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|----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| <b>Module Title:</b>                                                                                                                               | Structural Analysis I                                                                          |
| <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 Private study                                                            |
| <b>Module Aim:</b>                                                                                                                                 | The aims of the module are: (1) to develop an understanding of structural theory and analysis; |
| <b>Learning Outcomes</b>                                                                                                                           |                                                                                                |
| <i>On successful completion of this module the learner should be able to:</i>                                                                      |                                                                                                |
| LO1                                                                                                                                                | to draw a shear force and bending moment diagram for statically determinate members.           |
| LO2                                                                                                                                                | to calculate the section properties for symmetrical and non-symmetrical sections.              |
| LO3                                                                                                                                                | to analyse a simple truss using the method of sections and method of joints.                   |
| <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                                                                                                                                                                                                                                                                                                                                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Theory of Structures</b><br>(a) Section properties:- area, second moment of area, elastic modulus and radius of gyration (b) Shear force and bending moment diagrams<br>(c) Theory of simple bending (d) Tension and compression members (e) Effective length and slenderness ratio. (f) Axial capacity of compressive members. (g) Analysis of pinned jointed frames |

| Assessment Breakdown  | %      |
|-----------------------|--------|
| Continuous Assessment | 85.00% |
| Project               | 15.00% |

| Continuous Assessment |                        |                   |            |                 |
|-----------------------|------------------------|-------------------|------------|-----------------|
| Assessment Type       | Assessment Description | Outcome addressed | % of total | Assessment Date |
| Other                 | n/a                    | 1,2,3             | 85.00      | n/a             |

| Project         |                                                                                     |                   |            |                 |
|-----------------|-------------------------------------------------------------------------------------|-------------------|------------|-----------------|
| Assessment Type | Assessment Description                                                              | Outcome addressed | % of total | Assessment Date |
| Project         | In conjunction with 2nd year Architects project , the design of a timber flat roof. | 1                 | 15.00      | End-of-Semester |

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| No Practical |
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| No End of Module Formal Examination |
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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 Learner Workload</i> |
| Lecture                    | 12 Weeks per Stage | 3.00                                   |
| Estimated Learner Hours    | 12 Weeks per Stage | 7.42                                   |
| 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> | 3        | Mandatory |
| CW_CMCIV_D     | <a href="#">Bachelor of Engineering in Civil Engineering</a>           | 3        | Mandatory |