



University of Nicosia, Cyprus

<b>Course Code</b> CEE-352	<b>Course Title</b> Steel Structures I	<b>ECTS Credits</b> 6
<b>Department</b> Engineering	<b>Semester</b> Fall, Spring	<b>Prerequisites</b> CEE-220, MENG-270
<b>Type of Course</b> Required	<b>Field</b> Civil & Environmental Engineering	<b>Language of Instruction</b> English
<b>Level of Course</b> 1 <sup>st</sup> Cycle	<b>Year of Study</b> 3 <sup>rd</sup>	<b>Lecturer(s)</b> Dr Marios Kyriakides
<b>Mode of Delivery</b> Face-to-face	<b>Work Placement</b> N/A	<b>Co-requisites</b> None

**Objectives of the Course:**

The main objectives of the course are to:

- Inform students of the important features inherent in both the mechanical behaviour of structural steel and steel technology.
- Introduce the behaviour and design of steel structural members according to the limit states design concept.
- Discuss the behaviour and design of tension members, compression members and beam-columns members.
- Introduce students to the principles of connection design.
- Provide basic knowledge about the non linear behaviour and failure mode of steel structural members.
- Provide an understanding of the relationship between structural analysis and design provisions.

**Learning Outcomes:**

Upon completion of the course, the student should be able to:

- Demonstrate understanding of the basic mechanical properties of steel as a structural material.
- Classify the various steel sections.
- Design individual steel members (tension members, beams, columns) under various loading conditions.
- Evaluate the capacity of certain steel members.
- Design basic joint connections.

**Course Contents:**

- Steel technology. Steel as a structural material. Mechanical properties. Laboratory tests.
- Design principles and provisions according to European and international standards.

- Ultimate and serviceability limit states and safety factors.
- Steel section types and classification.
- Design of steel members under tension, compression, buckling, shear, torsion.
- Elastic and plastic analysis and design principles.
- Basic connection design.

**Learning Activities and Teaching Methods:**

Lectures, Example problems, Laboratory visit, Project, Discussion

**Assessment Methods:**

Homework, Project(s), Mid-term exam, Final exam.

**Required Textbooks/Reading:**

Authors	Title	Publisher	Year	ISBN
N.S. Trahair, M.A. Bradford, D. Nethercot, L. Gardner	The Behaviour and Design of Steel Structures to EC3 (4 <sup>th</sup> ed)	CRC Press	2007	978- 0415418669

**Recommended Textbooks/Reading:**

Authors	Title	Publisher	Year	ISBN
Vincenzo Nunziata, Andy Richardson (ed.)	Theory and practice of steel structures: Design to Eurocodes with Introduction to U.S. Standards	LAP LAMBERT	2013	978- 3848448777
Graham W.Owens, Peter R.Knowles and Patrick J.Dowling.	Steel Designer's manual	University press Cambridge	2000	0-632-03877-2