

Structural Analysis and Design

Module Information

2022.01, Approved

Summary Information

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| Module Code | 5502ICPDCE |
| Formal Module Title | Structural Analysis and Design |
| Owning School | Civil Engineering and Built Environment |
| Career | Undergraduate |
| Credits | 20 |
| Academic level | FHEQ Level 5 |
| Grading Schema | 40 |

Teaching Responsibility

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| LJMU Schools involved in Delivery |
| LJMU Partner Taught |

Partner Teaching Institution

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| Institution Name |
| International College of Business and Technology |

Learning Methods

| Learning Method Type | Hours |
|----------------------|-------|
| Lecture | 30 |
| Practical | 6 |

Module Offering(s)

| Display Name | Location | Start Month | Duration Number Duration Unit |
|--------------|----------|-------------|-------------------------------|
| SEP-PAR | PAR | September | 12 Weeks |

Aims and Outcomes

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| Aims | This unit provides learners with an understanding of civil engineering structural design, beginning with simple structural elements found in buildings |
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After completing the module the student should be able to:

Learning Outcomes

| Code | Number | Description |
|------|--------|---|
| MLO1 | 1 | Identify equilibrium and compatibility in relation to structures. |
| MLO2 | 2 | Identify deflection of structural systems. |
| MLO3 | 3 | Identify further theories for structures. |
| MLO4 | 4 | Produce designs for building elements. |

Module Content

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| Outline Syllabus | Equilibrium and compatibility requirements for given structures The stress/strain relationship of an axially loaded system Statically determinacy and kinematical indeterminacy using appropriate methods Deflection of compound and complex trusses Statically determinate structures using energy theorems Statically indeterminate structures using matrix force method Loading conditions for a civil engineering structure Load transfer within civil engineering structures Different design concepts used in civil engineering design Designs for simply supported beams in steel, reinforced concrete and timber Designs for columns in steel, reinforced concrete, timber and masonry Appropriate slab designs for one-way and two-way spanning slabs Understand appropriate designs for doubly reinforced concrete beams Understand appropriate designs for continuous concrete beams |
| Module Overview | |
| Additional Information | |

Assessments

| Assignment Category | Assessment Name | Weight | Exam/Test Length (hours) | Module Learning Outcome Mapping |
|---------------------|-----------------|--------|--------------------------|---------------------------------|
| Exam | Examination | 100 | 3 | MLO1, MLO2, MLO3, MLO4 |

Module Contacts

Module Leader

| Contact Name | Applies to all offerings | Offerings |
|-----------------|--------------------------|-----------|
| Alison Cotgrave | Yes | N/A |

Partner Module Team

| Contact Name | Applies to all offerings | Offerings |
|--------------|--------------------------|-----------|
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