series of workshop style lectures with student-led seminars and small group activities. Directed learning using library and internet resources will be facilitated using Moodle and MS Teams. This module will also follow the ALF (Active Learning Framework) guidelines, which will include alternative methods of assessment and a blended approach to delivery, with some theory and software sessions being delivered online (depending on requirements and student experience).

Indicative Syllabus Outline

- The historic creation of anthropogenic climate change and its drivers
- The scientific reality of climate models and greenhouse gas forced climate change
- The predicted future consequences of climate change with various scenarios
- A range of solutions to climate change
- What has/ is holding up progress on climate change?
- Progress so far, and what might work as a solution?

Indicative Bibliography:

Essential Reads

D. Wallace and D. Silander, *Climate Change, Policy and Security: State and Human Impacts.* Routledge, 2019.

Other indicative reading

https://www.energyinst.org/

http://www.decc.gov.uk/

Plus, various others to be signposted on Moodle.

Employability skills – the Glyndŵr Graduate

Each module and programme is designed to cover core Glyndŵr Graduate Attributes with the aim that each Graduate will leave Glyndŵr having achieved key employability skills as part of their study. The following attributes will be covered within this module either through the content or as part of the assessment. The programme is designed to cover all attributes and each module may cover different areas.

Core Attributes
Engaged
Enterprising
Creative
Ethical

Key Attitudes
Commitment
Curiosity

Resilience
Confidence
Adaptability

Practical Skillsets
Digital Fluency
Organisation
Critical Thinking
Communication