Module Specification

Module Summary Information

1	**Module Title**	Services and Energy Performance
2	**Module Credits**	20
3	**Module Level**	6
4	**Module Code**	BNV6122

5	**Module Overview**

The module explores and applies architectural engineering principles to the construction, planning and design of buildings / structures in order to create a built environment that is energy efficient and environmentally friendly.

Through the study of the structural integrity of buildings and energy management issues, the module seeks to promote the construction management process as a part of a creative, practical and interdisciplinary / collaborative approach, with involvement from the earliest stages of the design process, to consider new and evolving demands from all stakeholders and the use of new materials and assembly techniques based on the need for more sustainable buildings.

The module provides you with an understanding of the principal applications of building services to commercial and industrial buildings; reinforcing the need for co-ordination of the building services installations within the overall construction process whilst integrating environmental technology into sustainable building solutions.

The module actively encourages you to consider building design and building services, where you will explore and develop an understanding of the design and analysis of heating, ventilating and air conditioning systems, acoustic and lighting planning, together with the study of the efficiency and design of plumbing, fire protection and electrical systems. You will explore in a manner that reflects the need to meet the vital requirement for constructive teamwork in a modern and complex construction industry.

6	**Indicative Content**

To include a range of subjects of which the following are indicative in level 5.

Architectural design principles.
Energy management.
Renewable energy, Low to zero carbon (LZC) buildings.
Smart materials and technologies.
Distributive Services: cold and hot water supply systems, Waste management systems.
Principles of heat, thermal comfort, buildings and thermal behaviours.
Passive vs Active Design and Active Control.
Daylight. Solar control. Principles of light and vision.
Principles of hearing and sonic physics. Noise control. Acoustic design.
Vertical Movement (lifts and Escalators).
Environmentally sustainable technology.

7	Module Learning Outcomes On successful completion of the module, students will be able to:	
	1	To demonstrate an understanding of the principles, involved in the design, specification and installation and energy performance of services systems including lifts, escalators, distributive and waste services a wide of range of commercial and industrial buildings.
	2	To evaluate the challenges associated with the integration, accommodation and access for maintenance of mechanical and electrical services into a variety of commercial and industrial buildings.
	3	To demonstrate through practical application an understanding of the contextual environment, physical, economic and technological, as relates to energy performance.
	4	To evaluate the challenges associated with the integration of environmental technology into sustainable building solutions.

8	Module Assessment			
Learning Outcome				
	Coursework	Exam	In-Person	
1-4	X			

9	Breakdown Learning and Teaching Activities	
Learning Activities		Hours
Scheduled Learning (SL) includes lectures, practical classes and workshops, peer group learning, Graduate+, as specified in timetable		48 Assessment will be enabled through a series of small scale, problem-based workshop, by working both in groups and individually, during seminar sessions where both formative and summative feedback will be provided. These interactive activities enable you to develop conceptual understanding and accumulate knowledge and skills to enable you to apply those skills to a 'real life' building / scenario project. You should be able to distinguish elements of their theoretical learning, select and organise them, and integrate the learning in a structured manner within a practical project and present such with confidence to peers, tutors and construction industry representatives.
Directed Learning (DL) includes placements, work-based learning, external visits, on-line activity, Graduate+, peer learning, as directed on VLE		62 A practical application of commercial and industrial building services with a focus on sustainable practice and energy management applied to a new build extension and/or refurbishment of an existing commercial building.
Private Study (PS) includes preparation for exams		90
Total Study Hours		200