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What's next?

# Electrical and Energy Engineering in Italy

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Politecnico di Torino, Torino, Italy  
Dipartimento Energia

Engineering education and professional realization of  
young engineers  
Gabrovo, Bulgaria, July 13th, 2015.



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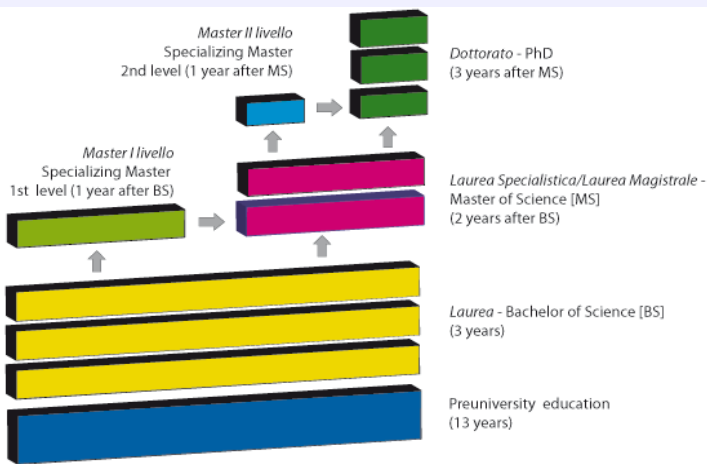
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## Bologna system *D. 509/1999, D. 270/2004*





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## Italian University changes its structure...

- The Italian University has gone through a serious change in the last few years
- The *Legge Gelmini, Law 240/2010* has introduced a new *governance* of the University trying to make its management more efficient.
- The Law foresees different structures for the organization of the University:
  - 1 Departments are the center of the academic life both for the education and research;
  - 2 Coordination among different Curricula can be made by *Strutture di Coordinamento (Joining Structures)* that manage the parts common to different curricula



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## Italian University changes its structure...

- Most of Italian Universities have decided to use this *Joining Structures* which are similar to the usual Faculties but with a leaner structure
- Politecnico di Torino in its Statute allows for this structure but its Senate (July 2012) decided for a more direct way of governing its academic activity:
  - 1 Teaching activities are competence of the Senate under the *supervision* of the *Board of Governors*
  - 2 Course of Studies (curricula) are assigned to Departments
  - 3 Each Course of Study (CdS) is governed by a *Collegio* that puts together all the Professors working in the Curriculum and that elects one *Coordinator*
  - 4 Coordination among different Curricula are made by a Commission where all College Coordinators are present and is chaired by the *Vice Rector for Teaching*



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## Politecnico di Torino Departments

- DAD - Department of Architecture and Design
- DAUIN - Department of Control and Computer Engineering
- **DENERG - Department of Energy**
- DET - Department of Electronics and Telecommunications
- DIATI - Department of Environment, Land and Infrastructure Engineering
- DIGEP - Department of Management and Production Engineering
- DIMEAS - Department of Mechanical and Aerospace Engineering
- DISAT - Department of Applied Science and Technology
- DISEG - Department of Structural, Geotechnical and Building Engineering
- DISMA - Department of Mathematical Sciences
- DIST - Interuniversity Department of Regional and Urban Studies and Planning



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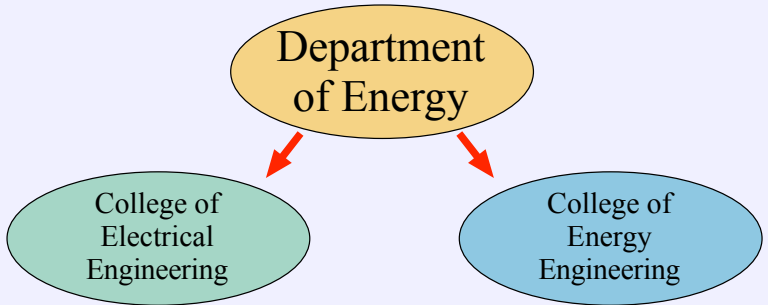
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What's next?

## Electrical and Energy Engineering





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What's next?

## Electrical Engineering Degrees

- *The degree course in Electrical Engineering aims to form a professional figure for the general industrial engineering context, with specific expertise in components and installations in the electrical sector.*
  - Bachelor Degree
  - Master Degree
- average first year enrolments: 100
- number of graduates in 2014: 32



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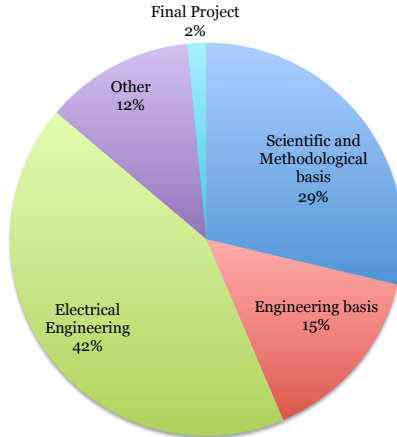
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What's next?

