

# PhD Course in Sciences of Civil, Environmental and Architectural Engineering



# Key Features



- ▶ **3-year PhD programme**
- ▶ **totally held in English**
- ▶ **+600 hours of training**
- ▶ **at least 3 months abroad in Universities/Research Centers**
- ▶ **possibility of internship in companies/industries**
- ▶ **a network of 24 Italian and foreign Universities**
- ▶ **+80 professors and researchers**
- ▶ **+70 students from more than 15 different countries**

# 2 Curricula and 6 Educational Profiles

PhD course structured in 2 Curricula, each with 3 Educational Profiles for candidates to predominantly identify with.



## CURRICULUM 1

### Materials, Structures, Complex Systems and Architecture

1. Numerical and Constitutive Modelling of Complex Systems
2. Structures, Infrastructures, Buildings and Transportation
3. Architecture: History, Design, Urban and Land Planning

## CURRICULUM 2

### Risk, Vulnerability, Environment, Health and Territory

4. Environment and Health
5. Risk Analysis, Vulnerability, and Land Management
6. Water Engineering and Fluid Mechanics



# Phd Student Activity

- ❑ PhD activity combines advanced and soft skill courses, participation to seminars, conferences/workshops/schools, activities toward students and research on the doctoral thesis topic.
- ❑ Each candidate follows a tailored training path, completing at least **6 specialized courses** taken from the educational offer of the PhD School in the **first two years**.
- ❑ The PhD School offers, in addition to specialized courses, cycles of seminars and courses aimed at the development of soft skills.
- ❑ Admission to the next year is granted if the PhD student completes the activities outlined below, measured in terms of educational credits (CFU).

	YEAR I		YEAR II*		YEAR III*	
	Min CFU	Max CFU	Min CFU	Max CFU	Min CFU	Max CFU
SPECIALIZED PHD COURSES	12	16	8	12	0	4
SOFT SKILLS COURSES	4	8	4	8	0	0
SEMINARS, CONFERENCES, WORKSHOPS, SUMMER/WINTER SCHOOL	4	4	4	4	6	6
ACTIVITIES TOWARD STUDENTS (TEACHING ASSISTANCE AND/OR TUTORING)	2	4	2	4	2	4
RESEARCH	28	38	32	42	46	52

- Correspondence between hours and credits (CFU): 6 hours = 1 CFU
- 60 CFU/year
- \*(YEAR II and YEAR III): periods abroad or in companies/industries counted as discounts to CFU on soft skills, seminars, conferences... and activities toward students for 4 CFU/month

A **Moodle course** and a **personal folder in Google Drive** have been created, so that students can manage and monitor their doctoral career and educational programme.

Research products, such as journal articles, publications in conference proceedings, book chapters..., must be constantly updated in Moodle course and Iris.

# Courses offered by the PhD School

Specialized PhD courses are offered in English and, for the completion of each course, the PhD student is required to take a final examination.

SPECIALIZED PHD COURSES – YEAR I Calendar of Year I PhD courses: <a href="https://www.dicea.unipd.it/en/phd-course/calendar">https://www.dicea.unipd.it/en/phd-course/calendar</a> Enrolment to courses in Moodle	Educational Profiles					
	1	2	3	4	5	6
Advanced design of transport infrastructures	X	X				
Mechanics of turbulence					X	X
Architectural regeneration strategies for historic cities and urban suburbs			X			
Discrete choice models. Theory and applications	X	X		X		
Elements of tensor and numerical algebra	X	X			X	X
Emerging issues on climate change mitigation, adaptation and GIScience			X	X	X	X
Geomatics methodologies for acquisition, processing and manipulation of 3D data		X	X	X	X	X
Helicoids, structure and architecture: geometric genesis, digital applications and advanced modelling		X	X			
Life cycle assessment and footprint analysis				X	X	
Life cycle design for sustainable structures		X	X			
Nonlinear continuum mechanics for finite element analysis	X	X			X	
Numerical methods for engineers	X	X			X	X
Object-oriented programming for engineers	X	X			X	X
Source criticism and advanced research methods for architecture and urban history			X			
Statistics for engineers	X	X	X	X	X	X
Sustainable design		X	X	X		
Sustainable environmental management of water, wastewater and waste				X	X	
Sustainable solutions for ports				X	X	X

# Courses offered by the PhD School



SPECIALIZED PHD COURSES – YEAR II	Educational Profiles					
	1	2	3	4	5	6
Advanced monitoring and modelling in geotechnical engineering	X	X		X	X	
Advanced tools for hydrology in a changing climate				X	X	X
Constitutive modelling for hyperelastic and visco-hyperelastic materials	X			X		X
Fluid mechanics for the functional assessment of cardiovascular devices	X			X		X
Historic construction and infrastructures: Analysis and structural assessment		X	X			
Innovative Techniques for Expansion of Existing Buildings		X	X			
Inspection, Risk and Resilience Analysis for Asset Management Purposes			X		X	
Advanced tools in fluid mechanics	X				X	X
Technical innovation in complex building renovation projects		X	X			
The architecture of railway and airport infrastructures between project and histories		X	X			
Urban design for the contemporary city: Regeneration, sustainability and social innovation			X		X	
Urban planning and transport infrastructure solutions for sustainable and smart cities		X	X		X	

