



PhD in ARCHITETTURA, INGEGNERIA DELLE COSTRUZIONI E AMBIENTE COSTRUITO / ARCHITECTURE, BUILT ENVIRONMENT AND CONSTRUCTION ENGINEERING - 41st cycle

THEMATIC Research Field: RETROFITTING SYSTEMS FOR REINFORCED CONCRETE STRUCTURES

Monthly net income of PhDscholarship (max 36 months)

€ 1400.0

In case of a change of the welfare rates during the three-year period, the amount could be modified.

Context of the research activity

Motivation and objectives of the research in this field

The main objective of the research is to study the efficiency of different retrofitting techniques applied to reinforced concrete structures. The ageing of reinforced concrete infrastructures and constructions requires retrofitting interventions to increase their safety level. The main objective is to select and optimize the most efficient and sustainable techniques considering different loading scenarios. Once the most efficient solutions have been selected, design methods will be developed and proposed for introduction into standard codes.

Methods and techniques that will be developed and used to carry out the research

The research will be developed following three different approaches:

- Numerical analyses: at first, several simplified numerical analyses will be performed to optimize the retrofitting solutions and to select the configurations to be tested experimentally. In a second stage, detailed non-linear analyses will be performed on the tested configurations to develop parametric studies to limit the experimental effort.
- Experimental investigations: the most efficient solutions will be tested to check the actual efficiency of the



	<p>proposed retrofitting techniques.</p> <ul style="list-style-type: none"> •Theoretical analysis: based on the numerical and experimental results, simplified theoretical design approaches will be developed and proposed.
Educational objectives	<p>The Ph.D. student will improve/learn:</p> <ul style="list-style-type: none"> •numerical skills •design and execution of laboratory tests •develop design models •work in an international research team
Job opportunities	<p>The Ph.D. candidate will have the chance to get position both in University/Industry.</p> <p>In particular he/she will be able to get positions where high level numerical/design/experimental skills are required</p>
Composition of the research group	<p>1 Full Professors 0 Associated Professors 2 Assistant Professors 0 PhD Students</p>
Name of the research directors	Sara Cattaneo

Contacts	
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Additional support - Financial aid per PhD student per year (gross amount)	
Housing - Foreign Students	--
Housing - Out-of-town residents	--

Scholarship Increase for a period abroad	
Amount monthly	700.0 €
By number of months	6

Stage and period abroad	
Institution or company where the candidate will spend the period abroad (name and brief description)	



By number of months abroad

0

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information

Additional support:

Budget for the research activity (only for positions supported by scholarship):total amount Euro 5.707,20 per student.

In detail:

-1st year Euro 1.902,40

-2nd year Euro 1.902,40

-3rd year Euro 1.902,40

Additional information about the organization and regulations of ABC-PhD programme can be found in the Regulations for the 41st Cycle of ABC-PhD:download is available at link:

<https://www.dottorato.polimi.it/en/phd-programmes>

Additional information about ABC department and ABC-PhD programme:available at link:

<https://www.dabc.polimi.it/>

Desk availability:The ABC department provides non-permanent desks to be temporarily booked in common PhD rooms.