Université Paris-Saclay
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M1 Nuclear Engineering

Master's degree
Specialisation Nuclear Energy
Enrolment type
Formation initiale
Formation continue
Language(s) of instruction
English

An international high-level degree, fully taught in English, training tomorrow’s engineers and researchers in the field of civil nuclear energy.

Combining **scientific excellence**, **technical expertise**, and a **global vision of energy challenges**, the program equips students to address the key issues of the energy transition: low-carbon electricity production, safety and security of nuclear facilities, waste management, and the design of next-generation reactors.

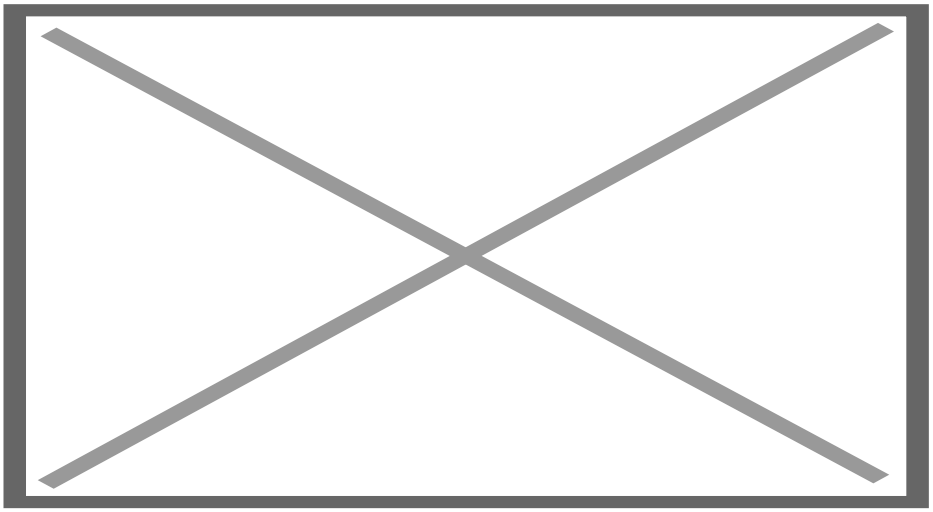
The *Master in Nuclear Engineering* is a high-level international degree fully taught in English. It is designed for French and international students aiming to become engineers and researchers able to address challenges in operation, safety, design, decommissioning, and the future of nuclear facilities, contributing to low-carbon electricity generation.

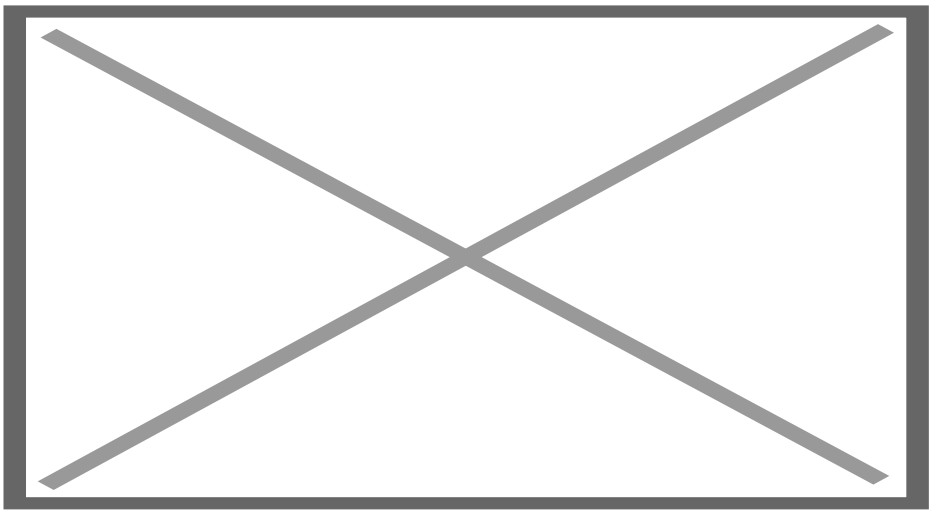
The two-year program includes:

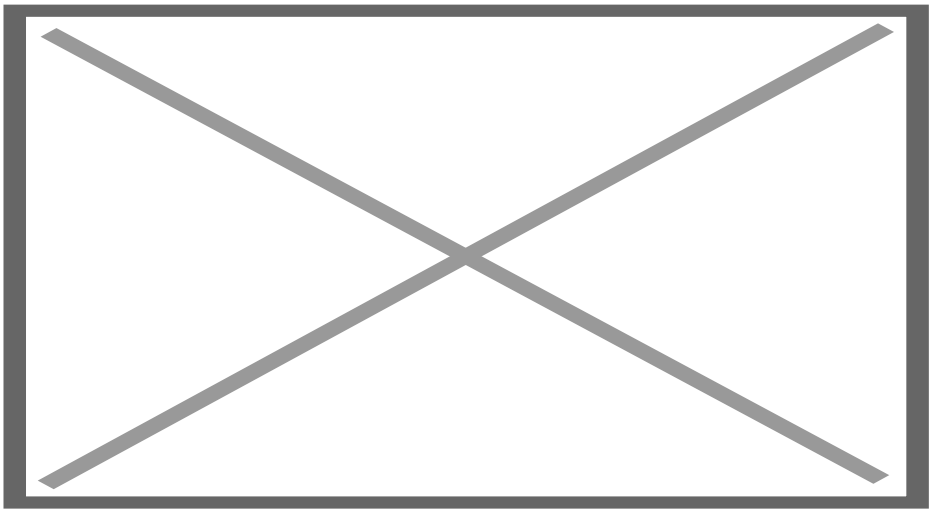
- **M1**: two tracks, **Physics** and **Chemistry**, to build essential foundations.
- **M2**: five specializations in key areas of civil nuclear energy: **Fuel Cycle**, **Decommissioning and Waste Management**, **Operation**, **Nuclear Plant Design**, **Nuclear Reactor Physics and Engineering** .

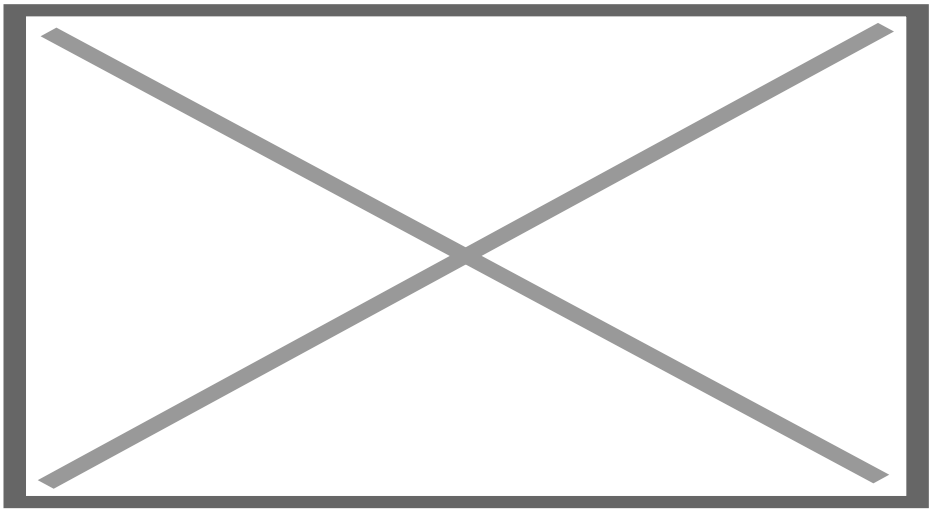
This progressive structure provides students with strong scientific and technical expertise, while fostering a global understanding of the industrial, environmental, and societal challenges of nuclear energy.

