MODULE SPECIFICATION

Part 1: Information			
Module Title	Sustainability and Energy Simulations		
Module Code	UBLLYF-15-2	Level	Level 5
For implementation from	2018-19		
UWE Credit Rating	15	ECTS Credit Rating	7.5
Faculty	Faculty of Environment & Technology	Field	Architecture and the Built Environment
Department	FET Dept of Architecture & Built Environ		
Module type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description

Educational Aims: See Learning Outcomes

Outline Syllabus: This is an indicative list of what the syllabus will contain. Subjects will not necessarily be taught in this order nor be of equal weighting:

Thermal Simulation of Buildings and Services
Introduction to computational fluid dynamics (CFD); dynamic behaviour of materials, space heating, thermal mass; fluid flow, heat transfer and heat exchange; thermal modelling of buildings and artificial lighting

Energy Modelling
Energy benchmarking; CO2 emissions; compliance software

Strategic Sustainable Design
Sustainability rating systems (BREEAM; LEED)

Teaching and Learning Methods: Scheduled learning Each topic of syllabus will involve an introduction of the topics through lecture, when students will receive an explanation of the context of the subject and an indication of the depth to which they are expected to study it. Topics will

then be explored further using proprietary software and data from monitoring and metering instruments.

Independent learning Students will be supported in their study with on-line resources including publications, websites, and blackboard resources.

Hours:
Contact time: 36
Assimilation and development of knowledge: 74
Exam preparation: 20
Coursework preparation: 20
Total study time: 150

Part 3: Assessment

Strategy:
Given the high level of computer simulation on this module, and assessment brief must be flexible enough to allow for learners achieve the learning outcome in a manner that best suits their wide variety of learning styles. A portfolio allows for informal feedback over the course of the module and an examination ensures students are focused on turning their learning into a meaningful output.

The Assessment:
A: Examination, 2 hours
The examination is used to concentrate students' attention on the theories, assumptions and principles that lie behind the modelling techniques used throughout the year.

B: Analysis and Modelling Portfolio 4 (500 words).
The Analysis and Modelling reports require the students to demonstrate, throughout the academic year, that they can perform the analytic modelling procedures introduced in the lectures. Tutored workshops support the necessary learning.

First Sit Components	**Final Assessment**	**Element weighting**	**Description**
Portfolio - Component B		50 %	Analysis and Modelling Portfolio (2000 words)
Examination - Component A	✓	50 %	Examination (2 hours)
Resit Components	**Final Assessment**	**Element weighting**	**Description**
Portfolio - Component B		50 %	Analysis and Modelling Portfolio (2000 word)
Examination - Component A	✓	50 %	Examination (2 hours)

Part 4: Teaching and Learning Methods

Learning Outcomes

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

Module Learning Outcomes	Reference
Assess the thermal response of buildings under dynamic conditions and estimate the impact on thermal comfort of potential design alternatives	MO1
Perform simulations of building services performance and fluid flows	MO2
Assess a buildings energy and carbon footprint using methods approved for regulation compliance	MO3
Identify the risks and opportunities associated with using rating systems designed to quantify sustainability	MO4
Define the computational tasks associated with quantifying sustainable use of energy, water, materials, light and sound	MO5

Contact Hours

Independent Study Hours:	
Independent study/self-guided study	114
Total Independent Study Hours:	114
Scheduled Learning and Teaching Hours:	
Face-to-face learning	36
Total Scheduled Learning and Teaching Hours:	36
Hours to be allocated	150
Allocated Hours	150

Reading List

The reading list for this module can be accessed via the following link:

https://uwe.rl.talis.com/modules/ubllyf-15-2.html

Part 5: Contributes Towards

This module contributes towards the following programmes of study: