ROBERT GORDON UNIVERSITY ABERDEEN

MODULE DESCRIPTOR

Module Title

Low Energy Housing Design

Reference	ACM022B	Version	2
Created	July 2021	SCQF Level	SCQF 11
Approved	September 2020	SCQF Points	15
Amended	September 2021	ECTS Points	7.5

Aims of Module

To provide students with the knowledge to evaluate and develop and critically review informed and integrated strategies for the detailed design of a Low-Energy Housing Design.

Learning Outcomes for Module

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

1	Demonstrate knowledge that covers and integrates most, if not all, of the main areas of environmental design theory and Low-energy Housing Design strategies to reduce environmental impact.
2	Demonstrate a critical understanding of low-energy housing design strategies and evaluate the application of different construction types and details, assess their potential performance to meet required low- energy standards by applying appropriate tools.
3	Demonstrate a critical awareness of current issues in low energy design relating to materials, processes and techniques, and demonstrate application and criticality of these in relation to an architectural design.

Indicative Module Content

This module provides an understanding of the low-energy housing design and knowledge to evaluate detail design using selected environmental software tools. This elective will be taught through seminars, group workshops, individual tutorials. The students will undertake an individual environmental design project meeting a specific low-energy housing design brief as indicated by the tutor. The design proposal will be developed throughout the stage and evaluated and analysed by the student using simulation tools, materials appraisals and impact on local and wider environments. Simulation workshops will be used to demonstrate the use of a selected tool to students. In this module, students will select and learn through lecture series and interactive workshops sessions: Climate ? opportunities and challenges Codes and Standards for low-energy housing design Passive and active systems and strategies for heating, cooling, ventilation, lighting Lightweight and heavyweight construction, Materials, thermal bridging, air tightness, construction details Life cycle analysis PH Certification and post-occupancy studies

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Module Delivery

The module is delivered through lecture material delivered through Moodle on low energy- Housing design strategies, and assessment, tools for low-energy design and by applying knowledge through Housing design project based coursework submission. Students develop works mainly as part of the individual coursework and also through group discussion, tutor consultation and self-directed learning. Students are expected to attend to studio and lectures, which will be delivered by visiting practitioners This assignment will consist of an individual design project, which will be developed and analysed through use of a selected environmental simulation software and/or analysis tool. The report and design submission need to reflect a clear process of thought between the application of environmental design (through consideration of energy performance, and the analysis of this using the available tools.

Indicative Student Workload	Full Time	Part Time
Contact Hours	25	N/A
Non-Contact Hours	125	N/A
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	150	N/A
Actual Placement hours for professional, statutory or regulatory body		

ASSESSMENT PLAN

If a major/minor model is used and box is ticked, % weightings below are indicative only.

Component 1

Type:	Coursework	Weighting:	100%	Outcomes Assessed:	1, 2, 3
Description:	This assignment will consist of a report and an individual design project which will be developed and analysed through use of a selected environmental simulation software and/or analysis tool. Coursework-based component in the form of a coherent journal/report of class activities undertaken during the timetabled session.				

MODULE PERFORMANCE DESCRIPTOR

Explanatory Text

The overall module grade is based on 100% weighting of Component 1 (Report and Individual Design Project). An overall minimum grade D is required to pass the module. Non-submission will result in an NS grade.

Module Grade	Minimum Requirements to achieve Module Grade:
A	A
B	B
C	C
D	D
E	E
F	F
NS	Non-submission of work by published deadline or non-attendance for examination

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Module Requirements

Prerequisites for Module	None.
Corequisites for module	None Required
Precluded Modules	None.

INDICATIVE BIBLIOGRAPHY

1	Anderson, J., et al., 2012, 2009, Green Guide to Specification; 4th ed., BRE, Bracknell
2	Berge, B., 2009, Ecology of Building Materials; 2nd ed, Architectural Press
3	(2011). R., Taylor, L., , Timber Frame Construction 5th ed., TRADA, High Wycombe
4	The Passivhaus Handbook: A Practical Guide to Constructing and Retrofitting Buildings for Ultra-Low Cotterell J & Dadeby A; Dadeby, Adam, 2012
5	Solar Passive House and Low-Energy Buildings: The Earthscan Expert Guide to Design and Construction Bell, Steff; Theoboldt, Ingo, 2019
6	(2017).Hall F.& Greeno R., Building Services Handbook, Routledge
7	(2018). McMullan, R., Environmental Science in Building, 8th Edition.