

Course unit title	CONCEPTUAL DESIGN OF BUILDINGS
Course unit code	1C2
Type of course unit	Compulsory
Semester	1
Number of ECTS credits allocated	6
Name of lecturer(s)	Studnička (CTU); Simões (UC); Portioli (UNINA); Georgescu/Stoian (UPT); Franssen (ULg); Iqbal (LTU); Nazim (Associate 1); Lecturer (Associate2).
Learning outcomes of the course unit	The students should, at the end of the unit, be able to conceptually design a building through the selection, in a wide library of structural solutions, of the most appropriate ones to be implemented. To achieve it, he will rely on his knowledge of these technical solutions, but also on his acquired ability to integrate various other conceptual aspects as the feasibility and the economy of the project.
Mode of delivery	Frontal lesson , design projects, home work
Prerequisites and co-requisites	General admission requirements
Course contents	<p>Part A – Generalities about structural elements and systems</p> <ol style="list-style-type: none"> 1. Introduction 2. Tension members 3. Compression members and arches 4. Trusses (plane and spatial) 5. Members in bending 6. Connections 7. Bracing systems 8. Frames 9. Conceptual aspects <p>Part B – Critical appraisal of construction techniques</p> <ol style="list-style-type: none"> 1. Beam or column elements: steel, concrete, composite, timber, rolled, built-up, with or without openings 2. Connections: rigid, semi-rigid, steel or composite, timber 3. Floors: concrete, composite, precast, slim floors ...

	<p>4. Roofs</p> <p>5. Claddings</p> <p>6. Buildings: multi-storey, industrial ...</p>
Recommended or required reading	<p>Silva L.S., Simoes R., Gervásio, H.: Design of steel structures. ECCS Eurocode Design Manuals, Ernst & Sohn, 2010, 438 p.</p> <p>Trahair N.S., Bradford M.A., Nethercot D.A., Gardner L.: The behaviour and design of steel structures to EC3. Taylor & Francis, 2008, 490 p.</p> <p>Balio G., Mazzolani F.M.: Design of steel structures, FNSpon, London, 1999</p>
Planned learning activities and teaching methods	<p>Frontal lectures related to Part A are organised at the beginning. Then students have to achieve the conceptual design of a particular building on the basis of assumed realistic design requirements provided by the lecturers (1st project). A feasibility study will also be carried out. Besides that students are asked to observe existing buildings, to select one of these and to analyse it (2nd project). At the end of the module, a critical appraisal of the projects takes place, involving the lecturers and the students.</p> <p>Frontal lectures related to Part B follow those related to Part A; during this period, students are also working on the two above mentioned projects.</p>
Assessment methods and criteria	<p>The assessment includes the following evaluations: written examinations during the module and oral presentation/justification of the two above mentioned projects (the one proposed by the lecturers and the one selected by the student).</p>
Language of instruction	English