The PhD Programme in Physics provides a strong interdisciplinary education in applied Physics and Engineering methodologies. It consists of courses and of the development of the PhD thesis. The courses are both on topics specifically characterizing the PhD Programme and on transdisciplinary topics of general interest (20 credits overall, typically offered at Campus Leonardo). The development of the PhD thesis represents the major student’s activity (160 credits) and includes experimental research work and training activities on selected research topics in the following areas: Ultrafast optics and spectroscopy; Solid state lasers and photonic devices; Photonics for health, food and cultural heritage; Epitaxial growth and nanostructure fabrication; Electronic, optical and magnetic properties of low-dimensional systems.

The PhD Course is characterized by a strong experimental character. It aims at providing high scientific education and training to develop general research abilities in all areas of applied physics, as increasingly needed by advanced technological companies. The education contents are strictly related to the research activities carried out in the advanced experimental laboratories at the Department of Physics (Milano-Leonardo Campus and Como Campus). All research activities are performed in collaboration with high level international institutions (e.g., University of Cambridge, Massachusetts Institute of Technology, Stanford University, University College London, Harvard University). Besides experimental basic research, consistent effort is devoted to the design and development of innovative instrumentation.

PhD education can be attained in the following main areas, where the Department of Physics is active:

i) Ultrafast optics and spectroscopy: a) development of new nonlinear optics-based methods to generate broadly tunable pulses, from the infrared the
The PhD Programme aims at the development of an experimental approach in problem solving techniques and at the attainment of a high level of professional qualification, opening job opportunities such as i) researcher in companies, universities, research centres; ii) designer of advanced devices and systems relying on physics technologies in high-tech industries and small innovative companies, iii) system manager to solve methodological and technological problems in large companies.

Eligible students

Students with a Bachelor of Science (“Laurea”, 3 years) and a Master of Science (“Laurea Magistrale”, 2 years), or alternatively a 5-year university degree providing a general education in the basic areas of physics, engineering and chemistry, and possibly a specific knowledge in condensed matter physics, optics and lasers.

Scholarships

PhD scholarships are awarded by Politecnico di Milano in the research areas mentioned above. Research subjects, specific activities and economic conditions can be found at http://www.dottorato.polimi.it/en/looking-for-a-phd/call-for-positions-and-scholarships/places-and-scholarships/areas-subjects-and-topics-of-research-published-in-the-call/. Additional scholarships on specific research topics are also usually available.

Contacts

For general information on the PhD at Politecnico di Milano, please visit the following web site: http://www.dottorato.polimi.it/en/phd-programmes/active-phd-programmes/. and contact the School of Doctoral Programmes - Politecnico di Milano at phdschool@polimi.it.

For specific information on the PhD in Physics, please visit: https://www.fisi.polimi.it/en/teaching/teaching_offer/phd and: www.dottorato.polimi.it/en/phd-programmes/active-phd-programmes/physics or contact the PhD Secretariat at: daniela.rossi@polimi.it.