

## MODULE DESCRIPTOR

### Module Title

Environment and Services

Reference	SU2003	Version	18
Created	March 2023	SCQF Level	SCQF 8
Approved	July 2005	SCQF Points	15
Amended	August 2023	ECTS Points	7.5

### Aims of Module

To equip the student with general principles which guide the introduction of passive design, environmental strategies and services in buildings, and with the ability to apply these to the design and evaluation of particular building types.

### Learning Outcomes for Module

On completion of this module, students are expected to be able to:

- 1 Understand design strategies buildings must meet to ensure human comfort.
- 2 Understand the the role of form, fabric and fenestration in the design of low energy/low carbon buildings.
- 3 Understand the role of services and systems to deliver comfort and to satisfy low energy and carbon requirements.
- 4 Apply evaluative methods and strategies to the design of a low energy/low carbon/high comfort building of low to medium complexity.

### Indicative Module Content

This module develops understanding of the design strategies to deliver buildings compatible with our net zero future. It is studied in the context of the global environmental requirement to reduce carbon emissions and therefore to produce strategies that lower energy requirements and reduce carbon, including embodied carbon. It provides an understanding of the principal strategies for Passive Design in relation to operational energy - form, fabric, fenestration, passive solar. The integration of low carbon systems to deliver environmental comfort (such as heating, natural and mechanical ventilation). Fabric energy efficiency is explored through different construction systems designed to achieve Passivhaus standard. Methods of evaluating performance are studied, including software-based methods.

### Module Delivery

This module is taught through classroom exercises, labs, workshops, and material delivered through Moodle (short videos, targeted reading list, and selected bibliography). The general pattern requires students to engage with specific material online before a particular classroom session, at which the principles gleaned from that material will be demonstrated or applied through design and evaluation exercises.

### Indicative Student Workload

	Full Time	Part Time
Contact Hours	30	N/A
Non-Contact Hours	120	N/A
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	150	N/A
<i>Actual Placement hours for professional, statutory or regulatory body</i>		

### ASSESSMENT PLAN

*If a major/minor model is used and box is ticked, % weightings below are indicative only.*

#### Component 1

Type:	Coursework	Weighting:	100%	Outcomes Assessed:	1, 2, 3, 4
Description:	This is a design and evaluation exercise to demonstrate application of concepts, strategies and evaluation methods introduced in the module.				

### MODULE PERFORMANCE DESCRIPTOR

#### Explanatory Text

The overall module grade is based on 100% weighting of component 1 (coursework). A grade D is required to pass the module. Non submission will result in an NS grade.

Module Grade	Minimum Requirements to achieve Module Grade:
<b>A</b>	A
<b>B</b>	B
<b>C</b>	C
<b>D</b>	D
<b>E</b>	E
<b>F</b>	F
<b>NS</b>	Non-submission of work by published deadline or non-attendance for examination

### Module Requirements

Prerequisites for Module	None.
Corequisites for module	None.
Precluded Modules	None.

**ADDITIONAL NOTES**

Where appropriate mixed discipline team working will be encouraged. Reports may be assessed as coursework or by interview panel.

**INDICATIVE BIBLIOGRAPHY**

- 1 Chadderton, D. K., Building Services Engineering (2012).
- 2 McMullan, R., Environmental Science in Building, 7th Edition. (2012)
- 3 Zunde, J. M. & Bougdah, J (2006), Integrated Strategies in Architecture.
- 4 Hall F. & Greeno R., Building Services Handbook, Routledge 2017.