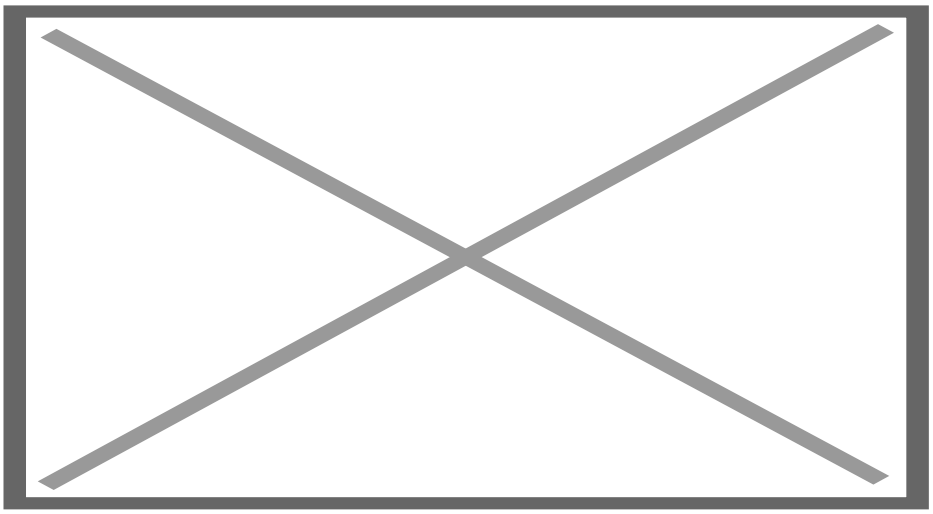
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Information

- Overview
- Application requirements
- Schedule

Présentation

Skills

Upon completion of the program, students will be able to:

- Identify the knowledge and tools required to analyze and solve complex problems in nuclear energy.
- Master the key disciplines involved in the industrial application of nuclear energy.
- Understand and explain the impacts of nuclear energy on humans and the environment, both in normal operation and in accident scenarios.
- Work effectively in teams and collaborate with professionals from diverse cultural, scientific, and technical backgrounds.
- Apply the fundamental principles of **safety culture** (prudence, questioning attitude, transparency, responsibility).

- Position nuclear energy within the global energy mix and compare it with other sources in terms of environmental, economic, and geopolitical impact.

Objectives

The Master aims to:

- Train specialists with strong scientific and technical knowledge to contribute to the safe and sustainable use of nuclear energy.
- Prepare students for careers in the nuclear industry or for research in reactor physics, modeling, radioprotection, or nuclear chemistry.
- Develop awareness of safety, security, and environmental issues associated with nuclear facilities.
- Provide a comparative and critical perspective of nuclear energy compared to other energy sources, in terms of sustainability, economics, and energy independence.

Débouchés

Career prospects

After a Master's or Master's + PhD: engineer (R&D, control, production, etc.)
After a Master's or Master's + PhD: researcher or lecturer
After a Master's or Master's + PhD: engineer (research and development, control, production, etc.) in the fields of health, pharmaceuticals, agri-food, biotechnologies, instruments and reagents, cosmetics, pollution control and the environment.
After a Master's + PhD: researcher or lecturer
After a Master's or Master's + PhD: engineer (Research & Development, control, production, etc.)
After a Master’s degree: Research analyst
R&D Engineer
Business Manager
Safety engineer
design study engineer
chemical-environmental engineer

Nuclear R&D Engineer
Project Manager
Consulting
Design engineer in the industrial sector
Design engineer in the research / scientific sector
Design engineer industry / public research
Research and Innovation Manager
Project Manager
Research or Design Engineer
Lecturer (after a PhD)
Head of mission / projects
Prevention project manager

Further Study Opportunities

PhD
2nd year Master’s

Calendar

Start of programme (indicative date)
01/09/2026
End of programme (indicative date)
09/07/2027
Admission

Admission Route

Physics
Chemistry
Physics, Chemistry
Mechanics
Civil Engineering
Engineering Sciences
Undergraduate double degree Mathematics - Physics

Capacity

Available Places

45

Target Audience and Entry Requirements

Bachelor in Physics, Bachelor in Chemistry

Période(s) de candidature

Inception Platform

From 15/01/2026 to 16/03/2026

MonMaster Platform

From February 17th to March 16th, 2026

To find out which platform you should apply through, please see the Masters' applications and enrolment page.

Supporting documents

Compulsory supporting documents

Copy of the last diploma.

