



Course unit English denomination	Life cycle design for sustainable structures
Teacher in charge (if defined)	Flora Faleschini
Teaching Hours	24
Number of ECTS credits allocated	4
Course period	July
Course delivery method	<input checked="" type="checkbox"/> In presence <input type="checkbox"/> Remotely <input type="checkbox"/> Blended
Language of instruction	English
Mandatory attendance	<input checked="" type="checkbox"/> Yes (60 % minimum of presence) <input type="checkbox"/> No
Course unit contents	Module 1: Life cycle approach to structural design: codes, recommendations, assessment methods and tools, sustainability indicators Module 2: Sustainable construction materials: recycled and industrial aggregates, supplementary cementing materials, novel binders, recycled and slag concretes Module 3: Novel construction methods: prefabrication, automation, 3D printing Module 4: Maintenance of structures: inspection protocols, damage and deterioration Module 5: Durability assessment Module 6: Retrofit planning Case-study and examples will be provided during the course.
Learning goals	At the end of the course the student will be able to understand the main principles of the life cycle thinking approach applied to the constructions sector. The student will also be able to deal with life cycle design of reinforced concrete structures and will know the main recent advancements in the field of green constructions, sustainable recycled materials in reinforced concrete and additive manufacturing processes.
Teaching methods	Theory and practice lessons.
Course on transversal, interdisciplinary, transdisciplinary skills	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Available for PhD students from other courses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Prerequisites (not mandatory)	None



Examination  
methods (in  
applicable)

Individual project

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Suggested readings

Slides and scientific papers provided by the  
teacher

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Additional information

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