



POLITECNICO
MILANO 1863

24 march 2018

OPENDAY

STUDIARE AL POLITECNICO DI MILANO

MSc in Nuclear Engineering
Laurea Magistrale in Ingegneria Nucleare

According to “QS World University Rankings by Subject 2018”

- QS Ranking identifies the best universities in the World
- QS compares their R&D capabilities, the reputation of their professors and the evaluation of their graduate students
- For the first time, an Italian university entered the Top 20 ranking in all three areas of specialisation – POLIMI is:
 - **17th in Engineering,**
 - **9th in Architecture,**
 - **5th in Design**



POLITECNICO
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LATEST NEWS

2018 March 01

**POLITECNICO DI MILANO AMONG THE TOP 20 TECHNICAL
UNIVERSITIES IN THE WORLD (ENG+ARCH+DES)**

PIONEERS OF TIME...

Yesterday:

**1st Master of Science
in Nuclear
Engineering set up in
Italy (1956)**

**1st research reactor
built in the Italian
Universities (1959)**



...STILL ON THE EDGE

TODAY:

- 1st Master of Science and
- 1st PhD programme in Nuclear Engineering in Italy
- Among the most attended in Europe (around 50 new enrolments per year)

International projects

Multidisciplinary groups

Experimental laboratories



Our PERSPECTIVE



HOW TO REACH IT

MSC (LAUREA MAGISTRALE) IN NUCLEAR ENGINEERING



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1st YEAR

NUCLEAR BASICS

2nd YEAR

NUCLEAR PLANTS

NUCLEAR TECHNOLOGIES

NUCLEAR SYSTEMS PHYSICS

THESIS WORK



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www.nuclearengineering.polimi.it

3rd year of the Bachelor of Science at POLIMI



PHYSICS Eng.



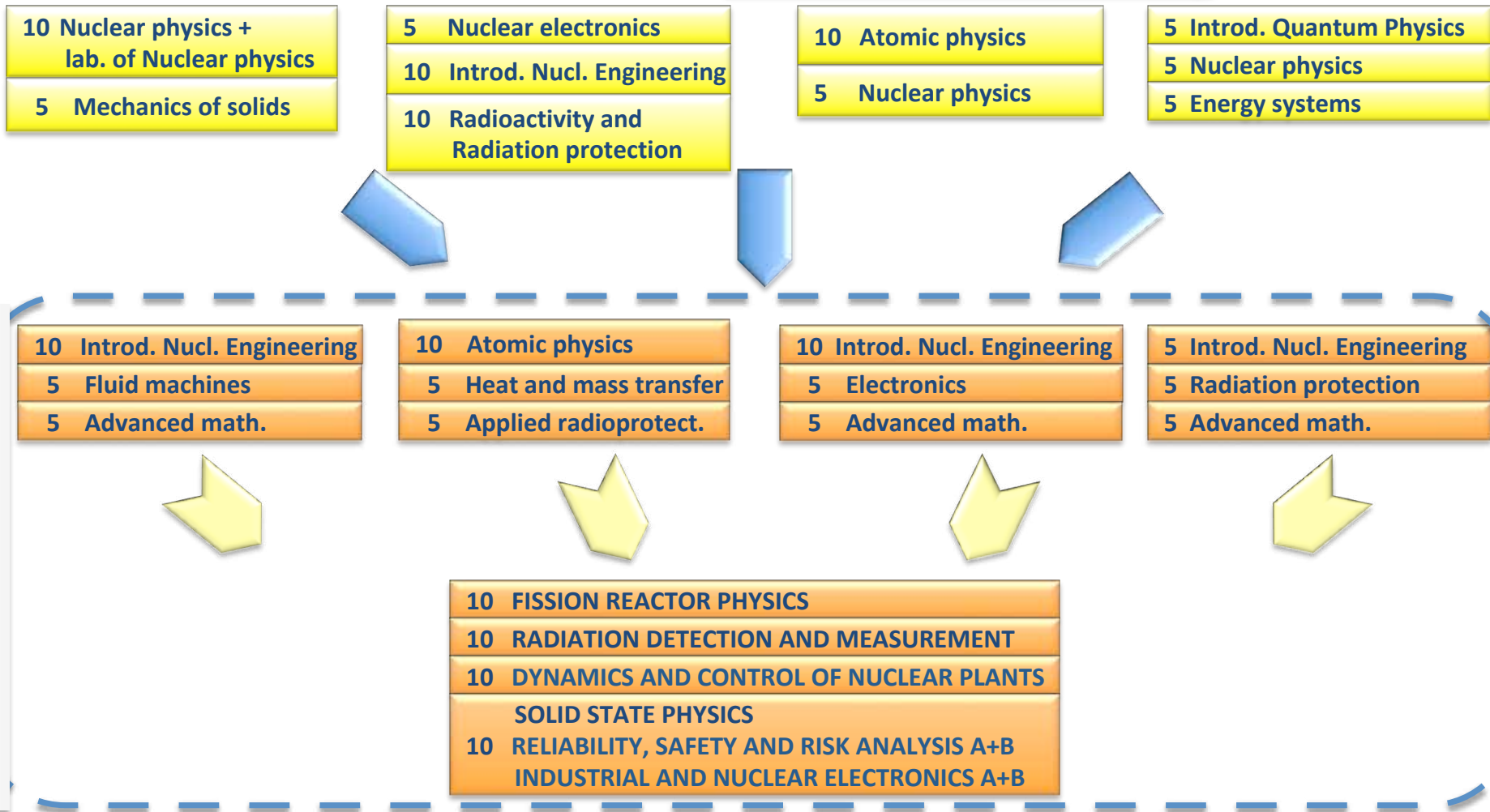
ENERGY Eng.