SOFT SKILLS COURSES
Advanced methodologies for projects on competitive tenders
How to give a scientific presentation
Digital database for advanced research

# Soft Skill Courses offered by UNIPD



Area	Competence	Course	Notes	n° hours	Period
Cognitive abilities	Creativity	Public speaking	I meeting 2 hours for all II meeting: individual presentation of own intervention III final meeting open to all Francesca Trevisi - MoBI	5 h	January-March
Self-management	Manage personal professional development	Corsi CLA: corsi intensivi di lingua		30 h	
	Manage personal professional development	Writing a CV outside the academia	Dott.ssa Sara Raponi - Career Service	5 h	April-May
Working with others	Promote inclusion & diversity	Equità e inclusione: questioni di genere, omotransfobia, razzismo e discriminazione	<a href="https://elearning.unipd.it/formazione/course/view.php?id=240">https://elearning.unipd.it/formazione/course/view.php?id=240</a>	-	
	Promote inclusion & diversity	Generi e Linguaggi (Modulo 1) Generi e Linguaggi (Modulo 2): analisi e revisione dei documenti amministrativi per la parità di genere	<a href="https://elearning.unipd.it/formazione/course/view.php?id=156">https://elearning.unipd.it/formazione/course/view.php?id=156</a> <a href="https://elearning.unipd.it/formazione/enrol/index.php?id=172">https://elearning.unipd.it/formazione/enrol/index.php?id=172</a>	-	
Doing research	Perform scientific research	Introduction to machine learning and artificial intelligence: methods and applications	Prof. Fabio Vandin et alii	10 h	March
	Communicate to the broad public	How not to submit a paper. Pressures, predators, preprints and other oddities scientific literature	3 days @Asiago Prof. Stefano Bagnasco	3 days	9-11 June
Managing research	Mobilise resources	Funding opportunities for Postdocs with a focus on MSCA-PF/Strategies and tools for Career Development in Research: The new European Charter for Researchers, Euraxess, International Foundations	Dott.ssa Viviana Gialain - Settori finanziamenti individuali	9 h	
Managing research tools	Promote citizen science	Science communication and knowledge valorization: practices and tools	In collaborazione con Ufficio Public Engagement e VIU	20 h	January-March
	Manage intellectual property rights	Research, Intellectual Property and Exploitation: the PhD perspective	Dott.ssa Stefania De Zanche - Settore innovazione, trasferimento tecnologico e rapporti con le imprese	5 h	May
	Manage research data	Introduction to big data science: methods and tools	Prof. Melucci, dott. Di Buccio	7 h	June-July
	Managing research data	Open access and scholarly communication / from open access to open data: the open science framework	Prof.ssa Rafaghelli Dott.ssa Zorzi - SBA	13 h	May
Making an impact	Increase the impact of Science on Policy and Society	The impact of my research: bridging knowledge to people needs	In collaboration with the Third Mission Quality and Structural Funds Area	10.5 h	
	Increase the impact of Science on Policy and Society	L'Agenda 2030 e gli obiettivi di sviluppo sostenibile (ITA/ENG)	<a href="https://elearning.unipd.it/formazione/course/view.php?id=161">https://elearning.unipd.it/formazione/course/view.php?id=161</a> <a href="https://elearning.unipd.it/formazione/enrol/index.php?id=163">https://elearning.unipd.it/formazione/enrol/index.php?id=163</a>	-	

The courses have different modes of delivery (face-to-face in-person meetings, workshops, and MOOCs) and different time commitment required.

For face-to-face courses, about a month before the start of classes, detailed information will be posted on the page of the University website (eng. <https://www.unipd.it/en/phd-interdisciplinary-teachings>) and forwarded by email to PhD students.



# Main deadlines

- ✓ Definition of personalized Educational Programme and appointment of Supervisor and Co-supervisor → by Feb. 2025
- ✓ Upload of annual report in Moodle, after Supervisor approval → by Sept. 15<sup>th</sup> of each year
- ✓ End of year presentation → by Oct. 15<sup>th</sup> of each year
- ✓ Period abroad (at least 3 months, recommended 6 months) → preferably by 2<sup>nd</sup> year
- ✓ Admission to the final evaluation of the PhD thesis and definition of the external evaluators → by Oct. 15<sup>th</sup> 2027
- ✓ Upload of the final examination form in Uniweb together with the thesis for external evaluators → by Oct. 31<sup>st</sup> 2027
- ✓ Upload of the final version of the thesis → *(tbd by PhD Office)*
- ✓ Final exam → *(tbd by PhD Office)*

For more info: <https://www.unipd.it/en/phd-final-exam>



# Teaching Assistance and/or Tutoring



Subject to the Academic Board authorization, PhD students are allowed to carry out paid activities toward students:

- ❑ **Tutoring** to bachelor and master students;
- ❑ **Teaching Assistance** within bachelor and master courses.

