SERV H1501: Building Services I

Module Title:	Building Services I
Language of Instruction:	English

Credits:	5

NFQ Level:	6

Module Delivered In	No Programmes

Teaching & Learning Strategies:	Integrated projects in line with studio projects to develop student's ability to recognize and illustrate application of various energy efficient services at site and building level. • Group/team work utilized to carryout case studies as appropriate. • Internal tests to assess student's ability in understanding fundamental concepts and calculations through the module. • Lecture format utilized to provide theoretical instructions.

Module Aim:	The aims of this module are • To introduce students to the discipline of Building Services Engineering • To develop students understanding and appreciation of building services at domestic scale and its implications on design and detailing of the building • To introduce the concept of sustainable development and role of building services to achieve the same. • Introduce students to building regulations in the context of building services

Learning Outcomes	
On successful completion of this module the learner should be able to:	
LO1	List a range of mechanical and electrical service installations for a house and apply drawing conventions to interpret various services in drawings
LO2	To carry out basic sizing calculations to establish space enclosure requirements to accommodate services in domestic buildings
LO3	Describe basic hot and cold water supply systems in domestic buildings.
LO4	illustrate and describe above and below ground drainage systems for domestic buildings.
LO5	Describe the features of an electrical installation and the factors which affect electrical safety in a building
LO6	Describe a typical natural or mechanical ventilation strategy for a building.
LO7	Identify causes and remedies to address condensation in buildings.
LO8	Identify building services which are energy efficient and support sustainable development.

Pre-requisite learning		
Module Recommendations *This is prior learning (or a practical skill) that is recommended before enrolment in this module.*		
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Incompatible Modules *These are modules which have learning outcomes that are too similar to the learning outcomes of this module.*		
No incompatible modules listed		
Co-requisite Modules		
No Co-requisite modules listed		
Requirements *This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.*		
No requirements listed		

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Module Content & Assessment

Indicative Content
Climate study and implications on building service designs Elements of climate • Passive technology- introduction to day lighting and solar heat gain concepts. • Sustainable site development options
Condensation in buildings Sources of moisture • Condensation in buildings • Introduction to ventilation and Indoor air quality in domestic dwellings • Natural and mechanical ventilation strategies for domestic buildings. • Mechanical heat recovery ventilation systems
Hot and Cold water supplies • Cold water storage • Cold Water tank sizing and placement requirements • Hot Water Generation & Storage • Basic pipe sizing calculations • Basic hot Water cylinder sizing and placement requirements • Introduction to Solar hot water heating 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
Sanitation and Drainage • Drainage Systems above Ground • Waste and Soil Systems: Stacks, Sizes and Venting • Layouts and Schedules • Drainage Systems Below Ground • Foul Drains: Pipe runs, Access and venting • Drainage Works: trenches, pipe work • On-Site Effluent Treatment: domestic septic tanks • Surface Water Drains: Run-off and drainage systems • Drainage Layouts • Alternative methods of waste water management –Rain water harvesting, Grey water recycling, reed bed systems
Sustainable wastewater management • Rain water harvesting, • Grey water recycling, • reed bed systems

Assessment Breakdown	%
Continuous Assessment	10.00%
Project	30.00%
End of Module Formal Examination	60.00%

Continuous Assessment

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Examination	Class tests	2	10.00	n/a

Project

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Project	No Description	1,4,5	30.00	Week 25

No Practical

End of Module Formal Examination

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Formal Exam	No Description	1,2,3,4,5,6,7,8	60.00	End-of-Semester

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

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Module Workload

Workload: Full Time		
Workload Type	*Frequency*	*Average Weekly Learner Workload*
Lecture	30 Weeks per Stage	2.00
Estimated Learner Hours	30 Weeks per Stage	3.00
	Total Hours	150.00