UNIVERSITY of NICOSIA

Course Code	Course Title	ECTS Credits
CVEE-220	Structural Analysis I	5
Department	**Semester**	**Prerequisites**
Engineering	Fall, Spring	MENG-250
Type of Course	**Field**	**Language of Instruction**
Elective	Civil & Environmental Engineering	English
Level of Course	**Year of Study**	**Lecturer(s)**
1st Cycle	2nd	Dr Kyriacos Neocleous
Mode of Delivery	**Work Placement**	**Co-requisites**
Face-to-face	N/A	None

Objectives of the Course:

The main objectives of the course are to:

1. Develop an understanding of the basic principles of structural analysis
2. Explain various methods of analyses for beams, trusses, and rigid frames
3. Provide an understanding on the influence lines and max load on bridges and beams
4. Introduce static analysis of beams and trusses
5. Introduce slope analysis of beams

Learning Outcomes:

After completion of the course students are expected to:

1. Understand the basic principles of structural analysis
2. Perform analysis method for beams, trusses and rigid bodies
3. Perform analysis of the influence lines and max load on bridges and beams
4. Statistically determinate beams and trusses
5. Perform slope analysis of beams

Course Contents:

- Introduction to static analysis of solids
- Simple statically determined structures. Planar formations – beams – trusses – frames.
- The significance of support conditions and internal connections.
- The calculation of reactions at the supports and of the internal forces (stress-resultants).
- Complex statically determined structures. Common formations of such structural systems. Study of their formation – disassembling.
- Loading configurations, static equilibrium, free body diagrams
- Stability & determinacy of structures
- Analysis of complex statically determined structures – Influence lines.

- The stress-strains conditions - energy formulations.
- Calculation of displacements at discrete points of the structure under loading conditions that include external loading and internal constraints.
- Calculating the displaced shape of structural elements and structural assemblies.
- The Mohr principle – elastic loads

Learning Activities and Teaching Methods:

Lectures, Projects, Discussion

Assessment Methods:

Homework, Project assignments, exams, final exam.

Required Textbooks/Reading:

Authors	Title	Publisher	Year	ISBN
Devdas Menon	Advanced Structural Analysis	Narosa Publishing House	2009	1842654977
Asslam Kassimali	Matrix Analysis of Structures, 4th ed.	Brooks/Cole Publishing Co.	2009	10-049529565-5

Recommended Textbooks/Reading:

Authors	Title	Publisher	Year	ISBN
Amin Ghali, Adam M Neville and Tom G Brown,	Structural Analysis: A Unified Classical and Matrix Approach, 6th Ed.	Chapman & Hall	2007	041924610-x