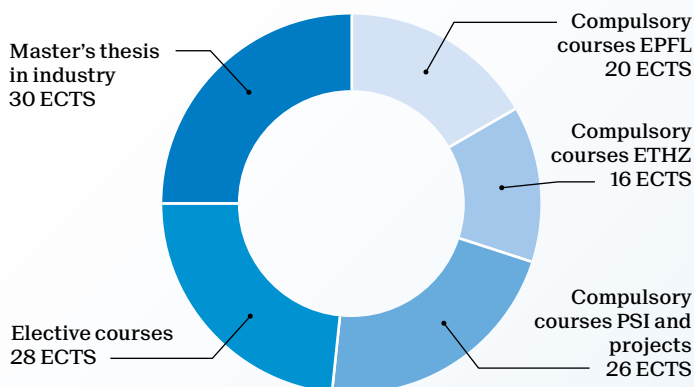


Master of Science in NUCLEAR ENGINEERING Joint master EPF-Lausanne - ETH Zürich

2-year program - 120 ECTS



- 1st semester at EPFL
- 2nd semester at ETHZ
- 3rd semester at PSI (Paul Scherrer Institute)

Teaching language: English

	Credits
Compulsory courses EPFL	20
Neutronics	4
Reactor experiments	4
Reactor technology	4
Radiation protection & radiation applications	4
Course of entrepreneurship	4

Compulsory courses ETHZ	16
Nuclear energy systems	4
Nuclear fuels and materials	4
Safety of nuclear power plants	4
Special topics in reactor physics	4

Compulsory courses PSI	26
Beyond-design-basis safety (block course)	3
Nuclear Computations Lab	3
Decommissioning of nuclear power plants (block course)	4
Semester project for Nuclear engineering	8
Engineering Internship for Nuclear Engineering	8

Elective courses	28
Advanced fossil and renewable energy systems	4
Computational multi-phase thermal fluid dynamics	4
Hydraulic turbomachines	4
Introduction to particle accelerators	4
Medical radiation physics	4
Multi-phase flow	4
Nuclear fusion and plasma physics	4
Renewable energy technologies II, energy storage and conversion	4
Single- and Two-Phase Particulate Flows	4
Uncertainty Quantification for Engineering & Life Sciences	4
Wind Energy	4

"Free" elective courses	max 8
Master courses from the catalogue of courses EPFL or ETHZ (provided the tutor supports this choice)	

Career prospects

Master of Nuclear Engineering graduates will have the perfect profile to start a career in industry, research institutes and national authorities. They will be able to apply their knowledge and practical know-how gained at the Federal Schools and PSI, and during the mandatory internships in nuclear industry, research and development organizations in Switzerland and abroad to become the experts in the nuclear engineering fields. Their internationally recognized degree and experience from the cultural life in two attractive and diverse cities of Switzerland will suit them to become well recognized members of the international community of nuclear engineers. For students interested in an academic career, the Master of Nuclear Engineering is also an ideal stepping stone to join a PhD program in nuclear engineering implemented as an EPFL-ETHZ-PSI collaboration. Research challenges can be as wide and complex as follow: Development of Generation IV reactors / Accelerator driven systems for transmutation / Spallation neutron sources / Safety of light water reactors / Containment thermal hydraulics / Aerosol behavior in containment flows / Fuel optimization / Reprocessing and partitioning / Safety analyses by means of computer simulations / Computational fluid dynamics / Neutron transport modeling / Life cycle analysis of energy systems / Development of two-phase flow instrumentation / New nuclear fuel materials and many others.

Admission Guideline

You are: A Bachelor of Science in Mechanical Engineering, Physics, Chemistry, Electrical Systems or similar / interested in power engineering, nuclear physics, thermal fluid dynamics, material sciences and energetic aspects / ready to work interdisciplinary / concerned about sustainability of the world's energy supply.

Fluency in English is required, since all courses are being taught in English. Success in an international examination of English such as the TOEFL is a plus but not mandatory for the admission to the MNE.

Applications can be submitted online twice every year, from **November 1 to December 15** and from **March 01 to April 15**.

If you need visa to study in Switzerland, we recommend that you apply for the December deadline in order to allow for the completion of the visa procedure, which can take up to three months.

School of Basic Sciences
master.epfl.ch/nuclearengineering
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