INTERNATIONAL QUALIFICATIONS

AND ASSESSMENT CENTRE (IQAC)

«Approved»

2025 y. « 16 » ____

Programme	**Level 6 Diploma in Architecture**
Unit Number/ Unit Title	**Unit 2 Material and Architectural Technologies II**
Cohort Code:	L06MATII-U2
Unit Level	6
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 builds on Module 1 to explore how complex materials interact with construction systems, emphasizing integration, performance detailing, and sustainability in advanced projects.
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** • Schodek, D. et al. (2014). Structures. Pearson. • Ilka, R. & Till, J. (2015). Architecture and Construction Systems. Routledge. • Gissen, D. (2002). Big and Green: Toward Sustainable Architecture. Princeton.

Learning Outcome (The learner will:)	**Assessment Criteria (The learner can:)**
LO1. Evaluate material-system integration.	**Analyze case studies of innovative material applications.**
LO2. Develop performance-based detailing.	**Design technical sections showing joints, layering, and thermal performance.**
LO3. Assess construction techniques.	**Compare offsite, modular, and traditional construction for material compatibility.**
LO4. Apply sustainable systems in advanced detailing.	**Specify environmental solutions using new- generation systems.**

No	Topic	Learning Outcomes for Each Topic	Which assessment criteria does the session relate to?	Day/month/ year/ signature
1	Introduction to Advanced Material-System Integration	Define how materials interact within structural and envelope systems.	LO1	
2	Hybrid Systems: Steel, Timber, and Concrete	Analyse integration of different materials within one construction system.	LO1	
3	Curtain Wall and Cladding Assemblies	Evaluate structural and thermal performance of complex façades.	LO1	
4	Roofing Systems and Material Coordination	Examine layered roofing systems including waterproofing and insulation.	LO1	
5	Floor-Wall-Ceiling Intersections	Study detailing and jointing at structural junctions.	LO1	

6	Thermal Bridging and Detailing for Energy Performance	Design connections that minimise heat loss in envelope design.	LO2	
7	Detailing Vapour, Air, and Moisture Control Layers	Ensure building envelope integrity with correct layering.	LO2	
8	Detailing for Acoustic Separation	Create material details that control sound transmission.	LO2	
9	Performance Detailing for Fire Protection	Detail for fire resistance and compliance with regulations.	LO2	
10	Floor Finishes and Substructure Integration	Detail floor build-ups for finish, acoustic, and structural performance.	LO2	
11	Advanced Structural Systems: Glulam and CLT	Study fabrication and construction processes of engineered timber systems.	LO3	
12	Lightweight Steel Framing Systems	Evaluate installation techniques and structural performance.	LO3	

13	Precast and Modular Construction	Understand off-site manufacturing and on-site assembly processes.	LO3	
14	Installation Sequencing and Site Constraints	Plan installation processes considering labour, space, and weather.	LO3	
15	On-site vs. Off-site Construction: Cost and Time Analysis	Compare efficiency, risk, and performance outcomes.	LO3	
16	Midterm	**Midterm assessment** covering all learning outcomes (theory and practical elements)	LO1, LO2, LO3	
17	Sustainability Frameworks for Construction	Introduce LEED, BREEAM, and local green building standards.	LO4	
18	Passive Systems in Material Detailing	Incorporate solar shading, thermal mass, and natural ventilation.	LO4	
19	Green Roof and Wall Assemblies	Detail systems that integrate vegetation with structure.	LO4	

20	Rainwater Harvesting and Drainage Integration	Design sustainable water systems in building envelopes.	LO4	
21	Lifecycle Assessment of Materials	Evaluate environmental impacts of material selection and construction systems.	LO4	
22	Zero Carbon Design Detailing	Apply low-energy detailing strategies to design development.	LO4	
23	Construction Detailing: Balcony Systems	Address water management, thermal bridging, and structural load.	LO2, LO3	
24	Thresholds and Transitions: Window and Door Detailing	Create weatherproof and accessible detailing at junctions.	LO2	
25	Façade Retrofitting and Reuse	Adapt older buildings using new envelope technologies.	LO1, LO4	
26	Advanced Materials: ETFE, Composites, and Smart Glass	Study applications and performance behaviour.	LO1, LO4	
27	Material Failure Case Studies	Analyse examples of poor integration or performance in buildings.	LO3	

28	Peer Review of Technical Detailing	Present and evaluate detailing packages in small groups.	LO2, LO4	
29	Construction Documentation Workshop	Prepare complete material integration details for a selected project.	LO1 – LO3	
30	Sustainability Audit of a Design Proposal	Review environmental and technical performance of your detailing.	LO4	
31	Final Exam: Final Presentation and Critique	Submit integrated construction detailing set with justification and reflections.	LO1 – LO4	