

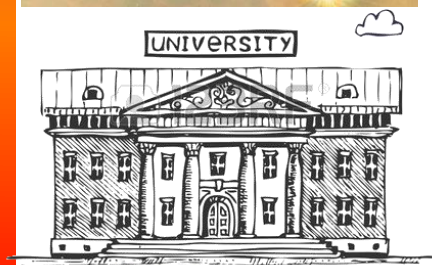


ELECTRICAL POWER ENGINEERING EDUCATION: HOW TO BRIDGE THE GAP BETWEEN INDUSTRY AND UNIVERSITIES

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HOW TO BRIDGE THE GAP ?



Question 1 – What level of specialization of engineering curricula should be sought for? Is basic, fundamentals knowledge more formative and potentially more effective for industry than up-to-date information ?

Terna's preference is for M. Sc. Degrees, (five years), more complete than B.Sc. .

M.Sc. degree is more compatible with the responsibilities assigned to an engineer.

Basic knowledge, mental agility and a technical mindset are potentially more effective than up-to-date information; the latter is also attained by means of internal training.

In fact, most of the practical expertise is present only inside industry and not inside universities.



Question 2 – What are the differences between Industry needs and expectations and Academia ones ?

The gap compared to the past years has been reduced, also thanks to improved collaboration between University and industry.

Continuous internal training and formation are of paramount importance in filling the gap, especially in highly specialized areas like power transmission.

Also project management play an important role in industry needs, whereas Academic training does not always cover this topic.



Question 3 – What are the reasons behind the gap between Academia and Industry, if any ?

- There is still little opportunity to exchange knowledge.
- A significant part of the research topics are not of common interests between industry and Academia.



Question 4 – What is the current status of cooperation between Academia and Industry and in particular the interaction between industry and undergraduate/doctoral programs ?

Large companies are working to fill the gap, you will not experience the same propensity on the part of academics, as well as part of the universities.

In November 2008, Terna signed a Memorandum of Understanding with the Department of Engineering at the University of Rome "La Sapienza", with the objective of promoting the connection between university training and industry.

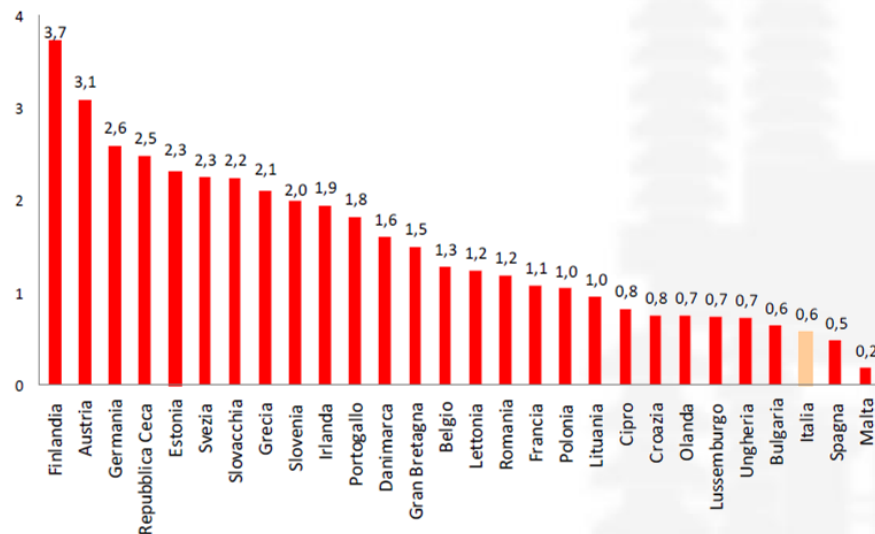
As part of the project, Terna also **actively participated** in the **teaching activity of the Electrical Engineering M.Sc.** degree by organizing many seminars on specialized technical topics held by Terna experts. Terna also participates annually in a number of inter-company initiatives aimed at providing students and graduates helpful tools for approaching the labor market.



Question 5 – Is at present the number of PhDs produced every year for the higher education establishment too much to be absorbed by Industry?

The number of Ph.D. students in Italy is relatively low (0.06 % of population) if compared to other European countries. A large number of Ph.D. continue academic career after graduation.

Figura 5.4 – Numero dottorandi ogni 1.000 abitanti nei Paesi europei 2012



Fonte: Eurostat, 2012, Elaborazione ADI

In Terna $\approx 23.6\%$ of employees have a M.Sc. degree, $\approx 0.3\%$ have a Ph.D.



Question 6 – Should industry be involved in the management of Educational Establishments?

The results of TERN collaboration projects with universities show that significant positive results can be obtained, for the industry, universities, and particularly for students.

Industry can significantly improve the quality of studies by sharing specialized technical knowledge and highlighting the research topics which most affects the technology development.

Thesis, stages, scholarships and lectures are effective methods for improving the cooperation between industry and university.



Conclusions

TERNA Cooperation agreements with universities :

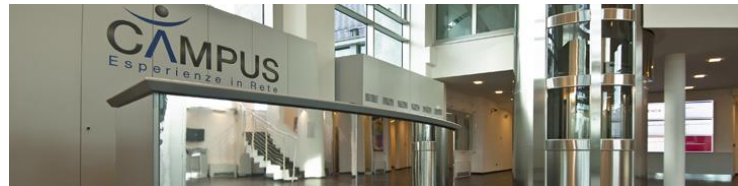
- Università degli Studi di Trieste - Facoltà di Ingegneria
- Università degli Studi di Udine – Facoltà di Ingegneria
- Università degli Studi di Padova
- Politecnico di Milano
- Università Commerciale Luigi Bocconi – Milano
- Università Cattolica del Sacro Cuore - Milano
- Università degli Studi di Milano (in corso di stipula)
- Politecnico di Torino
- Università degli Studi di Genova – Facoltà di Ingegneria
- Università degli Studi di Bologna
- Università degli Studi di Pisa
- Università degli Studi di Firenze
- Università degli Studi dell'Aquila – Facoltà di Scienze Matematiche e Fisiche
- Università degli Studi dell'Aquila – Facoltà di Ingegneria
- Università degli Studi di Roma "Tor Vergata"
- Università degli Studi Roma Tre
- Università degli Studi "La Sapienza" di Roma
- Libera Università Internazionale degli Studi Sociali "Guido Carli" LUISS – Roma
- Università degli Studi della Tuscia – Facoltà di Scienze Matematiche e Fisiche
- Università degli Studi di Napoli Federico II
- Università degli Studi del Sannio - Benevento
- Politecnico di Bari
- Università della Calabria – Facoltà di Scienze Matematiche e Fisiche
- Università della Calabria – Facoltà di Ingegneria
- Università per stranieri Dante Alighieri di Reggio Calabria
- Università degli Studi di Palermo
- Università degli Studi di Messina
- Università degli Studi di Catania (in corso di stipula)
- Università degli Studi di Cagliari

TERNA Cooperation agreements with other institutes:

- SAFE Sostenibilità Ambientale Fonti Energetiche
- Sole24Ore Business School
- Stoà

Terna is constantly increasing collaboration with Italian universities. Different collaboration tools are available:

- Thesis
- Stages
- Scholarships
- Lectures
- Know-how exchange (e.g. seminars)
- On-site visits
- Continuous internal training



New Terna Campus in Rome



**THANK YOU FOR YOUR
ATTENTION**

