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DIPARTIMENTO
DI INGEGNERIA
CIVILE E AMBIENTALE

CIVIL AND ENVIRONMENTAL ENGINEERING

**DOCTORAL PROGRAM
2025–2026**



Mattia Schiantella is Adjunct professor of Statics and Structural mechanics (SSD CEAR 06/A) at the School of Architecture and Design, University of Camerino and research fellow at the University of Perugia. His research activities focus on the mechanical analysis of masonry and lattice structures, with particular emphasis on limit analysis and structural optimization. His current research interests also include the modelling and design of architected bio-inspired materials such as lattice structures and triply periodic minimal surfaces for engineering applications. His work has been published in leading international journals in the fields of structural engineering, computational mechanics, and optimization.

Location

Room 13, Campus of Engineering, University of Perugia, Via G. Duranti, 93 - Perugia

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TO JOIN!



For more info

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Prof. Dr. Silvia Meniconi, Ph.D. Program Coordinator (silvia.meniconi@unipg.it)

OPTIMIZATION PROBLEMS AND ENGINEERING APPLICATIONS

Instructor

Mattia Schiantella, Ph.D.

Adjunct professor, University of Camerino

Research fellow, University of Perugia.

Course Description

The course introduces constrained optimization problems and the methods used for their solution. The first part reviews the fundamental concepts of optimization and presents the main classes of optimization problems together with the principal solution methods. The second part illustrates applications of optimization in a variety of fields, including economics, logistics, and engineering design, highlighting the broad applicability of optimization techniques. The third part focuses on the practical implementation of optimization algorithms using common programming environments such as Matlab and Python. Students will learn how to formulate and solve optimization problems computationally through hands-on examples and exercises. The final part is devoted to applications in structural engineering, with particular emphasis on structural optimization and limit analysis. Practical case studies will be presented to demonstrate how optimization techniques can be employed to address real-world structural and geotechnical engineering problems and to consolidate the knowledge acquired throughout the course.

Course Schedule (12 hours, 2 CFU)

Tuesday	01/09/2026 9:30 – 12:30
Wednesday	02/09/2026 9:30 – 12:30
Thursday	03/09/2026 14:30 – 17:30
Friday	04/09/2026 9:30 – 12:30

