Course: STRUCTURAL ENGINEERING	**Teaching Language:** English
SSD (Subject Areas): ICAR/09	**CREDITS:** 9
Course year: I	**Type of Educational Activity:** D
Teaching Methods: In person learning	

Contents extracted from the SSD declaratory consistent with the training objectives of the course:

Principles of structural safety and reliability behind modern design codes; partial safety factors for external actions and resistance in the structural Eurocodes. Serviceability and ultimate limit states.

General properties of reinforced concrete and structural steel. Calculating support reactions, sectional forces and deflections for simple linear-elastic structural systems and frames under static loading; calculating normal and shear stresses according to beam theory.

Reinforced concrete; materials and conceptual design. Design of reinforced concrete sections under normal forces: uniaxial and biaxial flexure, flexure under compressive or tensile axial force; design of reinforced concrete members against shear and torsion; fundamentals of reinforcement detailing and conceptual design: beams, slabs, columns and footings; calculation of deflections in cracked state and verification of serviceability limit states.

Structural steel; Classification of cross sections; Resistance of cross-sections: tension, compression, bending moment, shear, torsion, combined actions; Buckling resistance of members: compression, bending, combined actions; Serviceability limit states for buildings.

Connecting devices: bolted connections, welded connections; Structural joints; Composite floor slabs.

Objectives:

The scope of this course is to provide students with a solid background on the fundamentals of structural design (principles of structural design and reliability, calculation of sectional forces for typical frame structures, dimensioning of reinforced concrete and steel cross-sections and members, design and limit-state checks of simple structures). Theoretical lectures will be closely followed by sessions focused on practical applications of the material taught, which will be in the form of design examples.

Propaedeutics: none

Is propaedeutic for: none

Types of examinations and other tests:

oral test