INTERNATIONAL QUALIFICATIONS

AND ASSESSMENT CENTRE (IQAC)

«Approved»

2025 y. «___» _____

Programme	**Level 5 Extended Diploma in Architecture**		
Unit Number/ Unit Title	**Unit 11 Materials, Methods and Construction Detailing**		
Cohort Code:	L05MMC-U11		
Unit Level	Level 5		
Total Credits/Hours	Total qualification time 200/ Total Guided learning hours 90/ Self-guided learning hours 110		
Credits	20 CATS/ 10 ECTS		
Lecturer			
Start Date		**End Date**	

Unit Aims	This unit investigates the characteristics and applications of construction materials, structural methods, and detailing techniques. Learners gain the skills to select, specify, and represent building elements in technical drawings with an emphasis on durability, buildability, and performance.
Differentiation Strategies *(e.g. planned activities or support for individual learners according to their needs)*	Various approaches to addressing the various identified students' needs will be adopted throughout the lesson. Such will include: 1. Progressive tasks 2. Digital resources 3. Verbal support 4. Variable outcomes 5. Collaborative learning 6. Ongoing assessment 7. Flexible-pace learning
Equality & Diversity	Variety of teaching techniques will be employed to ensure that the needs of each individual learner are met.

Safeguarding & Prevent	Safeguarding policies and the Prevent duty are strictly observed to ensure the safety, well-being, and inclusivity of all students and staff.
Health & Safety	SIRM H&S policies will be maintained.
Learning Resources	**Teaching and Learning Materials** • Allen, E. & Iano, J. (2019). Fundamentals of Building Construction. Wiley. • Ching, F. D. K. (2011). Building Construction Illustrated. Wiley. • Emmitt, S. & Gorse, C. (2014). Barry's Introduction to Construction of Buildings. Wiley-Blackwell. • Ashby, M. (2012). Materials and Design: The Art and Science of Material Selection. Butterworth-Heinemann. • McMorrough, J. (2012). Materials, Structures, and Standards. Rockport.

Learning Outcome (The learner will:)	Assessment Criteria (The learner can:)
LO1. Understand the physical and mechanical properties of common construction materials.	1. Written Exam: 1.1 Describe properties and uses of materials such as concrete, steel, timber, and glass. 1.2 Compare their environmental impacts and lifecycle performance.
LO2. Illustrate construction techniques for building assemblies.	2. Technical Drawing Portfolio: 2.1 Develop construction details including sections, joints, and finishes. 2.2 Annotate drawings to explain functional and structural purpose.
LO3. Evaluate buildability, performance, and maintenance considerations.	3. Written Report: 3.1 Assess thermal, acoustic, and moisture control in construction systems. 3.2 Recommend detailing improvements for durability and ease of construction.
LO4. Interpret building performance in response to climate and usage.	4. Case Study Evaluation: 4.1 Analyse detailing choices in existing buildings. 4.2 Relate findings to building context, climate, and function.

No	Topic	Learning Outcomes for Each Topic	Which assessment criteria does the session relate to?	Day/month/ year/ signature
1	Introduction to Building Materials and Construction Systems	Identify the roles of materials and systems in construction projects.	LO1	
2	Physical Properties of Masonry, Concrete, Timber, and Steel	Compare strength, weight, moisture resistance, and thermal behavior.	LO1	
3	Material Lifecycle and Environmental Performance	Assess embodied energy and recyclability of construction materials.	LO1	
4	Structural Systems – Load-Bearing Walls and Frames	Illustrate wall systems and structural logic in basic detailing.	LO2	
5	Foundations and Groundwork Construction	Draw and annotate shallow and deep foundation systems.	LO2	
6	Wall Construction Types – Solid, Cavity, Timber, Lightweight	Explore wall buildup through sectional details and material layers.	LO2	

7	Floor Construction – Slabs, Raised, and Suspended Systems	Develop floor buildup drawings and understand service integration.	LO2	
8	Roof Types and Structural Assemblies	Design and detail flat and pitched roofing systems.	LO2	
9	Openings – Detailing Windows, Doors, and Thresholds	Annotate and section components in fenestration detailing.	LO2	
10	Waterproofing and Moisture Protection Techniques	Identify damp-proof courses, membranes, and weatherproofing.	LO3	
11	Thermal Insulation and Energy Efficiency Materials	Evaluate insulation types and placements for envelope performance.	LO3	
12	Acoustic and Fire Performance of Building Materials	Select materials to meet code-compliant fire and sound ratings.	LO3	
13	Cladding Systems and External Finishes	Design detailing for façade systems and rain screen assemblies.	LO2, LO3	
14	Interior Finishes and Dry Construction Methods	Analyse material applications for interior walls, floors, and ceilings.	LO1	

15	Joints and Fixings in Construction	Draw examples of mechanical fixings, expansion joints, and junctions.	LO2	
16	Midterm	**Midterm assessment** covering all learning outcomes (theory and practical elements)	LO1, LO2, LO3	
17	Buildability Principles in Modern Construction	Consider sequencing, access, and assembly ease in detailing.	LO3	
18	Low Carbon and Innovative Materials	Explore hempcrete, rammed earth, cross-laminated timber, etc.	LO1, LO3	
19	Modular Construction and Off-Site Fabrication	Illustrate assembly of prefabricated components and panels.	LO2, LO3	
20	Material Compatibility and Deterioration Risks	Predict long-term interactions between materials (e.g., corrosion, decay).	LO3	
21	Waterproofing Details for Basements and Roofs	Section drawing of detailing below and above grade waterproofing.	LO2, LO3	
22	Case Study – High-Performance Building Envelope	Analyse building's response to climate through its enclosure design.	LO4	

23	Detailing for Solar Gain and Shading	Use passive solar design principles in material selection and layout.	LO4	
24	Construction Detailing for Cold Climates	Examine thermal bridging and airtightness requirements.	LO4	
25	Ventilation and Breathable Walls	Combine health, comfort, and durability in wall section detailing.	LO4	
26	Sustainable Timber Frame Detailing Workshop	Develop a wall-to-roof junction using renewable materials.	LO2, LO3	
27	Green Roof and Rainwater Harvesting Integration	Illustrate sustainable roof systems with performance rationale.	LO3, LO4	
28	Detailing a Wall Section (Studio Practice)	Create a complete technical drawing with all material layers labeled.	LO2	
29	Drawing Standards, Conventions, and Annotation Practice	Use correct scale, line weights, and terminology in construction drawings.	LO3	
30	Final Project – Material Specification and Detailing Set	Produce a full set of drawings and written specifications for a small building.	LO1 – LO4	
31	Final Exam: Peer Review and Critique Session	Present and defend detailing decisions based on performance, buildability, and aesthetics.	LO4	