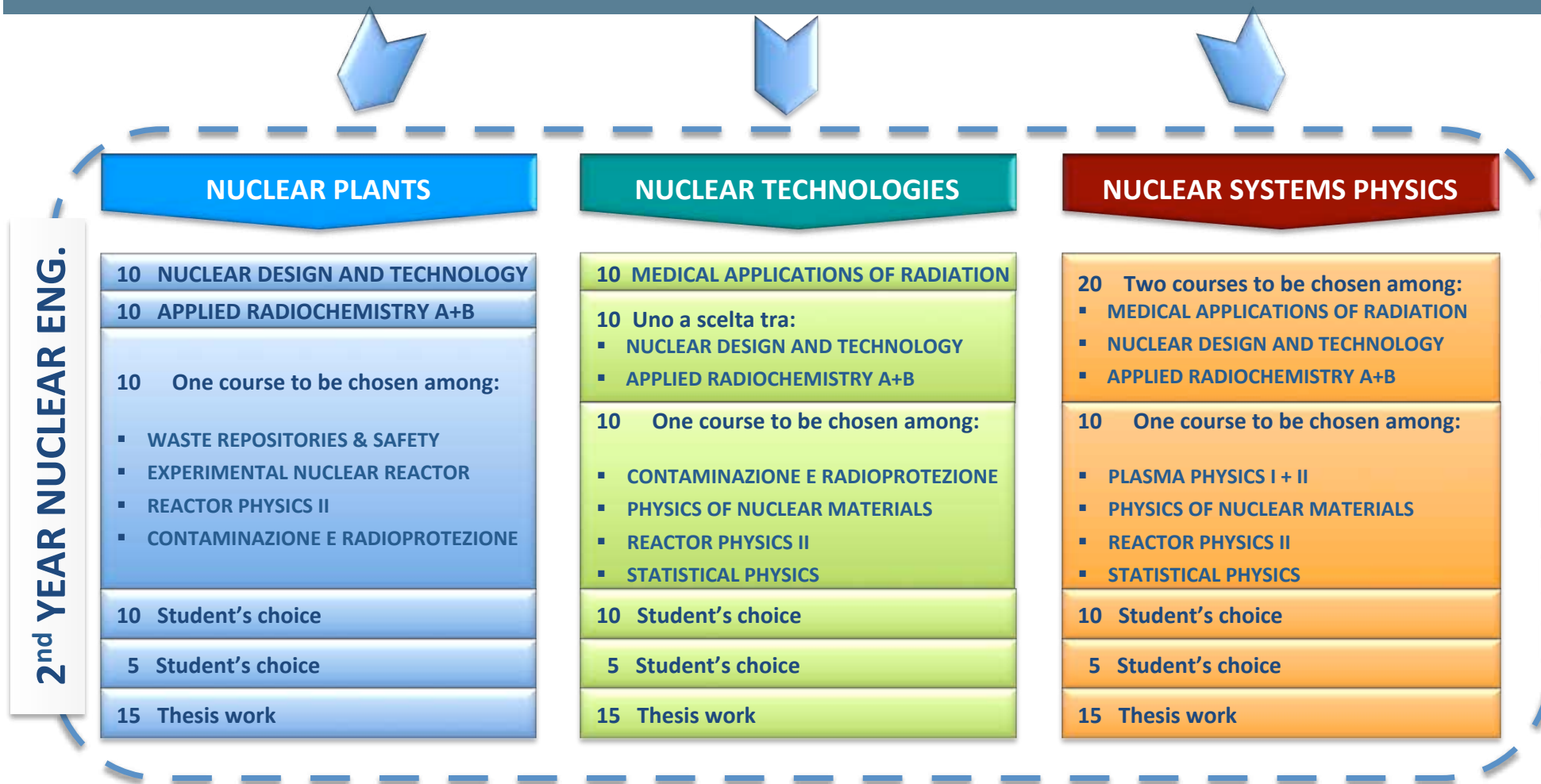
CHEMICAL Eng. – MATH Eng. –
MATERIAL & NANOTECH – ELECTRICAL Eng.



BIOENG.



from 1st year NUCLEAR ENG.

