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| Module Title: | Civil Engineering Drawing and Surveying |
| Language of Instruction: | English |
| Credits: | 10 |
| NFQ Level: | 6 |
| Module Delivered In | 2 programme(s) |
| Teaching & Learning Strategies: | Lectures Practicals Private Study |
| Module Aim: | 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. The aims of the Surveying and Setting Out II portion of this module are: (1) to introduce students to modern day surveying equipment; (2) to teach students the basic principles relating to this equipment. Students must participate in class work, practical work & project work and must achieve a minimum of 50% in these elements of continuous assessment in order to have satisfied the module learning outcomes. |

| Learning Outcomes | |
|--|---|
| On successful completion of this module the learner should be able to: | |
| LO1 | Produce general arrangement drawing and (a) longitudinal sections and standard details; (b) detailed reinforcement drawings and schedules for reinforced concrete elements; |
| LO2 | Prepare bending schedules for reinforced concrete drawings |
| LO3 | Create edit and plot views of structural concrete buildings |
| LO4 | Demonstrate & operate modern electronic distance measurement instruments (i.e. Leica, Pentax, Topcon, Trimble); |
| LO5 | Describe and demonstrate these instruments to (a) set out buildings & roads; (b) produce a detail survey of an area, a contour map of an area, longitudinal sections. |
| LO6 | Apply relevant computer software to obtain the output drawings |

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

Reinforced Concrete Detailing

a) Concrete grades and minimum cover b) Bond and anchorage c) Lap lengths d) Pad foundations, e) Single span beams and slabs f) Columns and walls g) Reinforcement scheduling to BS8666.

Traversing

(a) Bearings and Coordinates (b) Traversing Field Work (c) Traversing Calculations

Optical And Electromagnetic Distance Measurement

(a) Total Station instrument characteristics (b) Applications of the instruments (c) Factors affecting accuracy

Curve Ranging

(a) Circular curves and setting out principles (b) Transition curves and setting out principles (c) Vertical curves and setting out principles

Volume Computation

(a) Volumes from cross sections, contour lines and spot levels (b) Mass haul diagrams

Setting Out For Construction Work

(a) Setting out of Buildings (b) Setting out of Roads

Computer Applications

(a) Software Package AutoCAD (d) Software Package AutoCAD Civil 3D

Excavation Control

(a) Sight rails revised (b) Pipe laser

Assessment Breakdown

%

Practical

100.00%

No Continuous Assessment

No Project

Practical

| Assessment Type | Assessment Description | Outcome addressed | % of total | Assessment Date |
|-----------------------------|--|-------------------|------------|-----------------|
| Practical/Skills Evaluation | Drawing: Students will prepare a variety of structural reinforced concrete drawings Surveying: Students will participate in and complete a variety of surveying practical's. | 1,2,3,4,5,6 | 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

| Workload: Full Time | | |
|----------------------------|--------------------|--|
| <i>Workload Type</i> | <i>Frequency</i> | <i>Average Weekly Learner Workload</i> |
| Practicals | 12 Weeks per Stage | 5.00 |
| Lecture | 12 Weeks per Stage | 1.00 |
| Practicals | 12 Weeks per Stage | 3.00 |
| Independent Learning | 12 Weeks per Stage | 12.00 |
| Total Hours | | 252.00 |

Module Delivered In

| Programme Code | Programme | Semester | Delivery |
|----------------|--|----------|-----------|
| CW_CMHCE_B | Bachelor of Engineering (Honours) in Civil Engineering | 3 | Mandatory |
| CW_CMCIV_D | Bachelor of Engineering in Civil Engineering | 3 | Mandatory |