

<b>Insegnamento: INNOVATIVE BUILDING MATERIALS</b>	
<b>CFU: 9</b>	<b>SSD: ICAR/09</b>
<b>Lectures: 50</b>	<b>Tutorials: 20</b>
<b>LAUREA MAGISTRALE IN INGEGNERIA STRUTTURALE E GEOTECNICA – Year I</b>	
<b>Course objectives:</b> To provide fundamental knowledge and criteria for selection, design and verification of structural reinforced concrete and masonry members using innovative materials.	
<b>Course contents:</b> Innovative materials: high-performance concrete and fiber-reinforced concrete, high performance steel, fiber reinforced polymer (FRP) composites; mechanical properties; creep and shrinkage; structural safety, safety factors. Reinforced and prestressed concrete using innovative materials: flexure and axial loads, shear, bond, cracking and deflection; specifications and standards; structural applications. Reinforced concrete and masonry members upgraded with FRP laminates and FRCM materials. Criteria for the design of seismic upgrade of reinforced concrete and masonry structures. Design examples according to Italian Guidelines CNR DT 200.	
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<b>Exam Code: 20614</b>	<b>Semester: I</b>
<b>Requirements / Prerequisites: None</b>	
<b>Teaching Method:</b> Lecturers, Examples, Tutorials, Discussion of Case studies	
<b>Learning material:</b> - Class notes. Course notes - Italian Guidelines CNR DT 200 (English version) - Model Code 2010 - fib bulletin 14 - ACI 440 guidelines on FRP materials for FRP reinforced concrete and for FRP strengthened concrete and masonry structures	
<b>Final exam:</b> Oral exam on course contents and on design examples carried out during the course.	