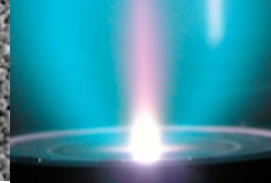
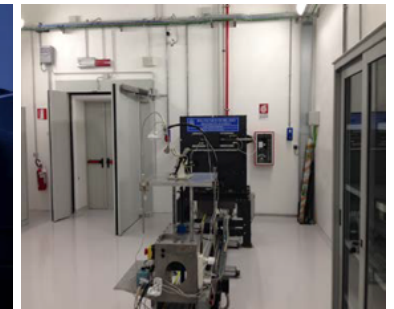
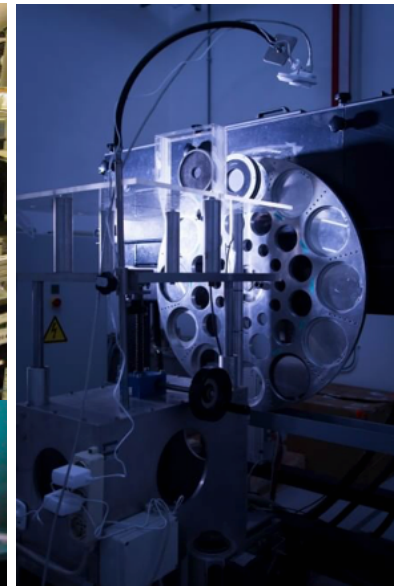
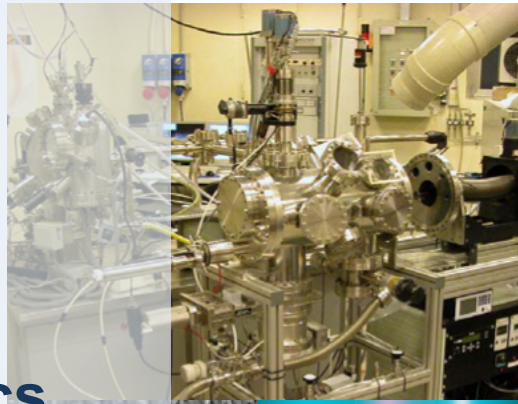


Other opportunities: - 20 extra-credits for supplementary study programmes
 - joint programme & degree Politecnico di Milano-Politecnico di Torino "POLY2NUC"
 - double degree @POLIMI (e.g. MATH Eng.+NUCLEAR Eng.)



POLIMI LABS

- Radiochemistry
- Radiation protection
- Nuclear Measurements & Instrumentation
- Nuclear electronics
- Calibration & Testing
- Health physics
- Material science & Nanotechnology



ACCESS TO EXTERNAL LABS



TRIGA
reactor



SIET
labs

- **TRIGA Research Reactor (@Pavia)**
training for nuclear students


- **Lab. SIET (@Piacenza)**
studies and tests for nuclear components and safety systems

- **Hadrontherapy Centre CNAO (@Pavia)**
synchrotron for medical treatments



Hadrontherapy Centre for
Oncology CNAO





WHO THE NUCLEAR ENGINEER IS?...

- He/She is an **INDUSTRIAL** engineer



WHO THE NUCLEAR ENGINEER IS?...

- He/She is an **INDUSTRIAL** engineer
- He/She is an expert in the different **NUCLEAR** disciplines



WHO THE NUCLEAR ENGINEER IS?...

*Design, Innovation and
Research*
*MSc thesis work carried out in
collaboration with professors and
researchers*

- He/She is an **INDUSTRIAL** engineer
- He/She is an expert in the different **NUCLEAR** disciplines
- He/She has expertise on **PHYSICS, MATERIALS, ELECTRONICS**, with solid background on maths and on experimental methods



