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|----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Module Title:</b>                                                                                                                               | Civil Engineering Technology II                                                                                                                                                                                                                                                                        |
| <b>Language of Instruction:</b>                                                                                                                    | English                                                                                                                                                                                                                                                                                                |
| <b>Credits:</b>                                                                                                                                    | 5                                                                                                                                                                                                                                                                                                      |
| <b>NFQ Level:</b>                                                                                                                                  | 6                                                                                                                                                                                                                                                                                                      |
| <b>Module Delivered In</b>                                                                                                                         | <a href="#">2 programme(s)</a>                                                                                                                                                                                                                                                                         |
| <b>Teaching &amp; Learning Strategies:</b>                                                                                                         | Lectures Project Work Continuous Assessments Private study                                                                                                                                                                                                                                             |
| <b>Module Aim:</b>                                                                                                                                 | The aims of this module are: (1)to teach students the techniques and processes involved in the general area of civil engineering construction; (2)to help students appreciate the capabilities and limitations of the various types of plant and equipment that are used in the construction industry. |
| <b>Learning Outcomes</b>                                                                                                                           |                                                                                                                                                                                                                                                                                                        |
| <i>On successful completion of this module the learner should be able to:</i>                                                                      |                                                                                                                                                                                                                                                                                                        |
| LO1                                                                                                                                                | to describe how foundations are constructed and assess emerging sustainable foundation technologies;                                                                                                                                                                                                   |
| LO2                                                                                                                                                | to describe how shoring and retaining walls are designed and constructed and compare carbon footprints of competing retaining wall types;                                                                                                                                                              |
| LO3                                                                                                                                                | to describe how pipelines and drains are constructed and tested;                                                                                                                                                                                                                                       |
| LO4                                                                                                                                                | to describe the type of plant and equipment used in the industry, identify health and safety issues on site and discuss the contribution of plant/equipment to carbon emissions in construction projects                                                                                               |
| LO5                                                                                                                                                | (a) to work with others on team projects (b) to carry out research into simple civil engineering manufacturing and construction methods (c) to write reports                                                                                                                                           |
| <b>Pre-requisite learning</b>                                                                                                                      |                                                                                                                                                                                                                                                                                                        |
| <b>Module Recommendations</b><br><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><br><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><br><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

#### (1) Foundations

a) Shallow foundations b) Deep Foundations c) Rising walls d) Calculations: Bearing Pressure, Foundation Quantities e) Emerging sustainable foundation technologies

#### (2) Excavation, de-watering and shoring

a) Revise scaffolding and Formwork b) Excavating and earth moving equipment c) Excavation support and shoring d) De-watering methods e) Calculations: excavation quantities and rates.

#### (3) Retaining Walls

a) Gravity, Basement, Buttress and Counterfort walls. b) Sheet Pile, Secant, Contiguous and Diaphragm walls. c) Mechanical Stabilized Earth walls c) Drainage of walls d) Methods of Failure e) Relative carbon footprints of each type of retaining wall

#### (4) Pipe Laying

a) Types and laying of pipework b) Excavation, bedding and backfilling c) Manhole construction d) Surface drain systems: yard gullies, road gullies, access and inspection chambers, oil interceptors e) Testing procedures f) Calculations: Pipe Gradients, Manholes quantities and buoyancy calculations.

#### (5) Health and Safety

a) Construction Environment - Generic risks b) Hazard Identification b) Risk Analysis and Control

#### (6) Construction Plant

Earth moving, excavation and compaction plant. Carbon emissions associated with this type of work.

| Assessment Breakdown             | %      |
|----------------------------------|--------|
| Continuous Assessment            | 20.00% |
| Project                          | 40.00% |
| End of Module Formal Examination | 40.00% |

### Continuous Assessment

| Assessment Type | Assessment Description                                         | Outcome addressed | % of total | Assessment Date |
|-----------------|----------------------------------------------------------------|-------------------|------------|-----------------|
| Other           | Construction Detail Sketch Submissions or Multiple Choice Quiz | 1,2,3,4           | 20.00      | n/a             |

### Project

| Assessment Type | Assessment Description                               | Outcome addressed | % of total | Assessment Date |
|-----------------|------------------------------------------------------|-------------------|------------|-----------------|
| Project         | Various Projects - student self-assessment required. | 1,2,3,4,5         | 40.00      | n/a             |

No Practical

### End of Module Formal Examination

| Assessment Type | Assessment Description | Outcome addressed | % of total | Assessment Date |
|-----------------|------------------------|-------------------|------------|-----------------|
| Formal Exam     | Final Examination      | 1,2,3,4           | 40.00      | End-of-Semester |

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

**Module Workload**

| <b>Workload: Full Time</b> |                       |                                                |
|----------------------------|-----------------------|------------------------------------------------|
| <i>Workload Type</i>       | <i>Frequency</i>      | <i>Average Weekly<br/>Learner<br/>Workload</i> |
| Lecture                    | 12 Weeks<br>per Stage | 4.00                                           |
| Estimated Learner Hours    | 15 Weeks<br>per Stage | 5.13                                           |
| Total Hours                |                       | 125.00                                         |

**Module Delivered In**

| Programme Code | Programme                                                              | Semester | Delivery  |
|----------------|------------------------------------------------------------------------|----------|-----------|
| CW_CMHCE_B     | <a href="#">Bachelor of Engineering (Honours) in Civil Engineering</a> | 2        | Mandatory |
| CW_CMCIV_D     | <a href="#">Bachelor of Engineering in Civil Engineering</a>           | 2        | Mandatory |