

Module Outline

Part 1- as validated

1.	Title	Sustainable Building Design
2.	Level *	5
3.	Credits	20
4.	Indicative Student Study Hours	36
5.	Core (must take and pass), Compulsory (must take) or Optional	Compulsory

*** Foundation Level=3 Degree Year 1 = 4 Degree Year 2 = 5 Degree Year 3 = 6**

PG (Masters) = 7

5. Brief Description of Module (purpose, principal aims and objectives)

This module is designed to develop the students' understanding of contemporary topics and practices related to the built environment. Areas for development will include functional requirements, design of buildings, resource availability, technological change and development, social, political and cultural issues. There is also an investigation into sustainable materials and technologies together with relevant renewable technologies applied to residential and commercial buildings.

6. Learning Outcomes - On successful completion of this module a student will be able to:

(Add more lines if required)

	Subject Specific Learning Outcomes
1.	Evaluate the appropriateness of renewable technologies available to the construction industry
2.	Appraise design decisions in terms of environmental, sustainability resource availability, materials used and feasibility for construction.
3.	Investigate comfort levels, heat transfer and lighting criteria in the design and use of buildings
4.	Compare sustainable construction methods and alternatives available related to new build design and retrofitting.
	Generic Learning Outcomes
1.	Demonstrate creativity and originality when addressing and producing solutions

2.	Use numerical skills to manipulate mathematical data and solve problems.
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7. Assessment

Pass on aggregate or Pass all components <i>(modules can only be pass all components if this is a PSRB requirement)</i>	Pass on aggregate
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Summary of Assessment Plan

	Type	% Weighting	Anonymous Yes / No	Word Count/ Exam Length	Learning Outcomes Coverage	Comments
1.	Examination	30%	Yes	2 hours	LO 3	
2.	Report	70%	Yes	3000	LO 1, 2, 4	

Further Details of Assessment Proposals

Give brief explanation of each assessment activity listed

Examination
The examination concerns the solution of construction related problems around environmental science, in particular u-values, condensation, lighting and sound. The exam is 2 hours in length.

Report
The report is based on a live scenario and calls for the students to evaluate renewable technologies, compare and contrast sustainable methods and appraise design decisions relating to the given scenario. It will allow the students to express their creativity and originality in supplying sustainable solutions to the design brief.

8. Summary of Pre and / or Co Requisite Requirements

Construction and Materials Technology, Urban Planning and Development

9. For use on following programmes

BSc (Honours) Construction Management (Architectural Technology)
BSc (Honours) Construction Management (Quantity Surveying)

Module Specification

Part 2- to be reviewed annually

1. Module Leader	Bill Martin
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2. Indicative Content	<p>Heat and thermal effects: Heat, heat transfer losses and gains, thermal transmittance, thermal properties of materials, temperature profiles, condensation, construction techniques</p> <p>Lighting: Natural and artificial light, measurement of lighting, inverse square law, cosine law, lumen method of design, daylight factor, glare</p> <p>Human comfort: ventilation principles, indoor air quality, sick building syndrome, acoustic principles, sound disturbance.</p> <p>Design factors and functional requirements: functional efficiency, performance standards, and health and safety aspects of building users, economic and legal aspects, environmental impact,</p> <p>Resource availability: best value from resources available, energy conservation and resource depletion, environmental sustainability and development.</p> <p>Renewable technologies, energy efficiency and refurbishing existing and non-traditional buildings to sustainable standards</p> <p>Retrofitting of Building: principles, challenges and applications in practice.</p>
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3. Delivery Method <i>(please tick appropriate box)</i>					
Classroom Based	Supported Open Learning	Distance Learning	E-Learning	Work Based Learning	Other (specify)
Yes					
<i>If the Delivery Method is Classroom Based please complete the following table:</i>					
	Activity (lecture, seminar, tutorial, workshop)	Activity Duration - Hrs	Comments	Learning Outcomes	
1	Lectures	36		LO 1-4	
2					
	Total Hours	36			
If delivery method is <i>not</i> classroom based state lecturer hours to support delivery					

4. Learning Resources

To include contextualised Reading List.

Highly Recommended

Anderson, J., Shiers, D. & Steele, K. (2009) *The Green Guide to Specification: An environmental profiling system for building materials and components 4th Edition*. Bracknell: BRE

Cotgrave, A. & Riley, M. (eds.) (2012) *Total Sustainability in the Built Environment*, Basingstoke: Palgrave Macmillan

Lyons, A. (2014) *Materials for Architects and Builders 5th Edition*, Abingdon: Routledge

McMullan, R. (2017) *Environmental Science in Building 8th Edition*, Abingdon: Palgrave

Recommended

Beggs, C. (2009) *Energy: Management, Supply and Conservation 2nd Edition*, Oxford: Butterworth-Heinemann

Berge, B. (2009) *The Ecology of Building Materials 2nd Edition*, Oxford: Architectural Press

Brandon, P. & Lombardi, P. (2011) *Evaluating Sustainable Development in the Built Environment 2nd Edition*, Chichester: Wiley Blackwell

Langston, C. & Ding, G. (eds.) (2001) *Sustainable Practices in the Built Environment 2nd Edition*, Abingdon: Routledge

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