JOB SECTORS

- **Fission Nuclear Systems**

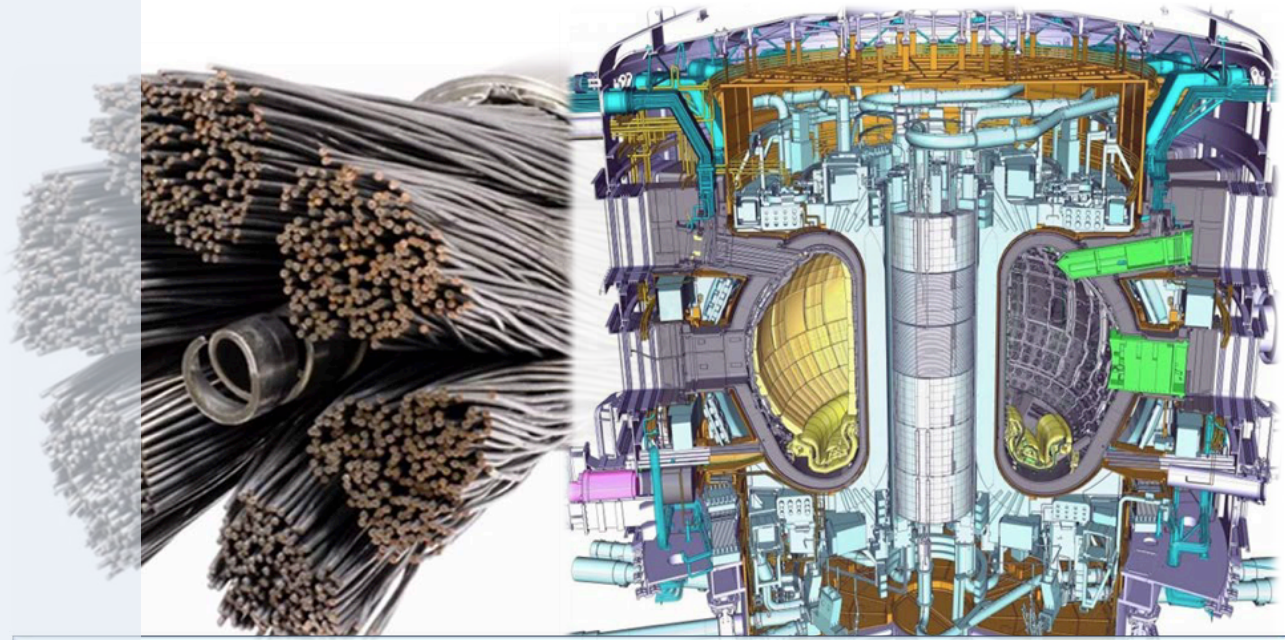


Nuclear Industry
Energy sector



JOB SECTORS

- Fission Nuclear Systems
- Nuclear Fusion

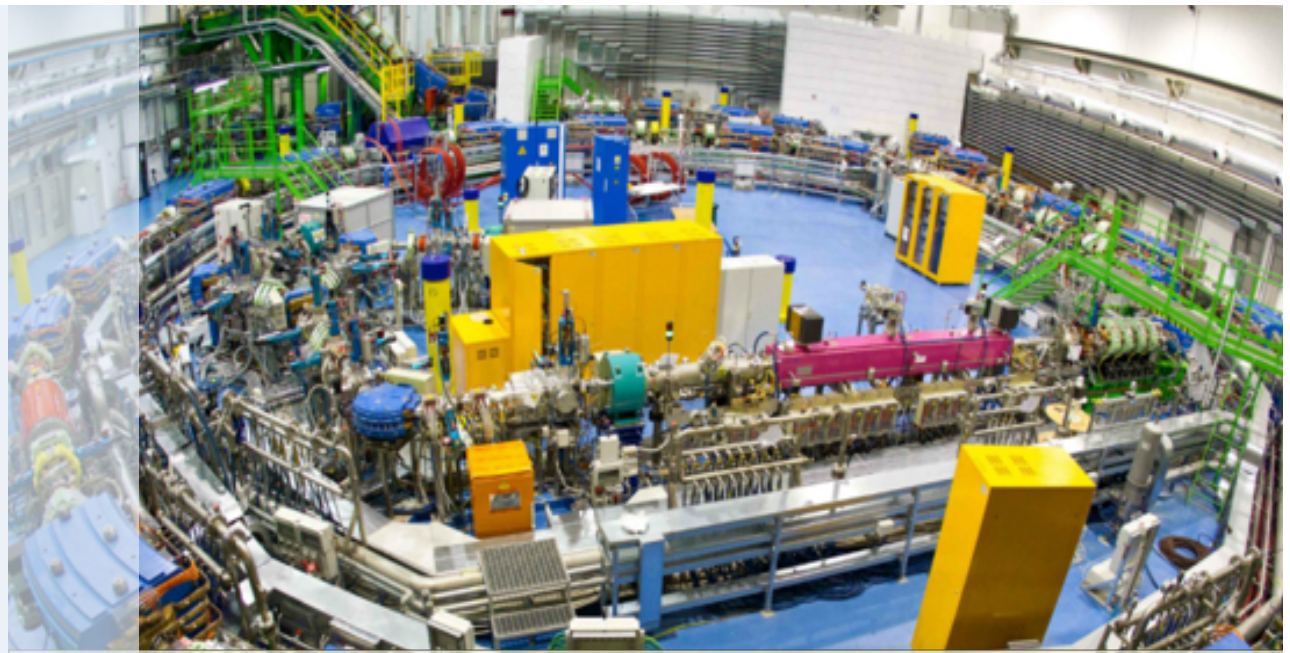


Industry of Fusion Systems
Diagnostic technologies for Fusion

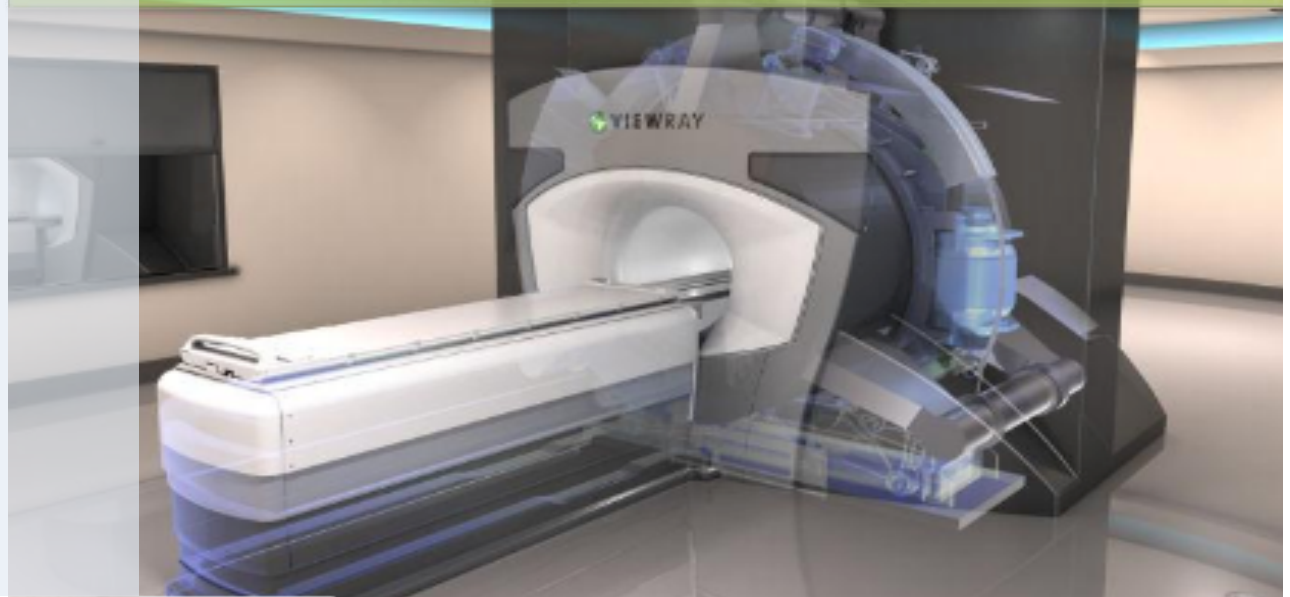


JOB SECTORS

- Fission Nuclear Systems
- Nuclear Fusion
- Medical applications of Nuclear methods



Medical Accelerators engineering
Detector Systems engineering



