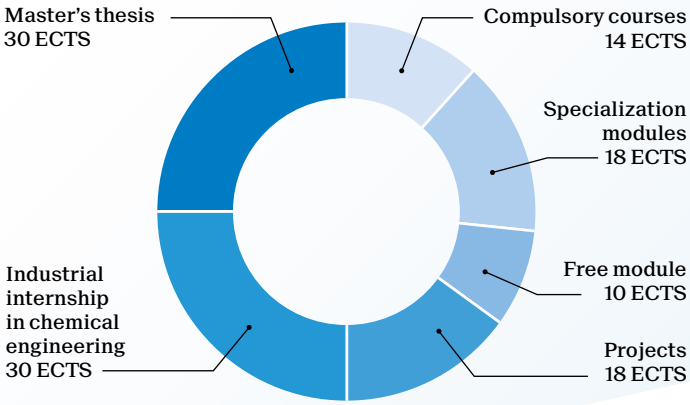
ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

Master of Science in

CHEMICAL ENGINEERING AND BIOTECHNOLOGY

2-year program - 120 ECTS



Students must choose 2 or 3 modules in Specialization modules and 10 ECTS within the free module.

Students can opt for a 30 ECTS minor instead of the industrial internship, preferably in:

- Management, Technology and Entrepreneurship
- Science, Technology and Area Studies

	Credits
Compulsory courses	**14**
Management and safety	
Risk management	2
Safety of chemical processes	2
Chemical engineering	
Advanced diffusional separation processes	3
Chemical engineering of heterogenous reactions	3
Processes and technology	
Process development I, II	4
Specialization modules	**18**
Biochemical engineering	
Biomaterials	3
Principles and applications of systems biology	3
Biotechnology	
Biotechnology lab (for CGC)	4
Introduction to cellular and molecular biotechnology	2
Nanobiotechnology and biophysics	3
Pharmaceutical biotechnology	3
Polymer sciences	
Physical chemistry of polymeric materials	3
Polymer chemistry and macromolecular engineering	3
Energy and environment	
Electrochemical engineering	3
Environment chemical and biological technology	3
Green chemical engineering	
Eco-friendly production and process intensification	3
Thermodynamics of energy conversion and storage	3
Food science	
Chimie des denrées alimentaires	2
Chemistry of food processes	2
Food biotechnology	2
Free module	**10**
Advanced principles and applications of systems biology	3
Bioprocesses and downstream processing	4
Catalysis for energy storage	2
Catalysis for emission control and energy processes	2
Modelling and optimization of energy systems	4
Nanomaterials for chemical engineering application	3
Laboratory and projects	**18**
Chemical engineering lab & project	3
Chemical engineering product design	3
Process development project	6
Project in human and social sciences	6
Internship	**30**
Engineering internship in industry	30

School of Basic Sciences
master.epfl.ch/chemicalengineering
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