

EIT ICT Labs Master School (Double Degree Opportunity)

All universities involved provide a different set of entry and exit points for your studies. To find out which of the universities involved offers the program you are most interested in or to find out what you can study, please go to our track finder at www.masterschool.eitictlabs.eu.

Our Majors

Digital Media Technology (DMT)

The programme in Digital Media Technology focuses on enabling technologies for digital media systems, including technologies for analysing media, generating interactive media, processing and coding, optimising wired and wireless transfer, and distributing digital 3D contents. Graduates of the DMT programme will be both specialists and innovators that are able to shape future digital media technology. The first year will be similar at all three DMT entry point universities Aalto, KTH, and TU Delft with four basic courses on signal processing, computer graphics, web services, and communication networks. The second year will accommodate the technical specialisation. The programme will offer six specialisations: (1) Hypermedia, (2) Media Processing and Communications, (3) Medical Visualisation and Analysis, (4) Media Communications Services, (5) Virtual Environments, (6) Semantic Media.

Distributed Systems and Services (DSS)

The programme in Distributed Systems and Services focuses on a broad range of applications like cloud computing, mobile services, online social networks, peer-to-peer systems and Web services. What is common to all of these applications is that information sources and control are decentralised over the network and multiple data centres and their underlying systems become distributed, reconfigurable and adaptive. All this makes the process of developing distributed software systems significantly more complex than for centralized systems. This programme will provide students with a system of knowledge both in formal foundations, technological platforms and practical skills in implementing distributed software applications. The programme will also provide an insight into current and future directions of the distributed software development. After completion of the programme, students should not only understand and be able to use large distributed systems, but they should be capable of designing and constructing such systems and services deployed on such infrastructures. The programme will offer five specialisations: (1) Mobile Services, (2) Cloud Operation, (3) Cloud Infrastructures, (4) Data Intensive Computing, (5) Distributed Information Management.

Embedded Systems (ES)

The programme in Embedded Systems focuses on enabling technologies and design methodologies for computer systems which are embedded as integral part of larger systems, designed for specific control functions of devices with various electronic and mechanical components. More than 98% of the world's processors are located in Embedded Systems. Embedded Systems are used everywhere, in satellites, robots, cars, airplanes, mobile telephones down to the smallest radio transceiver, elevator, or washing machine. They are an integral part of Europe's electronic production and are located in products from many European companies like ABB, Ericsson, Phillips, Siemens. European companies are world leading in Embedded Systems design and have a strong demand for highly skilled, creative engineers. The programme will offer five specialisations: (1) Embedded Platforms, (2) Embedded Multicore Processing, (3) Embedded Networking, (4) Mobile Cyber-Physical System, (5) Energy Efficient Computing, (6) Real-Time Embedded System.

Human Computer Interaction and Design (HCID)

The programme in Human Computer Interaction and Design focuses on study, design, development and evaluation of novel user interfaces and interactive systems taking into account

human aspects, at the cognitive and sensory-motor levels, technological aspects, as well as business aspects. The HCID program is an interdisciplinary program that offers courses on design and evaluation of interactive systems with a strong emphasis on user-centered design techniques: understanding the human capacities and consequences of using information technology as a tool for solving work related tasks, and developing and evaluating the systems by putting the user at the center of the design process. In addition, the program will create a business thinking in terms of user profiles, user segments, house style, branding, and market development and product introductions. Achieving the right user experience is important for marketing products and services and a necessary component for commercial success, as is witnessed nowadays in the smart phone market. Knowing how to translate interactive services into business opportunities and into attractive products is strategic. The programme will offer seven specialisations: (1) Mobile and ubiquitous interaction, (2) User modeling, (3) Situated interaction, (4) Multimodal interaction, (5) Intelligent systems, (6) Affective computing, (7) Cognitive interaction.

Internet Technology and Architectures (ITA)

The programme in Internet Technology and Architectures focuses on studies involving advanced networking technologies and architectures for the design and management of modern distributed computer systems and networks. The Internet, and computing communication and networking technologies in general, represent a challenging field of considerable attention and high innovation potential as well as a recognised major topic for most curriculum studies in IT. The aim of this programme is to develop a coherent set of theoretical knowledge and professional skills in computer networks exploiting European excellence education centers and strong industrial partnership. Emphasis is placed on the understanding of current research issues as well as detailed hands-on experience of network design, development, implementation, and management. This programme will also provide you with both theoretical concepts and practical tools that will develop critical thinking in assessing entrepreneurship opportunities and devising appropriate strategies to turn ideas into profitable business ventures. The programme will offer six specialisations: (1) User-Centric Networking, (2) Internet Technologies, (3) Communication Systems Design, (4) Wireless and Mobile Access Networks, (5) Heterogeneous Networking (Wireless and Backbone), (6) Internet of Things.