JOB SECTORS

- **Sistemi Nucleari a Fission Nuclear Systems**
- **Nuclear Fusion**
- **Medical applications of Nuclear methods**
- **Industrial applications of Radiations**



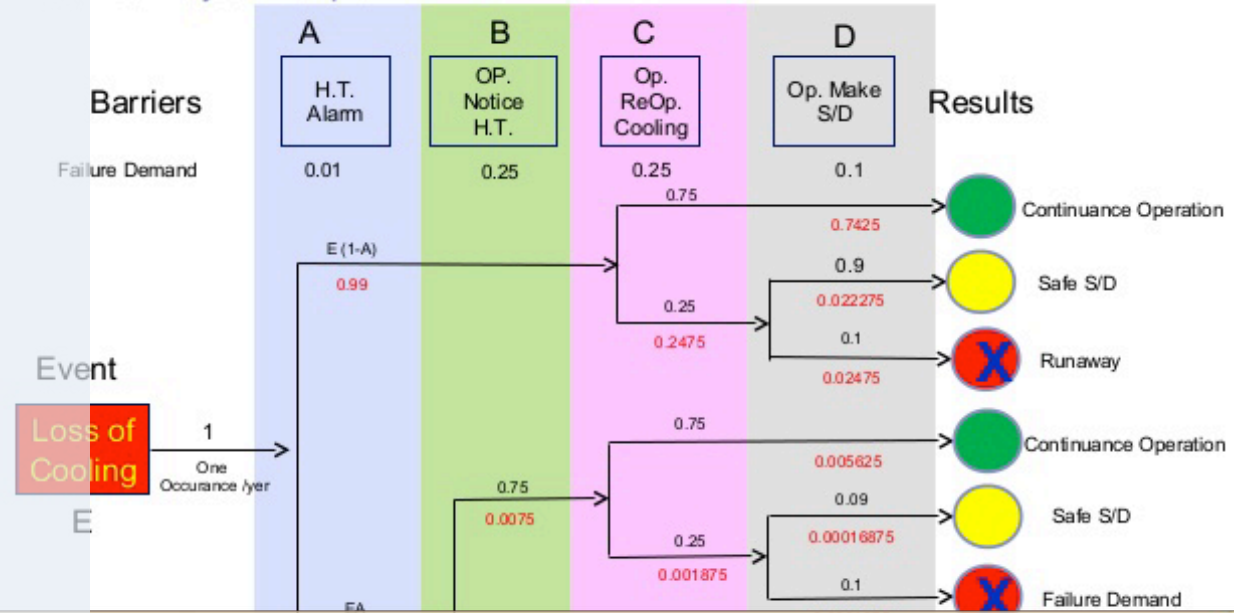
**Basic and Emergency Radiation Protection
Industrial Radiochemistry**



JOB SECTORS

- Sistemi Nucleari a Fission Nuclear Systems
- Nuclear Fusion
- Medical applications of Nuclear methods
- Industrial applications of Radiations
- Risk evaluation and management

