



Module Specification

Energy Technologies

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Part 1: Information

Module title: Energy Technologies

Module code: UFMFD7-15-3

Level: Level 6

For implementation from: 2023-24

UWE credit rating: 15

ECTS credit rating: 7.5

College: College of Arts, Technology and Environment

School: CATE School of Engineering

Partner institutions: None

Field: Engineering, Design and Mathematics

Module type: Module

Pre-requisites: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: The principles and practice of a number of conventional and renewable power generation systems including technical, economic, environmental and political considerations.

Features: Not applicable

Educational aims: See Learning Outcomes.

Outline syllabus: The syllabus includes:

Review of basic concepts of energy, power and efficiency; energy use in human activity.

Renewable Energy systems: power from water, wind, biomass, solar electricity generation and solar thermal systems.

Overview of power from nuclear energy.

Basics of electrical machines and distribution networks; structure of the UK electricity industry.

Energy use in Transport; future vehicle developments.

Part 3: Teaching and learning methods

Teaching and learning methods: Lecture and tutorial sessions. Study time outside of contact hours will be spent on going through exercises and example problems.

Scheduled learning includes lectures, tutorials, demonstrations and discussions.

Independent learning includes hours engaged with essential reading, exercise preparation and completion etc.

Contact Hours:

Activity:

Contact: 36 hours

Assimilation and skill development: 70 hours

Exam preparation: 44 hours

Total: 150 hours

Module Learning outcomes: On successful completion of this module students will achieve the following learning outcomes.

MO1 Describe the structure and benefits of renewable energy sources in Europe and in particular the UK

MO2 Use appropriate mathematical expressions to compute the generated power, its cost and the saved Co2 emission

MO3 Provide detailed design and analysis of the hybrid energy generation systems. These include power electronics, generators, control systems and network interfaces

MO4 Assess and analyse the potential of power generation from renewable energy sources at a particular site

MO5 Use knowledge of the relevant engineering principles for eco-friendly energy generation procedure and method

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Face-to-face learning = 36 hours

Total = 150

Reading list: The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://uwe.rl.talis.com/modules/ufmfd7-15-3.html) via the following link <https://uwe.rl.talis.com/modules/ufmfd7-15-3.html>

Part 4: Assessment

Assessment strategy: An exam covering the set syllabus (two hours). Summative assessment. Questions used for assessment are a mixture of descriptive, numerical calculations and occasionally a simple design.

Formative assessments (not contributing to module mark) are provided via support in

tutorial sessions. In tutorials approaches for the solutions are proposed and discussed by and with students towards elaboration of the topics under consideration.

The work out of examples, in tutorial sessions, revision sessions and any discussion, does not contribute directly towards students' summative assessment. However, the discussion, etc is considered as formative feedback which prepares/helps students for their examination.

The GCET delivery of this exam is a 2 hour face-to-face/invigilated exam. It was agreed that GCET can deliver the exam in a different way to UWE for in-country reasons.

Assessment tasks:

Examination (Online) (First Sit)

Description: Online Examination (2 hours + 2 hours for submission)

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5

Examination (Online) (Resit)

Description: Online Examination (2 hours + 2 hours for submission)

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested:

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Electro-mechanical Engineering (Nuclear) {Apprenticeship-UCW}{Top-Up}[Frenchay]
BEng (Hons) 2023-24

Mechanical Engineering (Mechatronics) [AustonSingapore] BEng (Hons) 2023-24

Electrical and Electronic Engineering [AustonSingapore] BEng (Hons) 2023-24

Electrical and Electronic Engineering [Feb][PT][BIET][16months] BEng (Hons) 2022-
23

Electrical and Electronic Engineering [Oct][PT][BIET][16months] BEng (Hons) 2022-
23

Electrical and Electronic Engineering [May][PT][BIET][16months] BEng (Hons) 2022-
23

Mechanical Engineering (Mechatronics) [Feb][PT][BIET][16months] BEng (Hons)
2022-23

Mechanical Engineering (Mechatronics) [May][PT][BIET][16months] BEng (Hons)
2022-23

Mechanical Engineering (Mechatronics) [Sep][PT][BIET][16months] BEng (Hons)
2022-23

Mechanical Engineering (Mechatronics) [BIET] BEng (Hons) 2022-23

Electronic Engineering {Apprenticeship-UCW} {Top-Up} [Frenchay] - Withdrawn
BEng (Hons) 2023-24

Electronic Engineering [Sep][FT][Frenchay][4yrs] - Withdrawn MEng 2021-22

Electronic Engineering [Sep][SW][Frenchay][5yrs] MEng 2020-21

Electronic Engineering {Apprenticeship-GLOSCOLL} [Sep][FT][GlosColl][5yrs] -
Withdrawn BEng (Hons) 2020-21

Mechanical Engineering and Vehicle Technology {Foundation}
[Feb][FT][GCET][4yrs] BEng (Hons) 2020-21

Mechanical Engineering and Vehicle Technology {Foundation} [Oct][FT][GCET][4yrs]
BEng (Hons) 2020-21

Electronic Engineering [Sep][SW][Frenchay][4yrs] - Not Running BEng (Hons) 2020-
21

Electronic Engineering {Foundation} [Sep][FT][Frenchay][4yrs] - Not Running BEng (Hons) 2020-21

Electronics and Telecommunication Engineering {Foundation} [Feb][FT][GCET][4yrs] BEng (Hons) 2020-21

Electronics and Telecommunication Engineering {Foundation} [Oct][FT][GCET][4yrs] BEng (Hons) 2020-21

Electronic Engineering [Sep][PT][Frenchay][6yrs] BEng (Hons) 2019-20

Electronic Engineering {Foundation} [Sep][SW][Frenchay][5yrs] BEng (Hons) 2019-20