Université Paris-Saclay

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M2 Physique et ingénierie de l'énergie (PIE) : Nouvelles Technologies pour l'Energie

Master's degree

Specialisations Energy | Physique fondamentale et applications

Enrolment type

Formation initiale

Formation continue

Language(s) of instruction

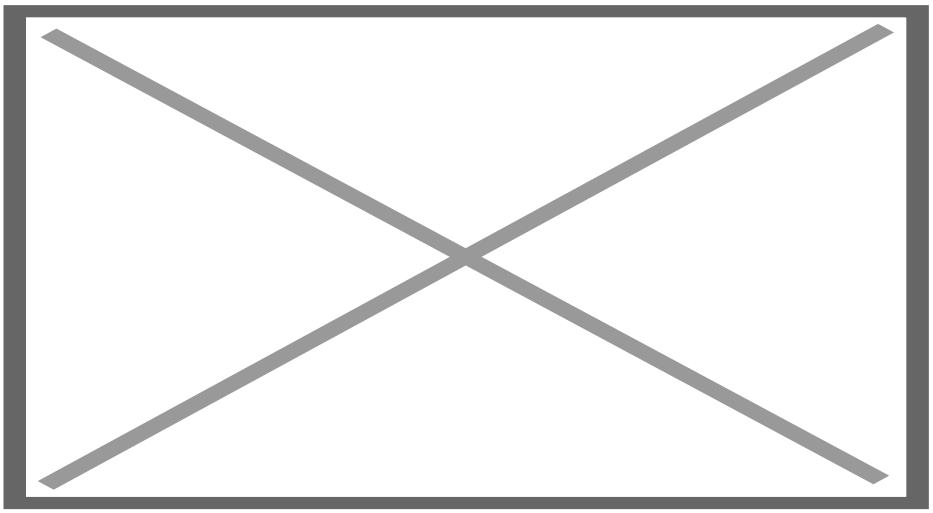
French

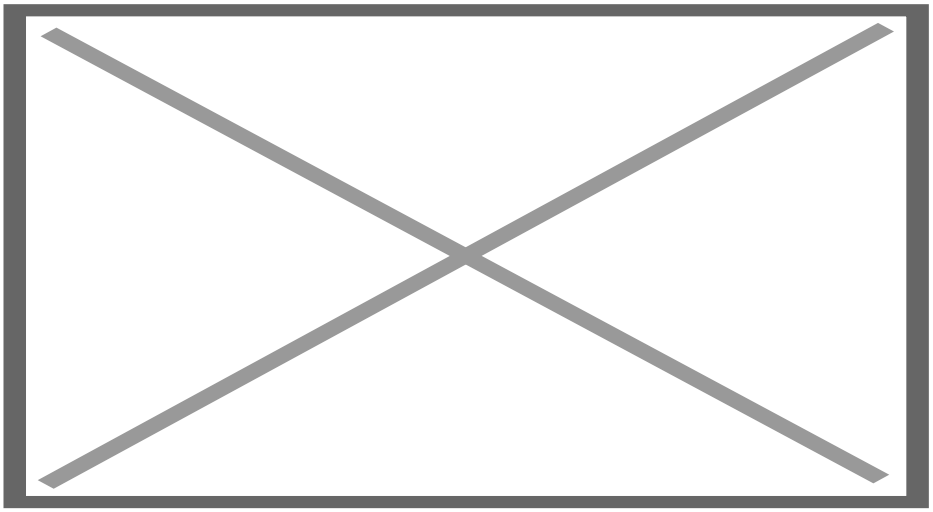
The M2 PIE-NTE offers training as a general energy physicist, with a focus on engineering in large corporations or start-ups, as well as prospects in research on the topic of New Technologies for Energy.