Copy of passport.

Motivation letter.

All transcripts of the years / semesters validated since the high school diploma at the date of application.

Certificate of English level (compulsory for non-English speakers).

Curriculum Vitae.

Certificate of English level (compulsory for non-English speakers) or GMAT / GRE test results.

Additional supporting documents

Certificate of English level.

VAP file (obligatory for all persons requesting a valuation of the assets to enter the diploma).

Recommendation letters.

Supporting documents :
- Residence permit stating the country of residence of the first country
- Or receipt of request stating the country of first asylum
- Or document from the UNHCR granting refugee status
- Or receipt of refugee status request delivered in France
- Or residence permit stating the refugee status delivered in France
- Or document stating subsidiary protection in France or abroad
- Or document stating temporary protection in France or abroad.

Programme

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practica class
Thermodynamics	3	Semester 1	18	9				
Charger le détail								
Mathematical Methods for Engineering	4	Semester 1	18	0				
Charger le détail								
Interaction and detection of ionizing radiation	3	Semester 1	9	3	21			
Charger le détail								
Basic Nuclear Physics	4	Semester 1	18	18				
Charger le détail								
Chemical Engineering	4	Semestre 2	15	15	6			
Charger le détail								

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	dis le c
Energy Production Technologies	3	Semester 1	9	18					
Charger le détail									

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	dis le c
Project Management	3	Semester 2	12						
Charger le détail									
Economics of Energy	2	Semester 2	24						
Charger le détail									
Basic Reactor Operation	1	Semester 1	9						
Charger le détail									
UE libre catalogue S1 et S2	2.5	Semestre 2							
Charger le détail									

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	dist lea co
Basic Neutronics	1	Semester 1	12	0					
Charger le détail									
Material Science and mechanics	4	Semestre 1	17	16	6				
Charger le détail									
Electrical Power Engineering	3	Semester 1	21	6					
Charger le détail									
Basic Quantum Mechanics	3	Semester 1	17.5	12.5					
Charger le détail									
Fluid Mechanics and Heat Transfer	4	Semester 2	24	12					
Charger le détail									

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed	Lecture/practical	directed study/practical class	dist lea co
Detection applied to physics	2	Semester 2	2		16				
Charger le détail									
Control of Dynamical Systems	3	Semester 2	21	6	3				
Charger le détail									
Continuum Mechanics	1	Semester 1	11	4					
Charger le détail									

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed	Lecture/practical	directed study/practical class	dis le c
Solution Chemistry 1: Speciation and process	3	Semestre 1	20	10					
Charger le détail									
Radiolysis	2	Semestre 1	13	4	4				
Charger le détail									
Chemistry of Nuclear Materials	4	Semestre 1	15	9	12				
Charger le détail									
Solution Chemistry 2: Separation Chemistry	3	Semestre 2	12	12					
Charger le détail									
Analytical chemistry of radioactive elements	4	Semester 2	6	3	30				
Charger le détail									
Atomic and Molecular Spectroscopy	3	Semester 2	15	15					

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	di le c
Charger le détail									
Chemistry in Nuclear Energy Production Engineering	2	Semester 1	24						
Charger le détail									

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	distan learn cour
Internship	10	Semester 2							
Charger le détail									

Teaching Location(s)

