

## Experimental testing of anchorage pullout in FRC structural components [Civil Engineering, Concrete Technology]

### Motivation

The local effects of anchorages in concrete commonly requires the introduction of rebars to distribute the pointwise stress concentration and to resist the resulting tensile/shear stresses. Fiber reinforced concrete (FRC) could represent a solution to reduce the volume of required rebar reinforcement and reduce the risk of crack appearance.

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### Short Description

In this thesis, the student will study experimentally the behavior of the fiber reinforced concrete in the case of anchorages which have been casted in the concrete. Initially, a literature review on the current state of the art of FRC will be carried out. Then, the test setup for anchorage testing will be designed. The objective is here to compute (with simplified approaches or numerical simulations) the strength of concrete to anchorage pullout in different directions.

Then, the test setup will be realized and the preparation and validation of the measurement systems will be conducted. Finally, the specimens will be tested and the gathered data will be analyzed and discussed, discussing critically the potential improvements to be deployed in the construction sector.



Type	Master thesis
Partner	EuroTube Foundation
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### Possible work packages

- Literature review (previous studies, experiments and norms)
- Mechanical properties baseline
- Testing of anchorages embedded in concrete specimens
- Definition of testing setups
- Expected results (numerical or hand-calculations)
- Preparation of the testing setups
- Validation of the measurement system
- Extraction of results and finalization of thesis

### Requirements

- High motivation and interest in the topic
- Able to work independently and be creative
- Methodological and goal-oriented approach
- Willing to test concrete in laboratory
- Knowledge in advanced structural design
- Knowledge in data measurement in testing setups

### Application

Please email your CV, transcript and motivation letter to [lorenzo.benedetti@eurotube.org](mailto:lorenzo.benedetti@eurotube.org)