

MODULE CODE: ACBA4001
TITLE: Fundamentals of Construction Technology
DATED: 16/08/2018

LEVEL: 4
CREDITS: 20

JACS CODE:

AIM

- To cultivate the fundamental principles, materials and techniques commonly utilised in the construction of low rise residential and commercial buildings, and their related repair requirements following defect diagnosis

LEARNING OUTCOMES

Upon the successful completion of this module, the student should be able to:

- Describe appropriate site evaluation, site and soil investigation techniques.
- Identify the different types of substructure available for a range of low-rise building systems and techniques used in their production.
- Define and produce annotated sketches that illustrate a broad range of common constructional forms, demonstrating understanding of their potential defect and repair needs.

INDICATIVE CONTENT

- The *function and performance* criteria that need to be addressed in buildings, their elements, components and materials.
- Building Materials: Building terminology and definitions. The initial focus will be on smaller domestic and commercial building types in order to reinforce principles.
- Statutory Standards applicable to construction.
- Groundwork and Foundations, Site evaluation and site investigation. Functional requirements of foundations, and appreciation of the relationship with ground conditions and underlying geology. Methods of constructing.
- Introduction to the functions of foundations causes of ground movement, subsoil bearing capacity and types of foundations for low-rise, short-span buildings, small framed buildings and portals less than ten metres span. Damp Proof Membranes (dpm) trays, thermal bridging etc;
- Health and Safety measures that are applicable to the construction production and maintenance of low-rise building forms.
- Supported and suspended ground and inter-mediate floors;
- Functional requirements of external walls: thermal insulation; Solid, layered and Cavity loadbearing Masonry construction; Heavy and lightweight forms, Thermal performance; timber and cold rolled steel framed construction: damp proof courses (dpc's); Modular methods.
- Openings in Cavity Walls – avoidance of rainwater penetration, condensation and thermal bridging.
- Roofs - Functional requirements of timber roof structures: cut roofs and trussed rafter roofs.

- Pitched roof coverings: double-lap, single-lap and interlocking slates and tiles, lightweight sheet metal roof-coverings. Eaves; verges; valleys; ridges and abutments.
- Windows, doors and external joinery - functional requirements of differing types of frames; glazing and sill/reveal details with increasing emphasis upon their thermal performance, methods of securing, durability etc.
- Staircases and ramps - Functional requirements for simple stairs to comply with Building Regulations Approved Documents: A, B, K and M.
- Access for all. Inclusive design.
- Floor; Wall; Ceiling Finishes; Skirting and Architraves; Rendering:
- Identification of typical defects and remedial techniques. Non-traditional housing, prefabrication and industrial systems - the legacy and their repair needs.
- Modern Methods of Construction. Innovative low technology building methods such as ground-sheltered structures, passive solar design, low carbon buildings. Building assessment standards such as Passivhaus, Living Buildings; Modular construction. Prefabrication both past and Present. Learning from the past to inform future practices.

LEARNING AND TEACHING STRATEGY

The study time for the module is divided as follows:

Activity type	Hours	Percentage
Scheduled learning	60	30%
Independent learning	140	70%
Placement learning	0	0%
TOTAL	200	100%

ASSESSMENT

Assessment Component 1

(Tick one)

☐ Written exam ☒ Coursework ☐ Practical

Mode of assessment	Volume	Weighting
Essay	2,000 words	50%

Assessment Component 2

(Tick one)

☐ Written exam ☒ Coursework ☐ Practical

Mode of assessment	Volume	Weighting
Essay	2,000 words	50%

Assessment Summary

Activity type	Percentage
Written exam	0
Coursework	100%
Practical	0
TOTAL	100%