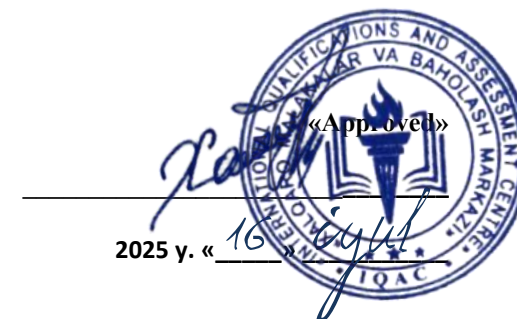




**INTERNATIONAL QUALIFICATIONS
AND ASSESSMENT CENTRE (IQAC)**



Programme	Foundation Year Diploma in Architecture		
Unit Number/ Unit Title	Unit 5 Materials and construction techniques		
Cohort Code:	L03MCT-U5		
Unit Level	3		
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	To provide students with an understanding of materials and construction techniques used in architecture. This module covers the properties, applications, and sustainability of different building materials.
Differentiation Strategies <i>(e.g. planned activities or support for individual learners according to their needs)</i>	<p>Various approaches to addressing the various identified students needs will be adopted throughout the lesson. Such will include:</p> <ol style="list-style-type: none"> 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
	<ul style="list-style-type: none"> • "Materials for Architects and Builders" by Arthur Lyons. • "Building Construction Illustrated" by Francis D.K. Ching. • "Sustainable Construction: Green Building Design and Delivery" by Charles J. Kibert. • "Fundamentals of Building Construction: Materials and Methods" by Edward Allen and Joseph Iano.

Learning Outcome	Assessment Criteria
1. Understand the properties and applications of construction materials.	1. Written Assessments: 1.1 Explain the key properties (e.g., strength, durability, thermal conductivity) of common construction materials. 1.2 Describe the applications and suitability of different materials in architectural contexts.
2. Demonstrate knowledge of traditional and modern construction techniques.	2. Practical Assessments: 2.1 Demonstrate the use of traditional construction techniques (e.g., masonry, timber framing) through practical exercises. 2.2 Apply modern construction methods (e.g., prefabrication, sustainable construction techniques) in design projects.
3. Evaluate sustainable building practices and material selection.	3. Research and Analysis Assessments: 3.1 Research and analyze the environmental impact of various construction materials. 3.2 Evaluate sustainable building practices and their impact on design and construction.
4. Apply material selection and specification principles.	4. Project Assessments: 4.1 Select appropriate materials for specific architectural projects based on design requirements and sustainability criteria. 4.2 Develop material specifications that meet project objectives and regulatory standards.
5. Critically analyze case studies of construction projects.	5. Case Study Assessments: 5.1 Analyze case studies of notable construction projects, focusing on material selection, construction techniques, and sustainability practices. 5.2 Draw conclusions and recommendations based on the analysis of case studies.

No	Topic	Learning Outcomes for Each Topic	Which assessment criteria does the session relate to?	Day/month/year/ signature
1	Introduction to Construction Materials and Their Role in Architecture	Understand the importance and types of materials used.	LO1	
2	Physical and Mechanical Properties of Materials (Strength, Durability, Density)	Learn how material properties influence design choices.	LO1	
3	Thermal, Acoustic, and Fire Performance of Building Materials	Assess materials for environmental and safety performance.	LO1	
4	Concrete: Composition, Properties, and Applications	Explore the most widely used structural material.	LO1	
5	Steel and Other Metals in Construction	Examine metal use for framing, cladding, and detailing.	LO1	

6	Timber: Types, Treatment, and Structural Use	Understand natural materials and their structural role.	LO1	
7	Glass, Plastics, and Composite Materials	Discover materials used for transparency and flexibility.	LO1	
8	Traditional Building Techniques: Masonry, Load-Bearing Walls	Learn about pre-modern and vernacular construction systems.	LO2	
9	Post-and-Beam and Frame Construction	Explore systems of support and enclosure.	LO2	
10	Reinforced Concrete and Steel Frame Construction	Understand modern structural techniques.	LO2	
11	Prefabrication and Modular Construction	Learn about speed and efficiency in modern building.	LO2	
12	Facade Systems and Cladding Technologies	Discover how building skins function and perform.	LO2	
13	Roofing Systems and Materials	Compare flat, pitched, and green roof types.	LO2	

14	Sustainable Material Concepts and Life-Cycle Thinking	Evaluate materials based on environmental performance.	LO3	
15	Renewable and Recycled Materials in Architecture	Explore options for circular construction	LO3	
16	Midterm	Midterm assessment covering all learning outcomes (theory and practical elements)	LO1, LO2, LO3	
17	Energy Efficiency in Material Use	Understand embodied energy and insulation values.	LO3	
18	Low-Carbon Construction Practices	Learn how choices impact carbon footprints.	LO3	
19	Climate-Responsive Construction (e.g., passive house)	Adapt material selection to environmental conditions.	LO3	
20	Material Selection Criteria: Performance, Cost, Aesthetics	Apply balanced decision-making in choosing materials.	LO4	
21	Specification Writing: Format, Codes, and Standards	Learn how to formally communicate material choices.	LO4	

22	Detailing and Assembly Techniques	Translate materials into constructible components.	LO4	
23	Construction Documents: Plans, Sections, Schedules	Read and produce material specifications in drawings.	LO4	
24	Mockups and Prototyping in Material Testing	Use physical models to evaluate performance.	LO4	
25	Case Study 1: Timber Architecture and its Modern Revival	Critically assess traditional material in new contexts.	LO5	
26	Case Study 2: High-Tech Architecture and Material Innovation	Study buildings where advanced materials define design.	LO5	
27	Case Study 3: Low-Cost Sustainable Housing	Analyze affordable, green approaches to construction.	LO5	
28	Case Study 4: Adaptive Reuse and Material Conservation	Learn how salvaged materials are used in heritage contexts.	LO5	
29	Student Presentations: Material and Technique Analysis of Chosen Projects	Practice critical evaluation and communication.	LO5	
30	Group Project: Material Specification for a Small Pavilion	Apply knowledge in a collaborative, applied setting.	LO1 – LO4	
31	Final Exam	Summarize and project future directions in the field.	LO1 – LO5	