Security and Privacy (S&P)

The programme in Security and Privacy focuses on the study of the design, development and evaluation of secure computer systems, which are also capable of ensuring privacy for future ICT systems. It follows a constructive security approach to teach the very complex and challenging field of information assurance. The aim is to provide students with an understanding of the concepts and technologies for achieving confidentiality, integrity, authenticity, and privacy protection for information processed across networks. Topics include core network security principles, traffic filtering, traffic analysis, cryptography, tunneling and encapsulation, public-key infrastructure, remote-authentication protocols, and virtual private networks. The first year will be similar at both S&P entry point universities, namely, Technische Universität Berlin and the University of Trento with basic courses on Network Security, System Security, Information Security Management, Cryptography, and Privacy. The specialization coursework will be provided in the second year. The programme will offer six specialisations: (1) High Assurance Systems (2) Applied Security, (3) System Security, (4) Information Security and Privacy, (5) Advanced Cryptography, (6) Network Security.

Service Design and Engineering (SDE)

The programme in Service Design and Engineering focuses on the analysis, design, development and operation of digital services. Internet would be just a cold jungle of computers and devices connected with cables and radio links without on-line digital services like Google, eBay, Facebook, You-Tube,

Skype and a myriad of others. We depend on them every day when reading news, listening to music, keeping in touch with friends, shopping, booking tickets and appointments etc. This digitalization is not only changing our lives as individuals but whole societies and economies become more service driven where businesses are increasingly based on and interconnected with digital services. Already today in many developed economies services make up more than 70% of GNP. Service design starts by examining how the customer value of an existing service or a new opportunity could be increased. Careful analysis of user needs and experience should result in a fitting service concept and a delightful user interface design. They have to be carefully engineered and implemented as a software system to meet all the technical requirements, like security and privacy, dependability and scalability. Moreover, a new or improved system has to fit in the potential existing business system and its IT-infrastructure. Contrary to a software product, a service system can be maintained, improved and even customized continuously based on the data and feedback collected from its usage and users when it is running. The extensive exploitation of this data has a major impact on how to operate a competitive service. The programme will offer four specialisations: (1) Service-oriented Social Informatics, (2) Mobile Service Systems, (3) Distributed Service Systems and (4) Service-oriented Business Process Management.

The Innovation and Entrepreneurship Minor (I&E Minor)

All programmes include four course modules standardised for all universities. The Basic Course builds the fundamental knowledge on I&E issues. The BD Labs Course gives hands on experience on business development. The Summer programme is centrally organised and serves as a community event, enabling interaction with business partners. The I&E Thesis relates to and completes the traditional thesis.

List of the universities involved & your central contact

Here you find a list of the universities involved in the EIT ICT Labs Master School. For a direct request to a local university, please write the central contact below. Our student advisors are happy to answer any question you might have about the programme. **masterschool@eitictlabs.eu**

Aalto University (Helsinki, Finland)	Åbo Akademi University (Turku, Finland)
BME, Budapest University of Technology and Economics (Budapest, Hungary)	Eindhoven University of Technology (Eindhoven, The Netherlands)
ELTE - Eötvös Loránd University, Budapest, Hungary	Institut Telecom (Paris, France)
KTH, Royal Institute of Technology, Stockholm, Sweden	Saarland University (Saarbrücken, Germany)
TU Berlin (Berlin, Germany)	TU Darmstadt (Darmstadt, Germany)
TU Delft, Delft University of Technology (The Netherlands)	Université Paris-Sud (Paris, France)
University College London (London, United Kingdom)	University of Nice Sophia Antipolis (Nice, France)
University of Turku (Turku, Finland)	University of Twente (Twente, The Netherlands)
Université Pierre et Marie Curie (Paris, France)	University of Rennes 1 (Rennes, France)
University of Trento (Trento, Italy)	