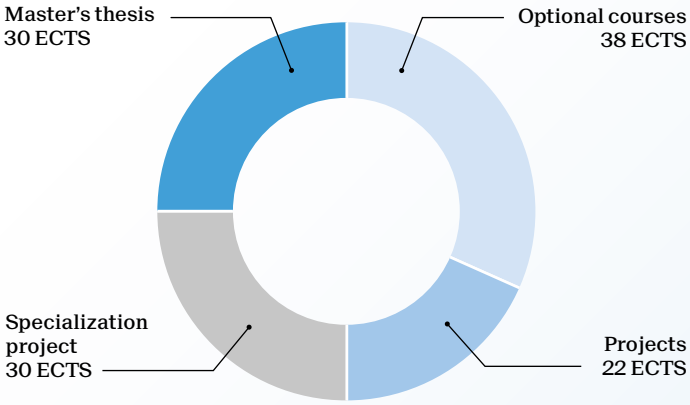
ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

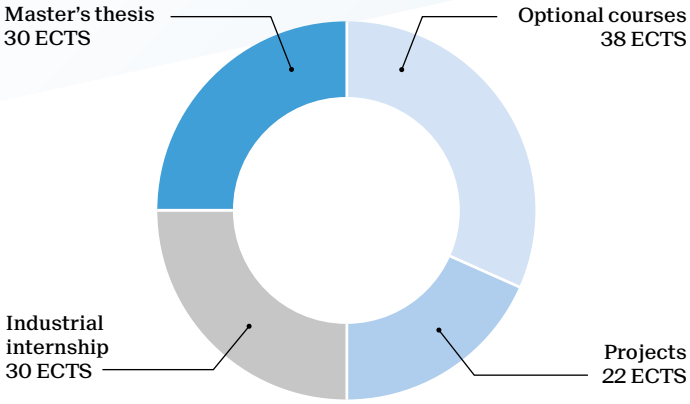
Master of Science in

PHYSICS AND APPLIED PHYSICS

Physics - 2-year program - 120 ECTS



Applied Physics - 2-year program - 120 ECTS



Optional courses

- Students following the master in Physics may choose any optional course in list A and B
- Students following the master in applied Physics choose at least 19 ECTS in list B-Engineering

Possible 30 ECTS Minor instead of the internship or the specialization project:

- Biomedical Technologies
- Computational Science and Engineering
- Energy
- Management, Technology and Entrepreneurship
- Science, Technology and Area Studies
- Space Technologies

Optional courses	A	B	Credits 38
Astrophysics III : Stellar and galactic dynamics	A		4
Astrophysics IV : Observational cosmology	A		4
Atomes et rayonnement	A		4
Biophysics II	A		4
Computer simulation of physical systems I		B	4
Computer simulation of physical systems II	A		4
Diffraction Methods in Structural Biology		B	4
Electron microscopy : advanced methods		B	3
Experimental methods in physics		B	3
Frontiers in nanosciences		B	4
Fundamentals of biomedical imaging		B	4
Introduction à la physique des astroparticules	A		4
Introduction to particle accelerators		B	4
Lasers : theory and modern applications		B	4
Neutronics	A		4
Nuclear fusion and plasma physics		B	4
Optics III	A		4
Particle detection		B	4
Particules élémentaires I	A		4
Particules élémentaires II	A		4
Physics of atoms, nuclei and elementary particles	A		4
Physics of materials		B	4
Physics of photonic semiconductor devices		B	4
Physique des nouveaux matériaux		B	4
Physique du solide III	A		4
Physique moléculaire	A		4
Plasma Physics II	A		4
Plasma Physics III		B	4
Quantum electrodynamics and quantum optics	A		4
Quantum optics and quantum information	A		4
Quantum physics III	A		4
Quantum physics IV	A		4
Radiation protection and radiation applications		B	4
Reactor Technology		B	4
Relativistic quantum fields I	A		4
Relativistic quantum fields II	A		4
Relativity and cosmology I	A		4
Relativity and cosmology II	A		4
Selected topics in nuclear and particle physics	A		4
Semiconductor physics and fundamentals of electronic devices		B	4
Solid State Physics IV	A		4
Statistical physics III	A		4
Statistical physics IV	A		4
Statistical physics of biomacromolecules	A		4

Courses in other programmes according to list of recommended courses max. 18

Projects	22
2 Physics Research projects (labs IVa and IVb)	16
Project in human and social sciences	6

Research projects in the following fields:	
Astrophysics	
Biophysics	
Cristallography & Diffraction	
Electronic microscopy	
Electronic and quantum photonics	
High energy physics	
Condensed matter physics	
Accelerator physics	
Reactor physics	
Plasma physics	
Surface physics	
Theoretical physics	

Internship / Specialization project	30
Master in Physics: Specialization project	30
Master in Applied Physics: internship in industry	30

School of Basic Sciences
master.epfl.ch/physics
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