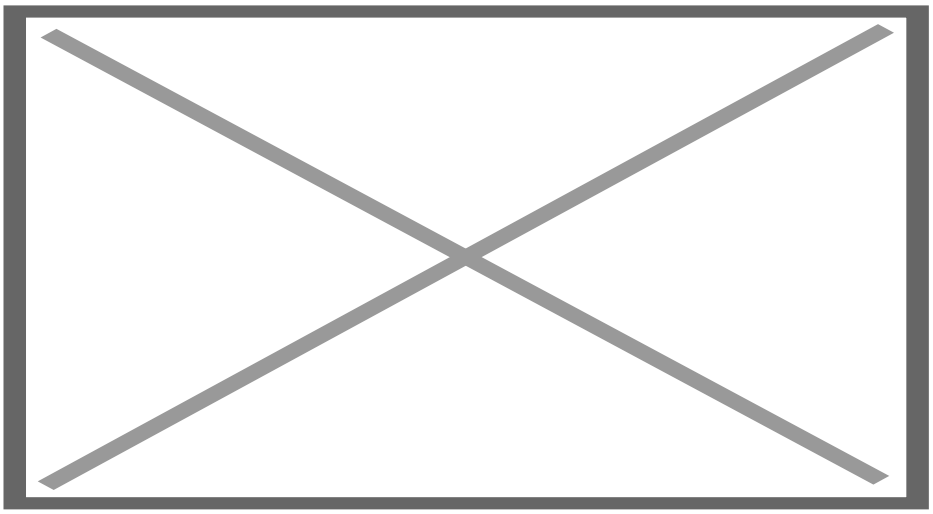
The program is organized into two three-month periods, during which students must complete 10 of the 17 modules offered. The program consists of a core curriculum and a choice of specialized tracks: Building Thermal and Energy Performance, Electrical Energy Management, or Materials for Energy. This disciplinary training is supplemented by a mandatory four- to six-month internship in a company or laboratory.