Event Tree Analyses Example:

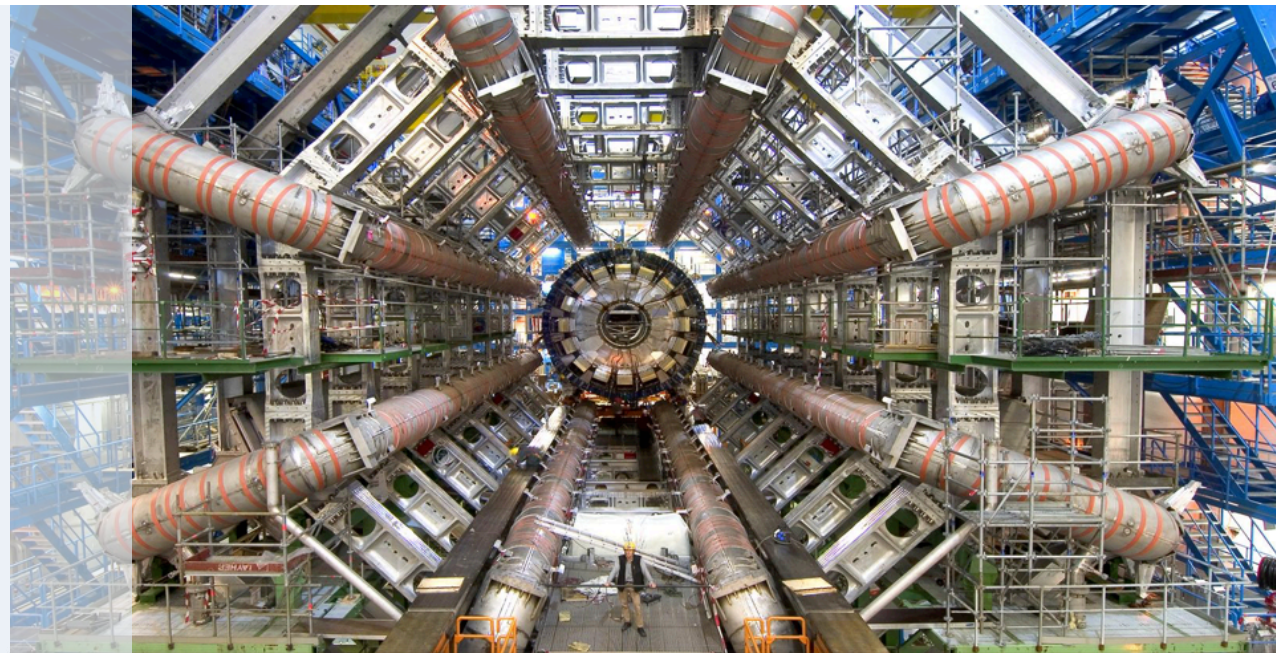


Nuclear and Industrial Safety

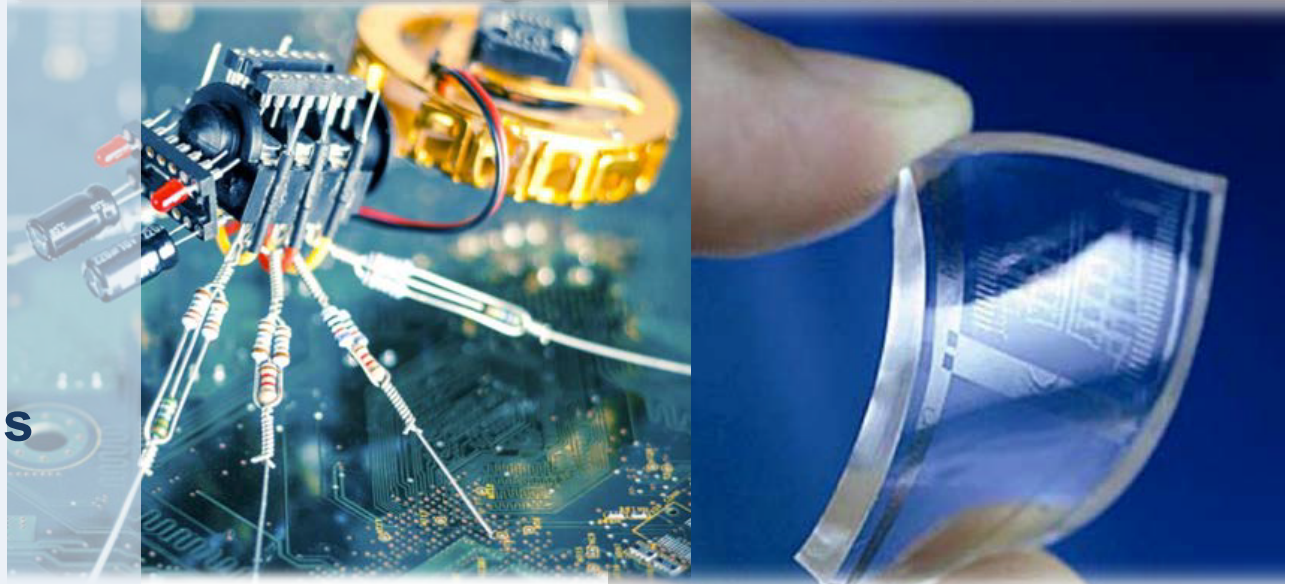


JOB SECTORS

- **Sistemi Nucleari a Fission Nuclear Systems**
- **Nuclear Fusion**
- **Medical applications of Nuclear methods**
- **Industrial applications of Radiations**
- **Risk evaluation and management**
- **Physics and Materials for Nuclear Engineering**



High Energies and Nuclear Physics
Nanotechnologies and Innovative Materials



AND THEN?... WILL I FIND A JOB?...

