



Course Code CVEE-452	Course Title Steel Structures II	ECTS Credits 6
Department Engineering	Semester Fall, Spring	Prerequisites CVEE-352
Type of Course Elective	Field Civil & Environmental Engineering	Language of Instruction English
Level of Course 1 st Cycle	Year of Study 4 rd	Lecturer(s) Dr Kyriacos Neocleous
Mode of Delivery Face-to-face	Work Placement N/A	Co-requisites None

Objectives of the Course:

The main objectives of the course are to:

- Develop in-depth understanding of advanced steel structural principles.
- Provide fundamental knowledge about connection design with emphasis on welding.
- Familiarize students with laboratory and field testing procedures for the verification of the welding processes.
- Introduce students to the fundamental principles of cold-formed steel structures
- Provide a foundation for composite design.

Learning Outcomes:

After completion of the course students are expected to:

- Be able to efficiently design bolted and welded connections of steel members.
- Describe and conduct the necessary experimental work for the quality control and the verification of welded connections.
- Be able to design steel framing system and connections of a building in a team setting.
- Be able to design bracing systems for wind and seismic loading.
- Demonstrate understanding of the design provisions for hot-rolled and cold-formed steel structures, including the main differences between them.
- Demonstrate understanding of the basic principles of composite structures design.

Course Contents:

- Advanced connection design with emphasis in welding.
- Welding Simulator Laboratory, including tests on welds.
- Beam to column joints. Beam to beam joints. Column base joints.
- Types of bracing system.
- Fatigue design.
- Applications of steel structures: complex trusses, braced frames, space frames

- Introduction to thin-plate elements analysis and design.
- Introduction to composite structures design.

Learning Activities and Teaching Methods:

Lectures, Example problems, Laboratory visits, 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 th 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