EV7133 Module Specification

Module Title: **Introduction to Sustainable Energy Provision and Demand Management**	**Module Code: EV7133** **Level: 7** **Credit: 15** **ECTS credit: 7.5**	**Module Leader**: Alan Owen
Pre-requisite: none	**Pre-cursor: none**	
Co-requisite: none	**Excluded combinations: none**	**Suitable for incoming study abroad?** N
Location of delivery: CAT and online – blended delivery		

Summary of module for applicants:

In this module students will be introduced to the principles of sustainable energy provision and demand management in a critical manner, and will:

- Synthesise an informed preliminary understanding of energy demand and the technological, environmental and social benefits and limitations of energy provision;
- Form a critical appreciation of, and interconnections between, Energy Return on Energy Invested (EROEI), Life Cycle Analysis (LCA) and Environmental Impact Assessment (EIA);
- Contextualise future energy provision and demand in short, medium and long-term.

Main topics of study:

- Energy demand monitoring and analysis
- Basic sustainable energy systems functions and limitations
- Energy Return on Energy Investment
- Life Cycle Analysis
- Environmental Impact Assessment
- Futuring of Energy Provision

This module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project ☐
Company/engagement visits ☒
Company/industry sector endorsement/badging/sponsorship/award ☐

Learning Outcomes for the module

Where a LO meets one of the UEL core competencies, please put a code next to the LO that links to the competence.

- *Digital Proficiency - Code = (DP)*
- *Industry Connections - Code = (IC)*
- *Social & Emotional Intelligence - Code = (SEI)*
- *Physical Intelligence - Code = (PI)*
- *Cultural Intelligence - Code = (CI)*
- *Community Connections & UEL Give Back - Code = (CC)*
- *Cognitive Intelligence – Code = (COI)*
- *Enterprise and Entrepreneurship (EE)*

At the end of this module, students will be able to:

Knowledge

1. Demonstrate a critical understanding of the principles of EROEI, LCA and EIA (COI)

Thinking skills

2. Critically appraise the technological and social challenges of future energy provision and demand management (CC) (IC) (COI)
3. Critically appraise the wider resource impacts and emissions implications of installation, use and end of life outcome of energy provision; (COI)

Subject-based practical skills

4. Systematically analyse and synthesise the relationships between energy provision and demand, EROEI, LCA and EIA in the context of future benefits and impacts (COI)

Skills for life and work (general skills)

5. Derive and analyse data to explore an energy futuring argument (DP) (COI)
6. Communicate effectively (written and oral) to a team, peer or a wider audience (DP) (SID)

Teaching/ learning methods/strategies used to enable the achievement of learning outcomes:
For students studying onsite and by distance learning:

The factual content of the module is taught through lectures, seminars, practical workshops, presentations, demonstrations and tutorials, and throughout this process an active exchange of views and opinions is encouraged. Students have access to MS Teams where they can access recorded and written support material, meet with their peers and a tutor to discuss any academic issue. Both theoretical and practical aspects are covered both onsite and through interactive sessions on Teams.

There is a formative learning element to the module to allow the students to receive critical feedback on their work without the pressure of marked assessment.

For distance learning (DL) students, learning will be supported through streamed and recorded Internet-based lectures (of the onsite lectures), situation related practical exercises, seminars and tutorials.

Lectures onsite and through MS Teams highlight key concepts, models and frameworks, and integrate additional resources (such as journal articles). They encourage deep learning through the use of self-assessment questions which encourage students to engage with the topic, to help students understand new topics and skills.

Assessment methods which enable students to demonstrate the learning outcomes for the module; please define as necessary:	**Weighting:**	**Learning Outcomes demonstrated:**
Data gathering and analysis, by presentation (1000 words equivalent)	35%	5,6
Essay (2000 words max)	65%	1,2,3,4

Reading and resources for the module:
These must be up to date and presented in correct Harvard format unless a Professional Body specifically requires a different format
Core

- Liengme, B.,Hekman, K., (2019) *A Guide to Microsoft Excel for Scientists and Engineers,* Academic Press, ISBN-10: 0128182490
- Twidell, J. and Weir, T. (2021) *Renewable Energy Resources. 4th* ed. Taylor and Francis, Oxford. ISBN-10 0415633583:

Recommended

- International Energy Agency (2011) *Life cycle inventories and life cycle assessments of photovoltaic systems*.Available at: www.iea-pvps.org/index.php?id=3&eID=dam_frontend_push&docID=2395

- Sorensen B 2017 *Renewable Energy: Physics, Engineering, Environmental Impacts, Economics and Planning* https://www.sciencedirect.com/book/9780128045671/renewable-energy

Further relevant journals, websites and other relevant resources will be provided within reading materials that are made available for the module.

Provide evidence of how this module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project

Company/engagement visits
External lecturers will be brought in from organisations such as Gridserve, Dulas, etc

Company/industry sector endorsement/badging/sponsorship/award

Indicative learning and teaching time **(10 hrs per credit):**	**Activity**
1. Student/tutor interaction:	Lectures, seminars, tutorials, presentations, practicals / demonstrations **30 hours**
2. Student self learning and research time:	Seminar reading and preparation, assignment preparation, background reading, and research activities. **120 hours**
Total hours:	**150 hours**

For office use only. (Not required for Programme Handbook)

Assessment Pattern for Unistats KIS (Key Information Sets)	**Weighting:**
Coursework *(written assignment, dissertation, portfolio, project output)*	
Practical Exam *(oral assessment, presentation, practical skills assessment)*	
Written Exam	

HECoS Code:	
UEL Department:	