TECH: Building Technology, Materials and Structures 3

Module Title:	Building Technology, Materials and Structures 3
Language of Instruction:	English

Credits:	5

NFQ Level:	6

Module Delivered In	2 programme(s)

Teaching & Learning Strategies:	• Lecture delivery – 4 hours per week total, varying between Technology, Structures & Materials. Some delivery may be in Studio 2 • Projects – typically one each for technology, structures & materials, feeding into Studio 3 • Lab Experiments • Model Making • Tutorials • The key teaching & learning strategy is integration/'feeding-in', through content & timing, of Technology, Structures & Materials instruction with Studio 3 projects, including projects, to allow application of Technology, Structures & Materials theory with formative feedback

Module Aim:	• To provide the theoretical and technical background in construction, materials and structures for learners to detail and apply in Studio 3 projects, through introducing them to the characteristics of the main internal & external building materials/finishes used in small to medium scale non-domestic construction • To familiarize learners with the construction principles of sustainable site development & ground-works and timber structures both pre-cast & cast in-situ and including primary, secondary and tertiary structures, as they affect architectural technology • To familiarize learners with the technologies, principles, materials, span characteristics, support requirements and typical details required for the non-structural completion of small to medium scale non- domestic buildings, including glazing, rainscreen cladding, roofing and partitioning • To develop learners' understanding of specification • To develop learners' understanding of the application of Building Regulations requirements to the design and detailing of small to medium scale non-domestic buildings

Learning Outcomes	
On successful completion of this module the learner should be able to:	
LO1	Research and apply the structural & constructional principles of timber construction and materials to small to medium scale construction projects
LO2	Research and apply the technological & material principles of non-structural completions, including glazing, rainscreen cladding, flat roofing and partitioning to small to medium scale timber construction projects, including specification
LO3	Demonstrate an understanding of different types of structures and structural frames and have how the loads and load paths are transmitted from building/structural imposed and permanent loading to the foundations (Timber)
LO4	Apply Building Regulations requirements to a small to medium scale timber building

Pre-requisite learning
Module Recommendations *This is prior learning (or a practical skill) that is recommended before enrolment in this module.*
No recommendations listed
Incompatible Modules *These are modules which have learning outcomes that are too similar to the learning outcomes of this module.*
No incompatible modules listed
Co-requisite Modules
No Co-requisite modules listed
Requirements *This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.*
No requirements listed

Module Content & Assessment

Indicative Content
Technology Detailing for Part L compliance including insulation, airtightness, thermal bridging, moisture management (vapour barrier, breather membrane, DPM, DPC), Timber structures & construction: framed & panel timber structures, timber partitions, timber cladding, high-performance timber & composite windows, internal timber doors, rooflights, engineered timber, fire-retardant finishes, services integration Framed building envelope, characteristics & concepts of cladding, cladding types, rainscreen cladding, Flat roofing types, membranes.
Materials Non-domestic building materials both internal and external: Glass: Manufacture, properties, treatment, types and uses Materials: Non-domestic building materials both internal and external: Glass: Manufacture, properties, treatment, types and uses Timber: Moisture contents, stress grading, connections, preservative treatment, sheets and engineered timber products; Moisture & creep movements. Thermal Insulating materials: Conduction, Convection, Radiation, Thermal properties of materials, Forms of insulation, Materials, Factors in selection, How insulation works and aging factors. Bituminous Sheets – manufacture, sheet classification, performance, construction, finishes. Polymeric Single Ply Roof Membranes. Plastics and products; polymers, sheeting, fittings and paint systems Metal and products; ferrous and non ferrous, use in building
Structures Framing Arrangements • Lateral Stability • Framing around opening • Column base details Cladding • Structural Support Details for cladding systems to meet requirements of projects. Overall Structural Behaviour Building Load Paths Lateral Stability of Buildings, Shear Walls, Bracing Structural Timber • Timber Frame structural systems • Approx Sizing timber members for scheming stage • Lateral stability systems in timber frame buildings Material Laboratory Sessions • Timber – density, moisture content, examination of timber slides under microscope, examination of timber samples

Assessment Breakdown	%
Project	40.00%
End of Module Formal Examination	60.00%

No Continuous Assessment

Project

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Project	• Construction specifications linked to Studio 2 project • Materials project Structures project • Or as appropriate	1,2,4	40.00	n/a

No Practical

End of Module Formal Examination

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Formal Exam	3 hour formal exam	1,2,3	60.00	End-of-Semester

SETU Carlow Campus reserves the right to alter the nature and timings of assessment

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Module Workload

Workload: Full Time		
Workload Type	*Frequency*	*Average Weekly Learner Workload*
Lecture	12 Weeks per Stage	4.00
Estimated Learner Hours	12 Weeks per Stage	6.42
	Total Hours	125.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_CMARC_B	Bachelor of Science (Honours) in Architectural Technology	3	Mandatory
CW_CMART_D	Bachelor of Science in Architectural Technology	3	Mandatory