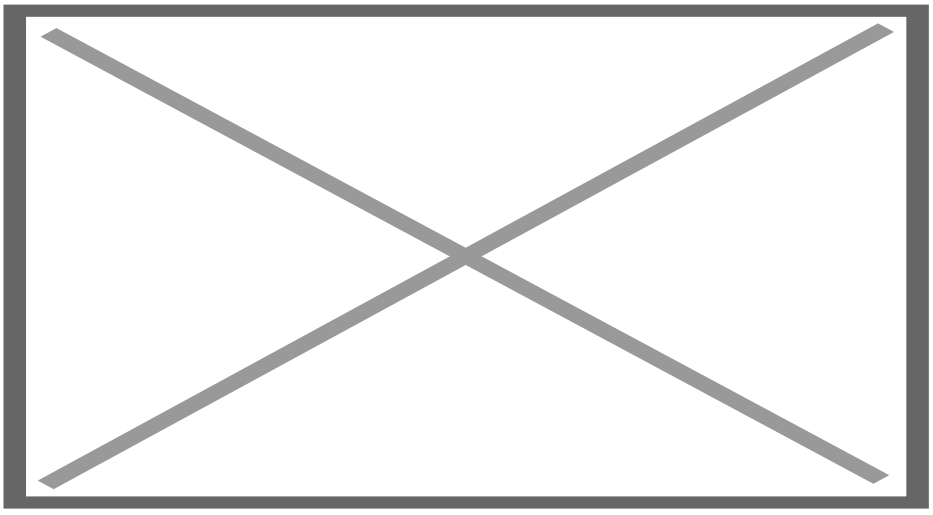
Télécharger la fiche détaillée

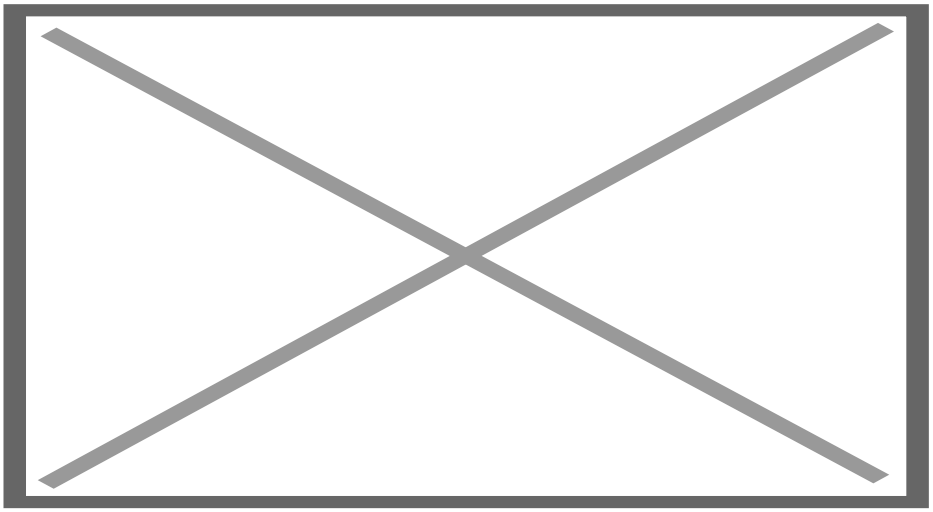
Apply Now











Information

- Overview
- Application requirements
- Schedule

Présentation

Skills

Identify, formulate, and analyze a problem in its scientific dimensions.

Objectives

The energy research and development sector is booming in France and worldwide, driven by both energy needs and increasingly stringent environmental constraints. Technological developments are rapid and numerous, generating significant demand for professionals capable of supporting their development. To meet these needs, this program trains young engineers and future researchers to work on new modes of energy production (mainly renewable) and energy efficiency. The program offers a customized curriculum, highlighting major areas such as photovoltaics, thermal energy and energy efficiency, hydrogen as an energy carrier, electrochemical generators, and electrical networks. These major areas are complemented by advanced teaching on materials and nuclear energy, a key issue in the French debate. All these fields combine highly active fundamental research, in which Paris-Saclay University is a global leader, with numerous and rapidly growing industrial applications. This position at the interface between fundamental research and the development of concrete solutions is reflected in the courses, which range from a course on Energy and Society, which discusses the orders of magnitude and prospects for 2050, to practical work on fuel cells and photovoltaic solar panels in real-life situations. This opens up a wide range of opportunities, from pursuing a PhD to positions in energy consulting and various areas of engineering.

Débouchés

Career prospects

Research or Design Engineer
Research Engineer

Further Study Opportunities

Engineering, research and development
Data Scientist, Data Analyst, Ingénieur·e en Machine Learning dans des secteurs innovants (tech, finance, santé, énergie, etc.) ;

Calendar

Start of programme (indicative date)
31/08/2026
End of programme (indicative date)
31/10/2027
Admission

Admission Route

Physics
Physics, Chemistry
Engineering Sciences

Capacity

Available Places

20

Target Audience and Entry Requirements

Master's degree in Physics or engineering student, with a solid foundation in materials science, electrochemistry, fluid mechanics, and/or thermal engineering. A genuine interest in energy issues is essential.

Période(s) de candidature

Inception Platform

From 15/01/2026 to 15/06/2026

Supporting documents

Compulsory supporting documents

Rank of previous year and size of the promotion.

Copy of the last diploma.

Motivation letter.

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

Certificate of French (compulsory for non-French speakers).

Curriculum Vitae.

Additional supporting documents

Letter of recommendation from a trainee.

Letter of recommendation or internship evaluation.

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

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/practical class	distanc learni cours
Energy and society	3	Semestre 1	12.5	11.5					
Charger le détail									
Nuclear Energy	3	Semestre 1	24						
Charger le détail									
Energy law	1.5	Semestre 1	12						
Charger le détail									

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practica class
Parcours "Thermique et énergétique des Bâtiments"								
Energy in Construction	3	Semestre 1						
Charger le détail								
Thermique	3	Semestre 1	15	15				
Charger le détail								
Mécanique des Fluides	3	Semestre 1	12.5	12.5				
Charger le détail								
Thermique Numérique	3	Semestre 1	12	6	6			
Charger le détail								
Control of Active and Reactive Systems (Part I)	1.5	Semestre 1						
Charger le détail								
Parcours "Gestion de l'énergie électrique"								
Renewable energy sources and grid integration	3	Semestre 1	27					
Charger le détail								

