Module Definition Form (MDF)

Module code: MOD008165	**Version:** 2 **Date Amended:** 25/Jun/2024

1. Module Title
Building Pathology

2a. Module Leader
Andrew Shepherd

2b. School
School of Engineering and the Built Environment

2c. Faculty
Faculty of Science and Engineering

3a. Level
6

3b. Module Type
Standard (fine graded)

4a. Credits
15

4b. Study Hours
150

5. Restrictions

Type	Module Code	Module Name	Condition
Pre-requisites:	None		
Co-requisites:	None		
Exclusions:	None		
Courses to which this module is restricted:	BSc (Hons) Building Surveying, FdSc and BSc (Hons) Architectural Technology		

LEARNING, TEACHING AND ASSESSMENT INFORMATION

6a. Module Description

This module brings together the practical and theoretical issues central to the role of the Building Surveyor within the Built Environment. An important aspect of the career specific skills of a building surveyor will involve consideration of building pathology - the principles of building defects, their analysis and diagnosis, and their required remedial action. Building diagnostics is therefore a combination of problem solving, decision making and critical thinking as at professional level for a practitioner building surveyor a holistic systematic approach is required rather than basic linear logic as introduced in earlier level 4 and 5 modules.

The module is aimed in the main, at understanding the construction of residential low-rise dwellings, industrial and commercial buildings during the latter part of the 19th and the 20th Centuries with the focus on defects that occur to such buildings. This module however anticipates complexity in the inspection or identification such that advanced skills and techniques are triggered and are economic.

methods using drone technology within dilapidated properties will be explored with a view that you will be able to specify and brief the drone pilot for an inspection flight. You will not be expected to be the drone pilot however this module will complement practitioners who have undertaken pilot training with a view to defect inspection and analysis.

Defects relating to historical buildings are also be introduced in order for the Building Surveyor to appreciate the diversity of materials and construction within UK buildings. The module will critically consider the difference and limitations in pathology approach that is required in a listed/conservation property compared to the standard methodology.

The module will consider how advanced land survey techniques and 3D laser scanning can be deployed for structural monitoring purposes. This will consider how advanced survey can form part of a defect analysis exercise. This element will also consider movement monitoring as part of a subsidence insurance claim or neighbourly matters development scheme.

The module will also examine the professional duties and obligations when undertaking various surveys types which a Building Surveyor will need to understand and comply with when embarking upon a career with this module being directly linked to the core RICS APC requirement of building pathology.

6b. Outline Content

knowledge and Understanding

- Report writing in the litigation process (Expert Witness)
- Problem solving and pathology process.
- Critical thinking
- Decision making
- Deployment and specification of advanced survey methods (drones, laser survey and infra-red technology)
- The impact of material standards over time
- Whole life cycle selection and costings.
- Structural systems (traditional and non-traditional buildings).
- Building Pathology, deterioration mechanisms, deformation vs failure.
- Building pathology, defects and remedial action related to key structural elements.
- An appreciation of historical building techniques and materials, together with associated building defects
- Deleterious materials / defect analysis - industrial and commercial buildings – asbestos
- Defects in advanced building technology elements such as properties in multiple occupation, fire control in structures up to 18 m in height, failure in cladding systems, concrete defects such as carbonation, and alkali silica reaction.

Skills Analysis

- Production of a pre litigation expert witness report requiring the critical analysis of a property dispute linked to disrepair.

6c. Key Texts/Literature
The reading list to support this module is available at: https://readinglists.aru.ac.uk/

6d. Specialist Learning Resources
None

7. Learning Outcomes (threshold standards)

No.	Type	On successful completion of this module the student will be expected to be able to:
1	Knowledge and Understanding	Critically evaluate a repair solution for a complex multiple causation defect via problem solving analysis
2	Knowledge and Understanding	Express an understanding of the mechanisms of building decay and failure with an advanced technology design.
3	Knowledge and Understanding	Use building surveying equipment in an appropriate and competent manner.
4	Intellectual, practical, affective and transferrable skills	Research, plan and deliver a building pathology solution for a defective property using advanced technology methods with the outcome structured in RICS Expert Witness report format.

8a. Module Occurrence to which this MDF Refers

Year	Occurrence	Period	Location	Mode of Delivery
2026/7	ZZF	Template For Face To Face Learning Delivery		Face to Face

8b. Learning Activities for the above Module Occurrence

Learning Activities	Hours	Learning Outcomes	Details of Duration, frequency and other comments
Lectures	24	1-4	2 hours a week
Other teacher managed learning	12	1-4	1 hour a week Tutorials and Case Study work
Student managed learning	114	1-4	Private Study
TOTAL:	150		

9. Assessment for the above Module Occurrence

The assessment for some modules includes a presentation (see below for details on how this particular module is assessed). We recognise that presenting, especially to a large group, can cause significant anxiety or distress for some students. If this may affect you, please contact your Module Leader or the Disability and Neurodiversity Service as early as possible. We will work with you to consider appropriate reasonable adjustments. Depending on your individual needs, these might include, for example, presenting to a smaller group or presenting only to a member of academic staff.

Assessment No.	Assessment Method	Learning Outcomes	Weighting (%)	Fine Grade or Pass/Fail	Qualifying Mark (%)
010	Coursework	1-4	100 (%)	Fine Grade	30 (%)

2000 word coursework report

In order to pass this module, students are required to achieve an overall mark of 40% (for modules at levels 3, 4, 5 and 6) or 50% (for modules at level 7*).

In addition, students are required to:
(a) achieve the qualifying mark for each element of fine graded assessment as specified above
(b) pass any pass/fail elements

[* the pass mark of 50% applies for all module occurrences from the academic year 2024/25 – see Section 3a of this MDF to check the level of the module and Section 8a of this MDF to check the academic year]