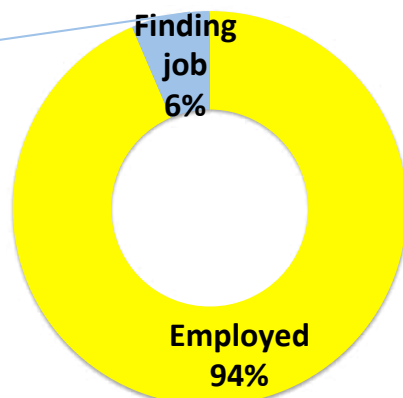
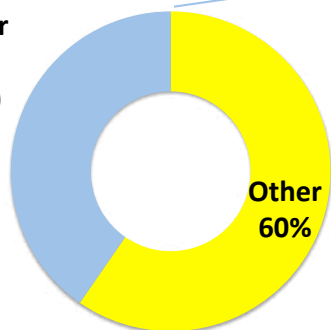
(statistics on 2010-2015 period: NuclEng MSc graduated students, after 1 year from graduation)



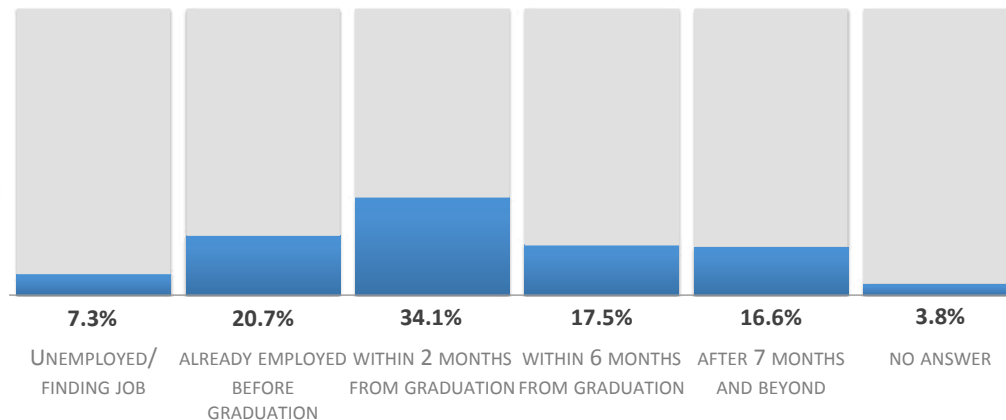
OCCUPATIONAL STATUS

(@ 1 year from graduation)

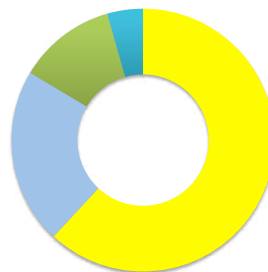
Higher Edu (PhD) 40%



MONTHS NEEDED TO FIND A JOB



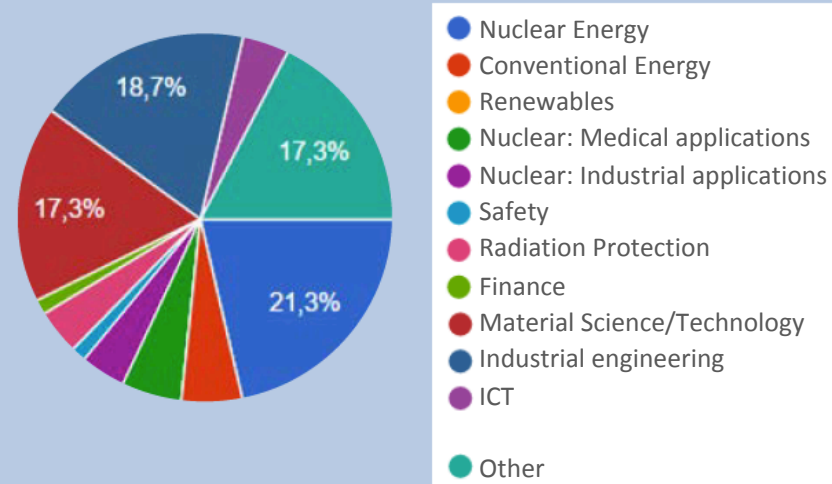
TYPE OF JOB CONTRACT



NET AVERAGE MONTHLY INCOME (2015 graduated)



