Laurea Magistralis (MSc) in Civil Engineering for Mitigation of Risk from Natural Hazards

University of Pavia

The University of Pavia, one of the oldest in Europe, was established in 825 A.D. as a School of Law, Science and Medicine. Many renowned humanists and scientists studied and taught at the Alma Ticinensis Universitas, mathematicians such as Gerolamo Cardano, who invented the cardanic joint and the solution to cubic equations, Eugenio Beltrami, well-known for non-Euclidean geometry, physicists such as Alessandro Volta, the inventor of electric battery, physiologists like Camillo Golgi, awarded the Nobel prize for neural networks, and many others. Nowadays, the multi-disciplinary University of Pavia includes several disciplines, 3 campuses hosting about 25,000 students and the largest Residence Hall system in Italy. The University Sport Centre (CUS) offers modern training facilities.

University School of Advanced Studies of Pavia

The University School of Advanced Studies (IUSS) was established in 1997 and it is another university in Pavia. IUSS fulfills an advanced teaching and research model successfully implemented by two other prestigious institutions in Italy, the Scuola Normale Superiore and the Scuola Sant’Anna in Pisa. The core mission of IUSS is that of contributing to the growth of a small number of students, selected among 5 University colleges, by offering them, at each step of their higher education, qualified programmes at an international level enhancing their capabilities and knowledge in an interdisciplinary fashion depending on the choices, the specific fields and outstanding qualifications of the professors constituting the Faculty.

International Master Programme

The University of Pavia and the University School of Advanced Studies of Pavia present a new International Master of Science Programme in Civil Engineering for Mitigation of Risk from Natural Hazards, involving two curricula:

- Reduction of Seismic Risk (ROSE)
- Hydrogeological Risk Assessment and Mitigation (HYRIS)

The ROSE Programme focuses on the assessment and mitigation of seismic risk of new and existing structures and infrastructures. Courses are offered on subjects such as engineering seismology, dynamics of structures, geotechnical earthquake engineering, seismic analysis and design of bridges, RC, steel and masonry structures, reliability analysis, assessment of seismic risk.
The HYRIS Programme focuses on the assessment of risk caused by floods, avalanches and landslides to new and existing structures and infrastructures, and on the measures that can be envisaged for its mitigation. Core courses include hydrology, fluvial hydraulics, hydromorphology, hydraulic infrastructures, landslide hazards, snow avalanches, reliability analysis, legislation on risk and emergency plans.

Courses are taught in English by highly qualified professors with an internationally recognized scientific profile. Lectures are integrated with tutorials, lab sessions and seminars illustrating well-documented case histories drawn from the personal experience of the instructors.

Objectives and Organization

Environmentally-related risks are critical for human communities, productive activities, infrastructure network and cultural heritage. In our modern societies, civil engineers play a key role in mitigating the risks caused by natural catastrophes such as earthquakes, flooding, and landslides. The Master in Civil Engineering for Mitigation of Risk from Natural Hazards jointly offered by the University of Pavia and the University School of Advanced Studies of Pavia provides advanced technical training in structural, geotechnical and hydraulic engineering and hydrogeology.

The Master Programme has a two-year duration, starting late September and calls for a full-time commitment. Courses are scheduled according to a dual system: most courses are taught as intensive, full-time courses of 4 weeks, while a few are taught over the typical semester time-frame.

The Master Programme will provide students with the proper theoretical background in fundamental disciplines including applied mathematics, solid and fluid mechanics to fully master the topics taught in advanced technical courses.

As a part of their training, students will be required to spend a whole semester to work on a Master Dissertation where they will have the opportunity to participate in state-of-the-art national and international projects. Students may also be involved in the use of cutting edge experimental facilities such as the EUCENTRE shake tables, the largest of which is currently the most powerful earthquake simulator in Europe.

Cooperation Agreements

Cooperation agreements of the University of Pavia and the University School of Advanced Studies of Pavia with a number of renowned academic institutions and companies worldwide actively involved in risk mitigation from natural disasters are currently operational.

This allows for joint collaboration in research activities, organization of international conferences and seminars, sharing publications and technical data, implement student exchange programmes.

Formal agreements have currently been established with top universities in Europe, USA, Canada, South America, China and New Zealand.
Admission Requirements

A Bachelor Degree in Civil or Environmental Engineering acknowledged by the Italian Government is required.

An Examining Committee will assess the applicant’s academic career to ascertain the compliance of his/her plan of study with the requirements of the Master Programme.

English knowledge equal to B2 or higher level of the Common European Framework is required.

Lower-income students may be eligible to apply for EDISU and other type of scholarships. For more info contact the Welcome Point shown at the end of this flyer.

Career Opportunities

This Master is designed to shape civil engineers with outstanding scientific and professional skills who are fully aware of the multi-faceted aspects of seismic and hydrogeological risk.

Graduates may find job opportunities in engineering design and consulting offices, construction companies, civil protection agencies, governmental institutions, regional authorities, management offices, international organizations, insurance and re-insurance companies, research institutions in Italy and abroad.

Location

Classes and other academic activities of the Master Programme are hosted either at the Cravino Campus of the University of Pavia or at the Palazzo del Broletto of the University School of Advanced Studies in down-town Pavia.

Experimental activities connected to the Master dissertation of students enrolled to the ROSE Programme will be carried out at the EUCENTRE Lab Facilities.

Further Information

Master Programme web site: http://civrisk.unipv.it/
Master Programme coordinator: Prof. Guido Magenes
E-mail: info-civrisk@unipv.it

University of Pavia
Faculty of Engineering
Via A. Ferrata, 5 Pavia 27100 ITALY
Web site: http://webing.unipv.eu/

University School of Advanced Studies of Pavia (IUSS)
Graduate Office - Palazzo del Broletto
Piazza della Vittoria, 15 Pavia 27100 ITALY
Web site: http://www.iusspavia.it/
Organize Your Stay

Pavia is probably the best organized Italian town from the standpoint of university student residence system.

Most of the students find accommodation in one of the 15 Residence Halls distributed throughout the town of Pavia, offering the privilege of living in modern facilities equipped with every comfort but also in an environment rich of history and culture. Female- and male-only halls are also available.

A special office is available to assist foreign students to organize their stay. The service has been established under the responsibility of the Office for International Relations of the University of Pavia and is designed to assist foreign students. For assistance contact the Welcome Point at:

Ms. Qian Xue
Phone: +39 0382 984018
Italian – Chinese – English

Ms. Nora Tamimi
Phone: +39 0382 984021
Italian – Arabic – English – French

Mr. Alberto Zannetti
Phone: +39 0382 984020
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Address: C.so Strada Nuova 65, Pavia 27100 ITALY
Email: welcomepoint@unipv.it
Phone: +39 0382 98 -4018 -4019 -4021
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Learning Italian

The University of Pavia Language Centre offers Italian language courses (beginners to advanced), held by qualified teachers. Services include:

*Italian as a foreign language*: the Language Centre is an authorized centre for the CILS exam. Courses are open to Erasmus and other international exchange students of the University of Pavia and other academic institutions. More information is available at http://cla.unipv.it/.

*English as a foreign language*: the Language Centre is an authorized centre for the Cambridge assessment, UCLES and thus the PET, FCE, CAE and CPE examinations.

Sport Facilities

The Centro Universitario Sportivo (CUS) of the University of Pavia carries out competitive activities both in the university circuit and in the circuit of the National Sport Federations in many disciplines including canoeing, rowing, volleyball, rugby, fencing, and archery.

Most of the CUS sport facilities are located at a walking distance from the Faculty of Engineering of the University of Pavia. More info at https://www.cuspavia.org/