Since these activities are mandatory, as part of your educational programme, you are required to carry out at least 2 CFU.

For the above-mentioned activities, University Regulations governing PhD Programmes define a maximum amount of 40 hours of Teaching Assistance and 100 hours of Tutoring per academic year.

Authorization request forms are available here: <https://stem.elearning.unipd.it/mod/folder/view.php?id=595447>

# Working activities

Subject to the Academic Board authorization, PhD students may perform paid **working activities** that enable them to acquire skills related to their research area, only whether such activities are compatible with the fruitful pursuit of the educational, teaching and research activities envisaged by the PhD Programme, and always in accordance with the supervisor.

Authorization request forms are available here:

<https://stem.elearning.unipd.it/mod/folder/view.php?id=595447>



# Research budget

Starting from 1<sup>st</sup> year, each PhD student is guaranteed a budget of **4.872,90 euro** for his/her research activities. Examples of eligible expenses are:

- Study/research travel expenses (i.e. missions)
- Conference, seminar and membership fees
- Research consumables (e.g. chemical reagents, audiovisual aids, photocopies, stationery, etc...)
- Publication costs
- Specific research training aimed at research (e.g. language courses)
- Books and articles
- Software licenses
- Computer equipment to support research

Contact person: Cinzia Tognon - [cinzia.tognon@unipd.it](mailto:cinzia.tognon@unipd.it) / 049 827-5478



# Missions

If a PhD student is required by his/her Supervisor to **travel** for study/research reasons, he/she has to request approval for **mission** via *S/T* online portal system: <https://portal.cca.unipd.it/sit> - accessing through Single Sign On authentication.

Missions have to be approved by Dept. Head, PhD Coordinator and Dept. Administrative Manager.



Travel expenses can be charged on either **Research budget** or **Supervisor's research funds**. The personal PhD research budget must be prioritized. In any case, before proceeding with *S/T*, the PhD student must agree on the mission with his/her Supervisor and **check the availability of his/her Research budget** contacting the Dept. Accounting Office.

Contact person: Cinzia Tognon - [cinzia.tognon@unipd.it](mailto:cinzia.tognon@unipd.it) / 049 827-5478

# The Academic Mediators

The academic mediators of the PhD Course have the task of giving support, listening and proposing possible solutions to PhD students who report relational problems with his/her Supervisor during their doctoral studies.



Matteo Camporese  
[matteo.camporese@unipd.it](mailto:matteo.camporese@unipd.it)  
049 827-5447



Valentina Salomoni  
[valentina.salomoni@unipd.it](mailto:valentina.salomoni@unipd.it)  
049 827-5590

# People



Massimiliano Ferronato  
*Coordinator*

[massimiliano.ferronato@unipd.it](mailto:massimiliano.ferronato@unipd.it)

049 827-5577



Giovanna Xotta  
*Vice Coordinator*

[giovanna.xotta@unipd.it](mailto:giovanna.xotta@unipd.it)

049 827-5592



Francesco Brunetta  
*Administrative Contact Person*

[francesco.brunetta@unipd.it](mailto:francesco.brunetta@unipd.it)

049 827-5849



Cinzia Tognon  
*Accountant*

[cinzia.tognon@unipd.it](mailto:cinzia.tognon@unipd.it)

049 827-5478

## ADVISORY BOARD

- Matteo Camporese, Fabio Gabrieli, Maria Cristina Lavagnolo, Livio Petriccione, Paolo Zampieri *(from PhD Course Academic Board)*;
- Valentina Ruzza, Nicolò Spiezia, Cyrille Tetougeni *(from Alumni UniPd Association)*
- Paolo Cecchin *(Herambiente SpA)*, Stefano Savoia *(Contec Ingegneria srl)*, Giulia Bossi *(CNR)*, Mascia Gaino *(Ance Veneto)*



# Useful links & contacts

## PhD Programme:

<https://dicea.unipd.it/en/phd-course>

<https://www.unipd.it/en/phd/sciences-civil-environmental-and-architectural-engineering-phdcourse@dicea.unipd.it>

## Moodle courses

<https://stem.elearning.unipd.it/course/index.php?categoryid=529>

[webmaster@dicea.unipd.it](mailto:webmaster@dicea.unipd.it)

## PhD Office

<https://www.unipd.it/en/doctoral-degrees-unipd>

[phd@unipd.it](mailto:phd@unipd.it) / 049 827-1827