Electrical, Electronics and Communications Engineering
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POLITO and the EECE PhD Program

POLITO: According to the 2020 QS world university ranking
• 47th worldwide for Engineering and Technology (10th in Europe)
• 38th worldwide in Electrical and Electronic Engineering (10th in Europe)

EECE PhD Program:
• Appreciated worldwide, deeply connected with the international research community
• Strongly supported by the research groups and departments
• Strong connections with companies
• Many opportunities offered to its students

POLITO is investing significant resources in all its PhD programs, including EECE
• PhD students are a major resource in all research universities worldwide
The PhD Goal: learn how to make research – by doing it!

PhD candidates are expected to

- acquire any **background knowledge** that is required
- become aware of the **state of the art** in his/her research area
- **develop new ideas** and prove their effectiveness/limitations
- **publish** the results (journals and international conferences)
- **interact** with the worldwide research community
- (learn how to) attract resources and **funding**

They are typically involved in **research projects**

- with companies
- funded by public bodies (national, EU or international levels)

Each PhD candidate is guided by a **supervisor**
The Doctoral Candidates

are both students and early stage researchers

The PhD Program trains to carry out research…

... in the academic environment…

... and in companies looking for professionals who will inspire and manage the innovation process
PhD Candidates @ POLITO (cycles 33-36)
EECE: Some Numbers

XXXI cycle (2016-2018):
32 Students (1 lost, 31 completed)

XXXII cycle (2017-2019):
31 Students (2 lost, 1 active, 28 completed)

XXXIII cycle (2018-2020):
58 Students (2 lost, 46 active, 10 completed)

XXXIV cycle (2019-2021):
54 Students (5 lost, 49 active)

XXXV cycle (2020-2022):
53 Students (1 lost, 52 active)

XXXVI cycle (2021-2023):
70 Students (all active, 6 remotely due to COVID)
EECE PhD Program: Topics

http://dottorato.polito.it/eet/en/research_proposal

“Electrical/Power”
• Power systems
• Power converters
• Electrical machines and drives

“Electromagnetics”
• Antennas, electromagnetic devices, radars
• Biomedical devices and applications
• Computational Electromagnetics (low and high frequency)
EECE PhD Program: Topics

“Electronics”

- Analog, Power, Mixed-Signal Circuits, Embedded Systems
- Electromagnetic Compatibility, Signal and Power Integrity
- Electronic devices: modeling and characterization
- Micro-, nano-technologies, devices, systems, applications
- Modeling, simulation and CAD
- Photonic devices and solar cells
- Radio frequency and microwave electronics
- VLSI theory, design and applications

“INFN” (Nat. Inst. Nuclear Physics)

- Radiation detectors and associated readout electronics

http://dottorato.polito.it/eet/en/research_proposal
EECE PhD Program: Topics

“Communications”
- Big Data, Machine Learning, Neural Networks, Data Science
- Communication and Computer Networks
- Geo-positioning, Navigation Systems and Remote sensing
- Multimedia Signal Processing
- Optical and Wireless Digital Transmissions Systems

“Controls”
- Mechatronics and robotics
- Systems, Automation and Control

http://dottorato.polito.it/eet/en/research_proposal
Some Logistics: the PhD Candidate Path

PhD Selection

Day 0 PhD starts

Year 1 Evaluation*

Year 2 Evaluation*

Year 3 Evaluation*

Final Exam **

*based on: training (courses), publications, research periods abroad,…

**based on: thesis document (refereed by experts) and thesis defense
Training Activities

Hard skills: specialized technical courses (EECE: about 50)

http://dottorato.polito.it/en/hard_skills

Soft skills: writing a research proposal, exploiting IP, speaking in public, ethics, …

http://dottorato.polito.it/en/soft_skills

How to choose?

• Official courses from Scudo + EECE catalogs
• External training activities
• PhD Summer Schools
• Tutorials at conferences
• Seminars at prestigious institutions
External Research Activities

All PhD students are strongly encouraged to spend a research period abroad.

Up to 18 months: scholarship amount will be augmented by 50%

Usually, the Tutor plans your research stay

Various calls for proposal to retrieve funding (Erasmus+, etc..)

Plenty of opportunities

Including internships at companies (that probably will hire you)
EECE PhD Poster Day

Main event for all EECE PhD Students
Takes place yearly (October)
For 1°, 2° and 3° year students
Last Poster Day: 1 October 2019, 2020 virtual

http://dottorato.polito.it/eet/en/annual_reports

All students must participate
Posters discussed with faculty and visitors
Results used for admission to 2° and 3° year and final exam
Ok, I am interested. Now what?

Check out the EECE topics
http://dottorato.polito.it/eet/en/research_proposal

Check out all other EECE PhD candidates
http://dottorato.polito.it/eet/en/students

Contact any professors that could serve as your supervisors

Contact the Coordinator for advice
stefano.grivet@polito.it
...and remember…

...The PhD Program trains to carry out research…

... in the academic environment…

... and in companies looking for professionals who will inspire and manage the innovation process

Alex Minetto  
DET Politecnico di Torino

Giulia Santoro  
Apple, London UK