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class
Machine learning pour la maîtrise de la consommation électrique	3	Semestre 1	12	12				
Charger le détail								
Economie des réseaux	3	Semestre 1	21					
Charger le détail								
Réseaux électriques	3	Semestre 1	15	15				
Charger le détail								
Energies éoliennes et marines	1.5	Semestre 1	6	6	4			
Charger le détail								
Parcours "Matériaux pour l'énergie"								
Electronique des solides	3	Semestre 1	30	6				
Charger le détail								
Electrochimie	3	Semestre 1	16	8				
Charger le détail								
Solaire photovoltaïque	3	Semestre 1	21		7			
Charger le détail								
Générateurs électrochimiques : batteries, piles à combustible et hydrogène	3	Semestre 1	16	8	4			
Charger le détail								
Nanomatériaux	1.5	Semestre 1	15					
Charger le détail								

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class

UE obligatoires

Séminaires et visites	1	Semestre 2			
Charger le détail					
Anglais	2	Semestre 2		24	
Charger le détail					
Gestion de projet	2	Semestre 2	9	12	
Charger le détail					

9 ECTS au choix (UE hors parcours choisi)

Control of Active and Reactive Systems (Part I)	1.5	Semestre 1			
Charger le détail					
Control of Active and Reactive Systems (Part II)	1.5	Semestre 1			
Charger le détail					
Energies éoliennes et marines	1.5	Semestre 1	6	6	4
Charger le détail					
Nanomatériaux	1.5	Semestre 1	15		
Charger le détail					
Matériaux pour l'énergie	3	Semestre 1	24		8
Charger le détail					
1 UE (3 ECTS) d'un autre parcours	3	Semestre 1			
Charger le détail					
2 UE (3ECTS) des autres parcours	6	Semestre 1			

Charger le détail

3 UE (3ECTS) des autres parcours	9	Semestre 1

Charger le détail

UE libre Catalogue S1	2.5	Semestre 1

Charger le détail

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	distanc learni cours
Stage	25	Semestre 2	40						

Charger le détail

Teaching Location(s)

ORSAY
GIF SUR YVETTE

Training campus

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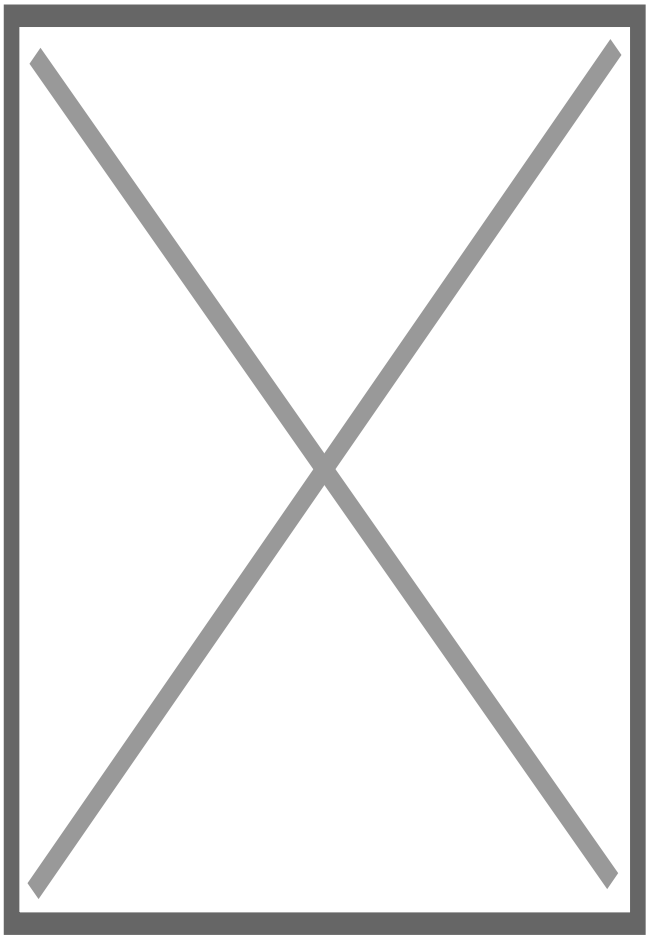

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Voir
Student restaurant (CROUS)
Library
Sports facilities
Student residence

Contact

- **Olivier Plantevin**

http://www.universite-paris-saclay.fr/formation/master/energie/m2-physique-et-ingenierie-de-lenergie-pie-nouvelles-technologies-pour-lenergie