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|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Module Title:</b>                       | Civil Engineering Drawing + BIM                                                                                                                                                                                                                                                                       |
| <b>Language of Instruction:</b>            | English                                                                                                                                                                                                                                                                                               |
| <b>Credits:</b>                            | 10                                                                                                                                                                                                                                                                                                    |
| <b>NFQ Level:</b>                          | 6                                                                                                                                                                                                                                                                                                     |
| <b>Module Delivered In</b>                 | <a href="#">2 programme(s)</a>                                                                                                                                                                                                                                                                        |
| <b>Teaching &amp; Learning Strategies:</b> | Lectures Practicals Private Study                                                                                                                                                                                                                                                                     |
| <b>Module Aim:</b>                         | The aims of Civil Engineering Drawing portion of this module are: 1) to develop a practical knowledge of creating, editing and printing general arrangement and detailed drawings for Civil Engineering works using AutoCAD. (2) to create and edit basic structural BIM models using Autodesk Revit. |

| Learning Outcomes                                                             |                                                                                                                                                                                                |
|-------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>On successful completion of this module the learner should be able to:</i> |                                                                                                                                                                                                |
| LO1                                                                           | Prepare Engineering drawings including general arrangement drawings, reinforcement drawings and (a) sections and standard details; (b) fabrication drawings for structural steelwork elements. |
| LO2                                                                           | Prepare longitudinal drainage sections and plans for drainage drawings                                                                                                                         |
| LO3                                                                           | Layout and print drawings using appropriate drawing layers, drawing scales etc                                                                                                                 |
| LO4                                                                           | Create edit and plot views of structural building information models using Autodesk Revit                                                                                                      |

| Pre-requisite learning                                                                                                                             |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <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

#### Structural Steelwork Detailing

a) Structural steelwork section dimensions b) Bolted connections and welded connections c) Beam to column connections, d) Beam to beam connections e) Column to foundation connections,

#### Drainage and Water Supply Layouts and Sections

a) Foul and surface water layout drawings, b) Longitudinal sections, c) Pipe bedding, backfill and surfacing. d) Manholes, e) Water main layouts f) Sluice Values & hydrant chambers

#### BIM with Autodesk Revit

a) Creating levels and grids b) Modelling basics c) Revit families d) Structural walls, columns and foundations e) Beams, joists and bracing f) Floor stairs and ramps g) Adding surface terrain h) Structural reinforcement i) Schedules and legends j) Annotation and drafting tools k) Creating views l) Creating sheets plotting and publishing

#### Computer Applications

a) Software Package AutoCAD b) Software Package AutoCAD Civil 3D

#### Reinforced Concrete Detailing

a) Detailing of Columns/Beams

### Assessment Breakdown

%

Practical

100.00%

No Continuous Assessment

No Project

### Practical

| Assessment Type             | Assessment Description                                                               | Outcome addressed | % of total | Assessment Date |
|-----------------------------|--------------------------------------------------------------------------------------|-------------------|------------|-----------------|
| Practical/Skills Evaluation | Students will prepare models and drawings for various Civil Engineering applications | 1,2,3,4           | 100.00     | n/a             |

No End of Module Formal Examination

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

**Module Workload**

| <b>Workload: Full Time</b> |                       |                                                |
|----------------------------|-----------------------|------------------------------------------------|
| <i>Workload Type</i>       | <i>Frequency</i>      | <i>Average Weekly<br/>Learner<br/>Workload</i> |
| Practicals                 | 12 Weeks<br>per Stage | 7.00                                           |
| Independent Learning       | 12 Weeks<br>per Stage | 7.00                                           |
| Total Hours                |                       | 168.00                                         |

**Module Delivered In**

| Programme Code | Programme                                                              | Semester | Delivery  |
|----------------|------------------------------------------------------------------------|----------|-----------|
| CW_CMHCE_B     | <a href="#">Bachelor of Engineering (Honours) in Civil Engineering</a> | 4        | Mandatory |
| CW_CMCIV_D     | <a href="#">Bachelor of Engineering in Civil Engineering</a>           | 4        | Mandatory |