

<b>Module Title:</b>	Commercial and Industrial Technology 2, Sustainable Technology 2
<b>Language of Instruction:</b>	English
<b>Credits:</b>	10
<b>NFQ Level:</b>	6
<b>Module Delivered In</b>	<a href="#">3 programme(s)</a>
<b>Teaching &amp; Learning Strategies:</b>	Lectures Projects Practicals Private study
<b>Module Aim:</b>	<p>The aims of the Commercial &amp; Industrial Technology section of this module are: 1. To create an understanding of superstructure and the performance requirements of framed buildings, external envelope &amp; elements within the internal environment. 2. To provide an advanced study and understanding of the benefits and integration of sustainable building practices. 3. To provide an understanding of materials, properties, junctions and their interaction with modern construction techniques related to superstructure requirements. The aims of the Sustainable Technology section of this module are: 1. To examine the impact of the building on the users and occupants in relation to wellbeing and universal accessibility. 2. To examine waste management and reduction methods. 3. To apply acquired knowledge to DEAP software so as to be able to complete a BER certificate.</p>

Learning Outcomes	
<i>On successful completion of this module the learner should be able to:</i>	
LO1	To describe, explain, illustrate and apply an understanding of superstructure and the performance requirements of framed buildings, external envelope & elements within the internal environment.
LO2	To describe, explain, illustrate and apply an understanding and awareness of waste management, building circularity, urban mining, and embodied carbon management.
LO3	To describe, explain, illustrate and apply an understanding and awareness of the impact of the building on the users' wellbeing and universal accessibility.
LO4	Complete a Building Energy Rating (BER) using DEAP software

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

## Module Content & Assessment

### Indicative Content

#### Superstructure and framed buildings (60h)

A. (a) Timber frame. (b). Hybrid systems (c). External Envelope. 1. Walls I. Insulation. II. Waterproofing. III. In-situ and precast R.C. IV. Prefabricated external wall systems. Cassette systems. V. Rainscreen Facade systems VI. Curtain walling glazed and double skin façade systems. VII. Green Walls. VIII. Prefabricated masonry panels. IX. Prefabricated timber panels X. Prefabricated R.C., GRC, GRP XI. Metal cladding XII. Stone, brick and concrete composite facings. B. Roofs. I. R.C. slabs. II. R.C. Flat roof. III. Insulated metal roofing systems. IV. Timber flat roofs. V. Metal decking. VI. Green roofs. VII. Waterproofing. VIII. Insulation requirements. IX. Prefabricated roof systems. Cassette systems. 3. Windows & Doors I. Commercial window systems, Timber, Steel, Aluminum & Composite. II. Window fire ratings. III. Commercial door systems, Timber, Steel, Aluminum & Composite. C. INTERNAL ENVIRONMENT. 1. Floors I. Cast in situ R.C. slabs. II. Prefabricated R.C. slabs. III. Metal deck & R.C. slabs. IV. Raised floors / Service zones. V. Prefabricated flooring systems. VI. Floor finishes – non-slip rating etc., VII. Suspended ceilings. 2. Stairs I. R.C. Cast in situ. II. R.C. Prefabricated III. Timber stairs. IV. Metal stairs. 3. Walls I. Partition systems. 4. Joinery I. Internal doors. II. Internal glazed screens. D. Fire Rating of Superstructure. Materials and Systems

#### Waste Management (8h)

(a) Types of waste - domestic, hazardous and construction waste (b) reduction, treatment and disposal of waste (c) waste management regulations, legislation and laws (d) Building circulatory theory and urban mining.

#### The Building and The Occupants' Wellbeing (4h)

(a) Environmental impact of construction materials on occupant wellbeing - volatile organic compounds (VOCs), etc. (b) Environmental impact of air quality on occupant wellbeing - radon, CO and CO<sub>2</sub>, etc. (c) Sick building syndrome

#### Mobility and Access for All (12h)

(a) TGD Part M (b) building space design for disabled users (b) building services for disabled users (c) stairs, ramps, lifts and escalators, etc.

#### DEAP Practicals (12h)

(a) Energy Ratings of Buildings (b) BER (Building energy rating) (c) DEAP (Dwelling energy assessment procedure) (d) Introduction to alternative assessment methods - NEAP & iSBEM

Assessment Breakdown	%
Continuous Assessment	20.00%
Project	60.00%
Practical	20.00%

### Continuous Assessment

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Examination	A class based exam relating to all module theory	1,2,3	20.00	n/a

### Project

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Project	Applied superstructure and the performance requirements of framed buildings, external envelope & elements within the internal environment knowledge.	1	20.00	n/a
Project	Applied waste management, building circularity, urban mining, and embodied carbon management knowledge.	2	20.00	n/a
Project	Applied knowledge relating to understanding and having an awareness of the impact of the building on the users' wellbeing and universal accessibility.	3	20.00	n/a

### Practical

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Practical/Skills Evaluation	Complete various Building Energy Rating (BER) assessments using DEAP software	4	20.00	n/a

No End of Module Formal Examination

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

### Module Workload

Workload: Full Time		
Workload Type	Frequency	Average Weekly Learner Workload
Lecture	12 Weeks per Stage	7.00
Laboratory	12 Weeks per Stage	1.00
Independent Learning	12 Weeks per Stage	4.00
Project	12 Weeks per Stage	2.00
Total Hours		168.00

**Module Delivered In**

Programme Code	Programme	Semester	Delivery
CW_CMOPPT_B	<a href="#">Bachelor of Science (Honours) in Construction Management</a>	4	Mandatory
CW_CMQSU_B	<a href="#">Bachelor of Science (Honours) in Quantity Surveying</a>	4	Mandatory
CW_CMBSE_D	<a href="#">Bachelor of Science in Construction Management</a>	4	Mandatory