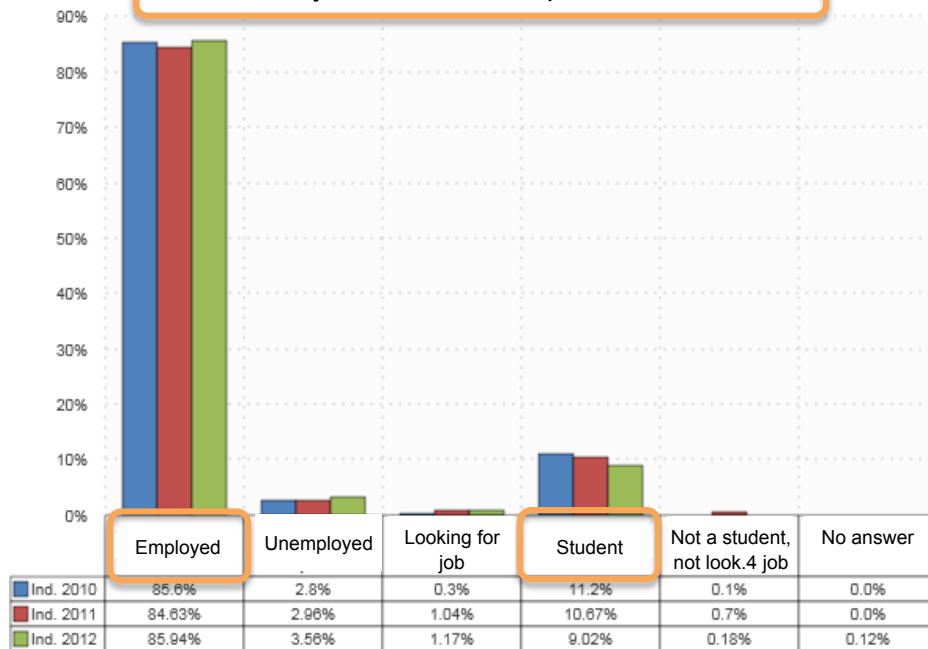
In which job sector would you include your first employment?



AND IN COMPARISON WITH OTHER ENGINEERS?...

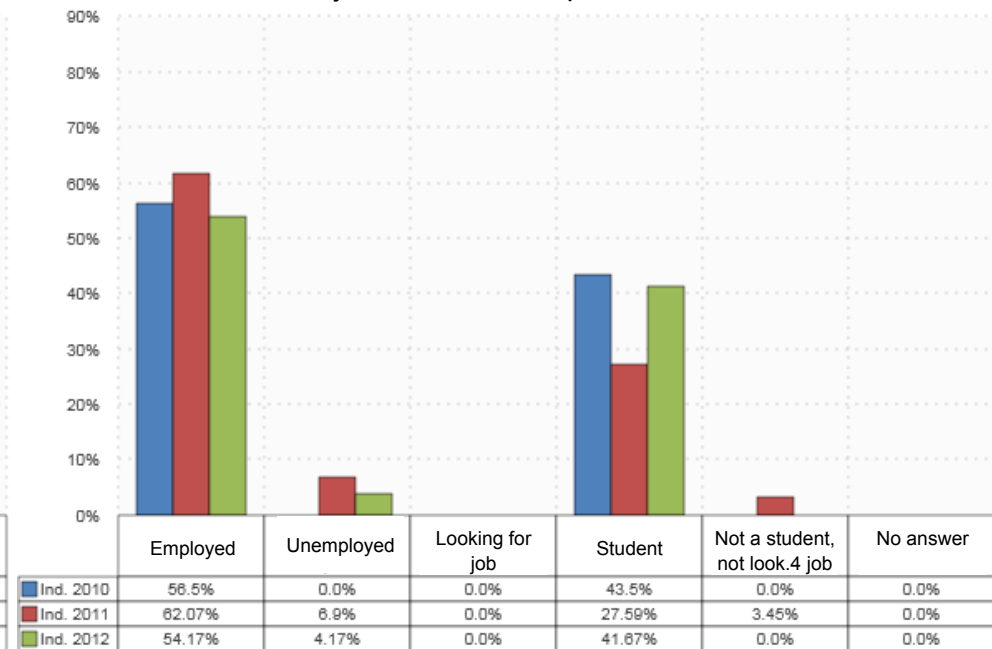
MSc Degrees in Engineering (all degrees)

What is your current occupational status?



MSc Degree in Nuclear Engineering

What is your current occupational status?



STUDIES AFTER MSc DEGREE?...

PhD programme in Science & Technology in Energy and Nuclear STEN

- In-depth theoretical/ experimental studies on R&D topics
- Period: 3 years
- Selection of PhD applications
- Grants / Fellowships available
- Professional opportunities: public or private research sector, enterprises



INTERNATIONAL EXPERIENCES

- because nuclear is inherently an “international” environment...
- because the faculty fosters it...
- because often nuclear students owns good scores (selection process) ...
- because of positive evaluation from the students...



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