## Faculty of Engineering & Technology

### Structural Analysis 1

**Information :**

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| **Course Code :** | SCM 211 | **Level :** | Undergraduate | **Course Hours :** | 3.00- Hours |

**Department :** Department of Structural Engineering & Construction Management

**Instructor Information :**

| Title | Name | Office hours |
|---|---|---|
| Associate Professor | Dina Muhammad Fathy Ors | 23 |
| Teaching Assistant | Nada Mamdouh Hamam Mohamed Elshenawy | |

**Area Of Study :**

ÅDetermine the reactions at the supports.
ÅDetermine of the Internal Forces Diagrams for the statically determinate structures (Beams-Frames-Trusses-Arches) under applied static loads.
ÅDetermine the stability and determinacy of structures.

**Description :**

Types of structures, Loads, Supports, Desemesterination of reactions, Internal forces, Analysis of beams, Frames and plane trusses.

**Course outcomes :**

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| **a.Knowledge and Understanding: :** | |
| 1 - | Recognize different types of loads (concentrated, distributed) and supports(roller, hinge & fixed). |
| 2 - | Define the different types of staining actions. |
| 3 - | Understand different types of statically determinate plane structures (beams, frames and trusses) |
| 4 - | Identify the internal forces in structural members and determinacy and stability of structures. |
| **b.Intellectual Skills: :** | |
| 1 - | Analyze statically determinate structures. |
| 2 - | Compare different solution alternatives for same statical system of beams, frames and trusses |
| 3 - | Assess the stability and determinacy of plane structure. |
| **c.Professional and Practical Skills: :** | |
| 1 - | Handle different types of plane structures |
| 2 - | Handle different structural systems |
| **d.General and Transferable Skills: :** | |
| 1 - | Manage time and meet deadlines |

**Course Topic And Contents :**

| Topic | No. of hours | Lecture | Tutorial / Practical |
|---|---|---|---|
| Introduction to structural analysis, review of topics of prerequisite related to course | 4 | 3 | 1 |
| Types of structures, loads and supports, conditions of equilibrium, determinacy and stability | 8 | 6 | 2 |
| Free body diagrams and determination of reactions for various types of structures, definition of internal forces in plane structures | 12 | 9 | 3 |
| Calculation of internal forces for beams and frames and production of internal force diagrams. | 20 | 15 | 5 |
| Analysis of pin-jointed structures of various configurations | 16 | 12 | 4 |

**Teaching And Learning Methodologies :**

Lectures

Tutorials

**Course Assessment :**

| Methods of assessment | Relative weight % | Week No | Assess What |
|---|---|---|---|
| Final exam | 40.00 | | |
| First Mid Term Exam | 25.00 | | |
| Performance | 10.00 | | |
| Second Mid Term Exam | 25.00 | | |

**Course Notes :**

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**Recommended books :**

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**Periodicals :**

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**Web Sites :**

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