## Electrical Engineering Bachelor

### Electrical Engineering Bachelor







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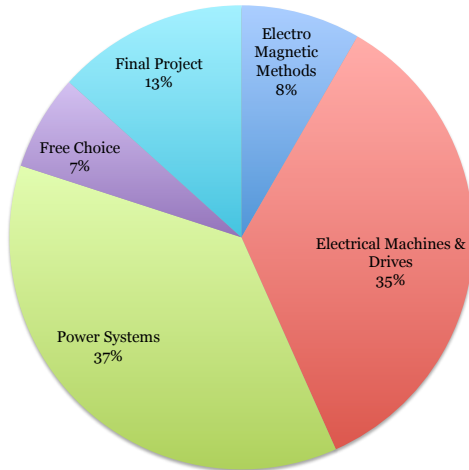
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What's next?

## Master in Electrical Engineering

### Master in Electrical Engineering





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What's next?

## Energy Engineering Degrees

- *The professional profile of the energy engineer falls within the more general area of industrial engineering. Training must provide the skills and cognitive tools which enable energy engineers to study and manage components, equipment and systems for the generation and use of thermal, mechanical and electrical energy from both fossil and renewable sources, while assessing the resulting safety and environmental impact issues. They must also have competences in planning and rational use of energy in the industrial, civil, agricultural and transportation sectors.*
  - Bachelor Degree in Energy Engineering
  - Master Degree in Energy and Nuclear Engineering
- average first year enrolments: 400
- number of graduates in 2014: 125



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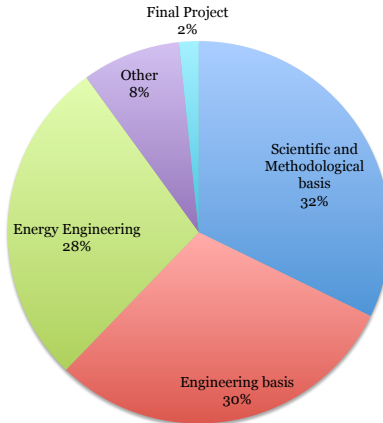
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What's next?

## Energy Engineering Bachelor

### Energy Engineering Bachelor





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What's next?

## Master in Energy and Nuclear Engineering

- The Master Degree offers three careers:
  - Technologies and nuclear applications
  - Thermotechnical Design
  - Innovation in Energy Production



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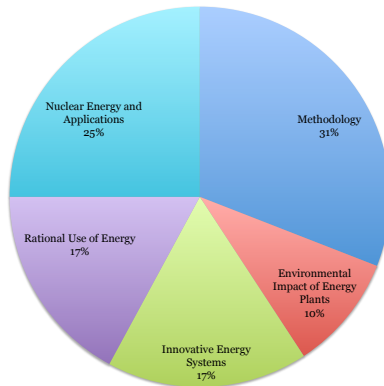
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What's next?

## Master in Energy and Nuclear Engineering

### Master in Energy and Nuclear Engineering full offer





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## Employment (master)

### Electrical Engineering



### Energy Engineering





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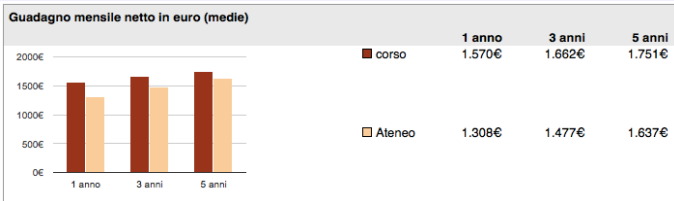
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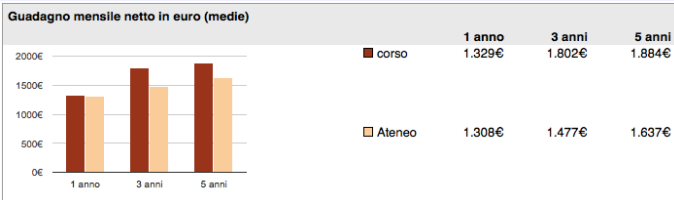
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## Wages (master)

### Electrical Engineering



### Energy Engineering





## Satisfaction (master)

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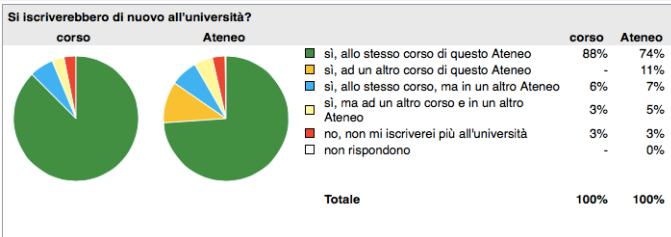
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What's next?

## Present debate in POLITO

- how to balance between student interests and work perspectives?
- how to communicate to freshmen the opportunities in future careers?
- are two bachelor paths in energy and electrical engineering worth the cost?
- how to increase the laboratory and hands-on experience?