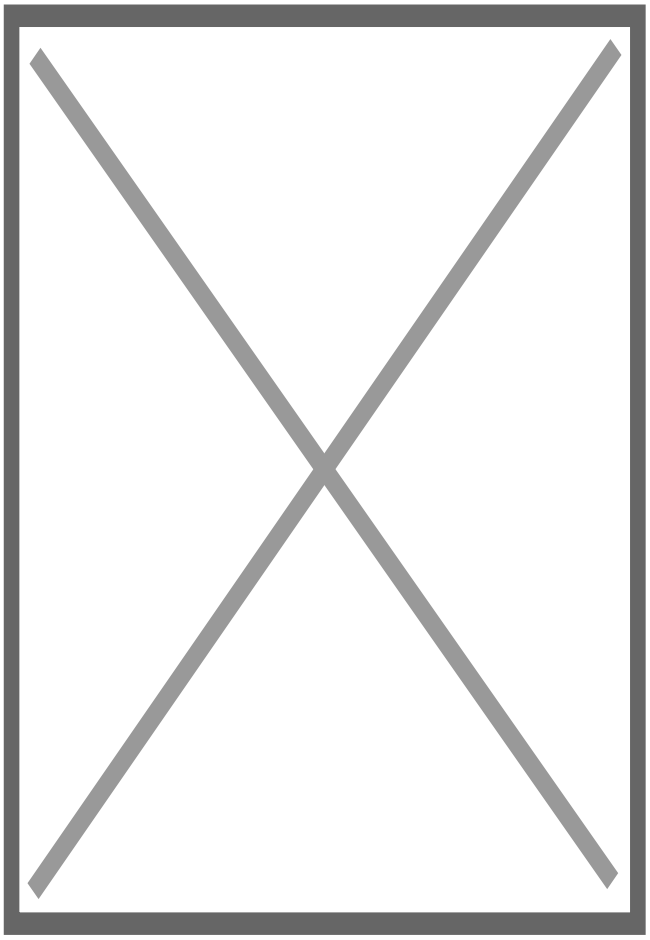
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Academic Partner(s)

IPParis, PSL - ChimieParis, Ecole des Ponts ParisTch

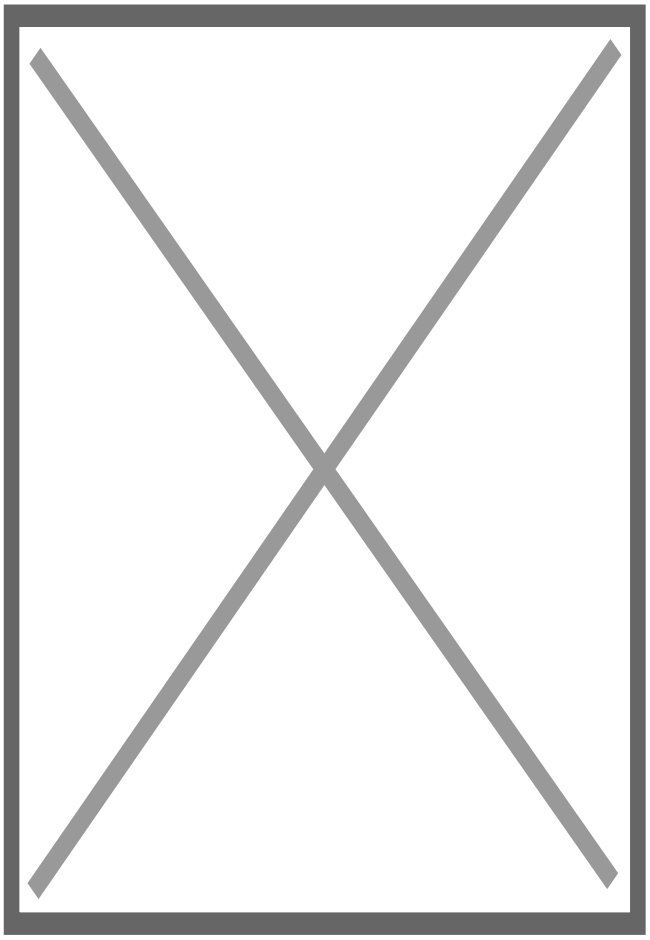
Training campus

Javascript est requis pour visualiser cette carte.



Orsay Bures

Orsay / Bures-sur-Yvette
Bus 4607, 4626
RER B Orsay ville ou Bures-sur-Yvette
Voir
Library
Community center



Saclay Moulon

Saclay / Gif-sur-Yvette / Orsay
Bus 4606 / 4609 / 4611 / 5154
RER B Le guichet
Voir
Student restaurant (CROUS)
Library
Sports facilities
Student residence

Contact

- **Matthieu Lebois**
- **Nathalie Prud'homme**

  MCF

http://www.universite-paris-saclay.fr/formation/master/ingenierie-nucleaire/m1-nuclear-engineering