

ETH Zürich - EPF Lausanne

Master of Science ETH-EPF in Nuclear Engineering

	Course code	Course name	ECTS
Core courses	PHYS-443/ 151-2011-00L	Physics of Nuclear Reactors (EPFL)	6
	PHYS-451/151-2013-00L	Radiation and Reactor Experiments (EPFL)	6
	PHYS-450/151-2043-00L	Radiation Biology, Protection and Applications (EPFL)	4
	151-0156-00L	Technology and Safety of Nuclear Power Plants (ETHZ)	6
	151-0160-00L	Fuel Cycle and Waste Management (ETHZ)	4
	151-2017-00L	Nuclear Fuels and Materials (ETHZ)	4
	151-2020-00L	Reliability Engineering and Quantitative Risk Analysis (ETHZ)	4
	MNG-nnn	Course on enterpreneurship (ETHZ or EPFL)	4
	151-2045-00L	Decommissioning of Nuclear Power Plants (PSI)	4
	151-0150-00L	Advanced Topics in Nuclear Reactor Materials (PSI)	4
	151-2037-00L	Nuclear Computations Lab (PSI)	4
	151-2039-00L	Beyond-Design-Basis Safety (PSI)	4
	151-1090-00L	Industrial Internship	8
	151-1020-00L	Semester Project Nuclear Engineering	8
	Total Core courses		70
Electives	ME-409	Energy conversion and renewable energy (EPFL)	4
	PHYS-405	Experimental methods in physics (EPFL)	3
	ME-453	Hydraulic turbomachines (EPFL)	4
	MICRO-511	Image Processing I (EPFL)	3
	PHYS-455	Introduction to medical radiation physics (EPFL)	4
	PHYS-448	Introduction to particle accelerators (EPFL)	4
	ME-454	Modeling and optimization of energy systems (EPFL)	4
	PHYS-640	Neutron and X-ray Scattering of Quantum Materials (EPFL)	4
	PHYS-445	Nuclear fusion and plasma physics (EPFL)	4
	PHYS-461	Nuclear interaction: From reactors to stars (EPFL)	4
	PHYS-423	Plasma I (EPFL)	6
	PHYS-452	Radiation Detection (EPFL)	3
	ETH-441	Advanced Techniques for the Risk Analysis of Technical Systems (ETHZ)	4
	ETH-427	Biomedical Imaging (ETHZ)	6
	ETH-433	Computational Multiphase Thermal Fluid Dynamics (ETHZ)	3
	ETH-444	Computational Neuroimaging Clinic (ETHZ)	3
	ETH-454	Electrochemical Energy Conversion and Storage Technologies (ETHZ)	4
	ETH-445	Introduction to Quantum Mechanics for Engineers (ETHZ)	4
	ETH-446	Magnetic Resonance Imaging in Medicine (ETHZ)	4
	ETH-442	Materials Analysis by Nuclear Techniques (ETHZ)	6
	ETH-452	Medical Physics II (ETHZ)	6
	ETH-453	Micro and Nano-Tomography of Biological Tissues (ETHZ)	4
	ETH-447	Monte Carlo in Medical Physics (ETHZ)	4
	ETH-434	Multiphase Flow (ETHZ)	4
	ETH-443	Physics Against Cancer: The Physics of Imaging and Treating Cancer (ETHZ)	6
	ETH-404	Physics of Nuclear Reactor II (ETHZ)	4
	ETH-449	Therapeutic Applications of Particle Physics: Principles and Practice (ETHZ)	6
	PHYS-490	Elective semester project in nuclear engineering (EPFL or ETHZ)	8
	"free electives"	Can be selected from MSc course catalogues of ETHZ/EPFL upon previous tutor approval	8
		Total Electives required	
Master's Thesis			30