

Collaboration

The school cooperates with different universities and research institutes; some of these are:

- Masaryk University - Faculty of Informatics (Prof. P. Zezula – faculty vice dean), Czech Republic;
- National University of Ireland & Digital Enterprise Research Institute – DERI (Prof. C. Bussler - DERI Executive Director), Ireland;
- University of Illinois (Prof. I. Cruz – Director of the ADVIS Lab.), USA;
- University of Texas - Health Science Center at Houston (Prof. R. Ansari), USA;
- Université Bordeaux I (Prof. Alain Boudou– faculty dean), FRANCE.

Research Projects

The research groups of the ICT School are involved in various national and international research projects:

- EU IST projects (SEWASIE, WINK, INDIA, COMIST, SEAMLESS, STASIS, VIDI-VIDEO);
- NATO projects (Science for peace- BeSAFE);
- Research projects in cooperation with international companies (NOKIA, USA; Traficon, Belgium).

Doctorate Schools Requirements

Further information about the Doctorate Schools organized by the University of Modena and Reggio Emilia are available at the link:

<http://www.unimore.it/offertaformativa/dottorati.html>

International Doctorate School in Information and Communication Technologies

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International
Doctorate School
in Information
and Communication
Technologies



International Doctorate School



University of Modena and
Reggio Emilia

Founded in 1175

Presentation



The International Doctorate School in Information and Communication Technologies is organized by the Department of Information Engineering in

collaboration with other Research Partners.

Both the formative offering and the research opportunities are oriented towards the acquisition of skills required for research and development at universities, public or private research institutes, and industry. A Faculty of internationally recognized Italian and foreign professors is responsible for the educational activities and takes part in the organization of the doctoral program.

The ICT International Doctorate School combines research with integration both in industry and in technology transfer. The research topics are both theoretical and applied, so that the dissertations cover both innovative applications and advanced theoretical research. The involvement of industries guarantees the practical relevance of research results, whereas the Faculty professors take care of the innovative aspects of the research activities in compliance with their scientific background. This collaboration is also evidenced by a number of research grants.

About The Program

The School offers to each student a wide range of academic options, taking advantage of the multidisciplinary teaching staff and the availability of various laboratories. Students can attend basic or

advanced courses in various research areas: from design technologies and software development to technologies for hardware implementation; from methodologies for information processing to infrastructures for distributing information in modern networks.

Specializations

The formative course of the Doctorate School in Information and Communication Technologies (ICT) covers a three-year period; moreover, two distinct courses are provided, namely: “Computer Engineering and Science” and “Electronics and Telecommunications”.

INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT)	
Curricula	Years
Computer Engineering and Science	3
Electronics and Telecommunications	3

The scientific topics, offered to the PhD students in these two courses, regard the modern technologies for information processing, management and communication.

The Course of *Computer Engineering and Science* includes the areas of both computer engineering and computer science. In particular, the investigated research topics concern methodologies and technologies for project and management of databases; heterogeneous and distributed information systems; ontology design and methodologies for knowledge representation; methodologies and techniques of software engineering for modular program design and software reuse; methods and tools to plan and control the activities in manufacturing companies and in enterprise networks; design of embedded systems and computer-based

systems for automation; pattern recognition and computer vision for image and video analysis; multimedia data processing and architecture of multimedia systems; information retrieval systems; computer networks and systems with a guaranteed quality of service and network security; high performance computer architectures for Web systems and services; mobile agent systems in Internet, intelligent agents and coordination infrastructures for multi-component applications in Internet; Web technologies and emergent standards; models and methodologies for performance evaluation of computer systems; combinatorial optimization methods to solve decisional problem, dynamic systems, cellular automata, neural networks, classification systems and genetic networks.

The Course of *Electronics and Telecommunications* includes the areas of electronics, measurement techniques, telecommunication and electromagnetism, automation and power systems. In particular, in the field of electronics and measurement techniques, the main research fields are microelectronics (even in its most recent developments in devices), intelligent sensors, electronics for telecommunications, electronics of digital systems, electronics for actuators and control systems. As far as the area of telecommunications is concerned, the research topics under investigation regard digital communication techniques for fixed and mobile communication systems, broadband telecommunication networks, optical devices and components for photonic networks, and electromagnetic compatibility. The research activity in automation and power systems is mainly oriented towards mathematical modelling of physical systems, robust sliding mode control with integral action, robotics and control in automotive applications.