Module Title **Environment and Services** **Keywords** Heating, Ventilation, Cooling, Acoustics, Services Integration, Water Use, Drainage, Lighting, Comfort, Fabric Energy Efficiency and Design.	Reference SU2003 SCQF SCQF Level 8 SCQF Points 15 ECTS Points 7.5 Created May 2002 Approved July 2005 Amended April 2012 Version No. 9

This Version is No Longer Current

The latest version of this module is available here

Prerequisites for Module

None.

Corequisite Modules

None Required

Precluded Modules

None.

Aims of Module

To provide the student with the ability to apply the principles of building science to services systems for low/medium rise buildings.

Learning Outcomes for Module

Mode of Delivery

This is a lecture based module supplemented with practical work, which includes laboratory experiments. A substantial part of the module is devoted to student centred learning, computer exercises and private study. Directed reading to services journals, core texts and resource material is encouraged.

Assessment Plan

	Learning Outcomes Assessed
Component 1	1,3
Component 2	2

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

1. Explain relevant scientific and technical principles in respect of building science, services systems and components.
2. Recognise the influence of environmental services on the design, construction and operation of low/medium rise buildings.
3. Recognise and justify the need for low energy and carbon in buildings.

Indicative Module Content

The module provides an understanding of the principles and applications for the following systems: heating systems; cooling systems; natural and mechanical ventilation; water supply, waste drainage; daylight and electric light; rain water drainage. A review of electricity generation and distribution including, cable management. Heat gain and heat loss will be reviewed in the context of physiological needs for thermal comfort and requirements for fabric efficiency (FEE). The topic of acoustics will be examined to include sound insulation; sound absorption; reverberation time;

Component 2: assessed by one supervised assessment in the form of an end of module examination.

Component 1: assessed by coursework in the form of a student report upon a practical investigation of energy use and environmental issues in the provision of contemporary maintained environments.

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.

Additional Notes

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

dB. Finally, the principles of services distribution and integration are outlined.

Indicative Student Workload

Contact Hours	Full Time
Assessment	40
Lectures	10
Practical Work	10
Tutorials	10
Directed Study	
Directed Study	40
Private Study	
Private Study	40