

Module Title:	Building Performance and Services 2
Language of Instruction:	English
Credits:	5
NFQ Level:	6
Module Delivered In	2 programme(s)
Teaching & Learning Strategies:	Integrated projects in line with studio projects to develop student's ability to recognise and illustrate application of various energy efficient details and services at site and building level. • Group/teamwork used to encourage peer learning and to support case studies /group assignments as appropriate. • Internal tests to support student learning/revision of fundamental concepts and calculations through the module. • Lecture format used to provide theoretical instructions.
Module Aim:	The aims of the module are to provide students with a knowledge of the international and EU energy policies which have resulted in significant changes to Irish Building Regulations, Standards and Certifications. The details of the evolution of Irish building standards for energy performance and Energy Use. The challenge of building and renovating Irish buildings to achieve energy saving targets and NZEB. Building services section: Introduce the student to electricity distribution and heating & ventilation services in domestic scale buildings. Integrate the building and its environment with the necessary mechanical and electrical utilities, and to harmonise the options with the various statutory regulations and energy efficiency principles.
Learning Outcomes	
<i>On successful completion of this module the learner should be able to:</i>	
LO1	Discuss the Legislative and regulatory context that influence energy performance of New and existing buildings in Ireland
LO2	Explain and apply the theoretical concepts underpinning thermal performance and insulation technology in domestic buildings.
LO3	Explain electricity distribution and heating & ventilation systems in domestic buildings and the physical and statutory regulations/standards that govern their integration.
LO4	Describe and choose appropriate renewable technologies that can meet the electric and heating load requirements in domestic buildings
LO5	Apply graphic conventions to represent Electrical layouts and heating& ventilation drawings specific to domestic scale buildings.
Pre-requisite learning	
Module Recommendations <i>This is prior learning (or a practical skill) that is recommended before enrolment in this module.</i>	
No recommendations listed	
Incompatible Modules <i>These are modules which have learning outcomes that are too similar to the learning outcomes of this module.</i>	
No incompatible modules listed	
Co-requisite Modules	
No Co-requisite modules listed	
Requirements <i>This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.</i>	
No requirements listed	

Module Content & Assessment

Indicative Content

Energy Policy & Strategy

Climate Change and Energy Conservation, EU and Irish Policy related to Energy Performance of Buildings, NZEB Policy.

Energy Use in Buildings

Overview of energy, Energy use in buildings, Building Regulations for nZEB, Introduction of Part L, Domestic Building forms, concrete, Timber Frame and their Building Fabric, floors, walls, roofs.

Insulation Technology

Thermal insulation and U-Values, Insulation values and economies, Fire protection. Sound insulation. Insulation and fabric design.

Ventilation in buildings

Sources of moisture • Condensation in domestic buildings • Introduction to Building regulations Part F, Introduction to ventilation and Indoor air quality in domestic dwellings • Natural and mechanical ventilation strategies for domestic buildings. • Mechanical heat recovery ventilation systems

Electrical Installations

• Fundamentals of electricity • Power distribution • Introduction to Single and three phase supply. • Introduction to solar Photovoltaic technology • Protective equipment • Electrical symbols and drawing conventions • Introduction to electrical appliances electrical accessories and enclosures, wiring systems, electrical distribution and circuits, cable systems and layout, earthing and bonding and protection.

Space heating in domestic buildings

Introduction to types of space heating systems for domestic buildings- Passive and active space heating options, heating symbols and drawing conventions, Renewable technologies that support space heating in domestic buildings

Assessment Breakdown	%
Project	60.00%
End of Module Formal Examination	40.00%

No Continuous Assessment

Project

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Project	Building performance project	1,2	30.00	n/a
Project	Building Services project	3,4,5	30.00	n/a

No Practical

End of Module Formal Examination

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Formal Exam	n/a	1,2,3,4,5	40.00	End-of-Semester

SETU Carlow Campus reserves the right to alter the nature and timings of assessment

Module Workload

Workload: Full Time		
<i>Workload Type</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
Lecture	12 Weeks per Stage	4.00
Independent Learning Time	12 Weeks per Stage	3.33
Project	12 Weeks per Stage	3.33
Total Hours		128.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_CMARC_B	Bachelor of Science (Honours) in Architectural Technology	2	Mandatory
CW_CMART_D	Bachelor of Science in Architectural Technology	2	Mandatory