Hydrogen Project & Engineering

Applied graduate studies

Language: English

Duration: 12 months

Be part of the low carbon energy and transportation sectors, join a multi-disciplinary team to embrace a global perspective on the industry and business hydrogen sector in France and abroad.

Advanced-master degree
Mastère spécialisé

Do you want to boost your career in a fast-moving sector?
Come and develop your skills and know-how about hydrogen.
Hydrogen will play a significant role in the future energy mix as an energy vector in the industries needing to replace fossil fuels by decarbonized resources (e.g. cement, steel, fertilizer and transportation sectors).

The Advanced-master degree - *Mastère spécialisé* is designed to empower you with a comprehensive understanding of the hydrogen value chain. You will be exposed to the **technical, economic, financial, and environmental** dimensions of the value chain from production to markets.
Understanding how technologies, markets and regulations shape the industry will provide you with a competitive edge in your projects.

With an active learning pedagogy based on real case studies and lectures given by professionals with extensive experience, the program is undoubtedly a fast-track towards a successful career in **H_2 business development.**

Through this program, you will be able to design new hydrogen units, evaluate the cost and environmental impacts of your project and finally lead a complex public-private project in line with the safety rules and regulations.

CAREER OPPORTUNITIES

- Project leader
- Business developer
- Engineering manager
- Risk assessor or asset manager in industrial companies
- Public financial institutions
- Consultant in consultancy firms

From start-ups to international companies involved in green energies.

Find out more: **www.ifp-school.com**

IFP SCHOOL

HIGHLIGHTS

- IFP School is an integrated part of IFP Energies nouvelles, Europe's leading energy R&D and education center focusing on the fields of energy, transport and environment.
- A complete program in the global value chain of hydrogen mixing economics and technology.
- Lectures given by professionals and IFPEN's researchers.
- Multidisciplinary teamwork giving excellent network opportunities.
- Real case studies and data sets provided by industry and industrial visits.
- Program accredited as an Advanced-master degree - *Mastère spécialisé* by the *Conférence des grandes écoles.*
- Supported by the energy sector and France Hydrogène association.

Program funding/main sponsors

Attendees in this program are either self-funded or employees supported by their organization or master's graduates supported by industrial partners (through sponsorships or study leave) which fund their living expenses during the academic period and cover their tuition.
Supporting companies are national and international companies, governmental organizations and international institutions.

Program schedule

Short full-time program
6-month courses + 6-month internship

12 months

S O N D J F M A M J J A

Continuous program

IFP School Company

Program content

Understanding the global arena

- The global energy landscape
- The challenge of climate change
- The role of hydrogen in the energy and transportation sectors
- Renewable energy technologies
- Hydrogen policies and strategies around the world

Hydrogen technologies

- Hydrogen production (water electrolysis, steam methane reforming and CO_2 capture technologies)
- Innovative technologies
- Hydrogen long-haul transportation
- Storage technologies
- Power-to-X

Environmental issues

- Ecodesign: renewable resources, CO_2 emissions and water consumption
- Life Cycle Analysis

Fundamentals of Financing, Economics & Project management

- Project management of green energies
- Public-private partnerships (financing, subsidiaries, M&A, …)
- Risk-mapping and risk coverage
- Insurance and legal contracts
- Economics & costs analysis
- Hydrogen project evaluation & finance

Regulations, safety and new business models

- Laws and regulations globally and regionally
- Regulations of electricity and hydrogen
- Renewable electricity sources: availability, affordability, prices, and future
- CO_2 market
- Hydrogen pricing
- Safety issues and preventive actions in ICPE industries

Main applications for hydrogen

- Hydrogen for mobility
- Hydrogen for industry

The program ends with a final capstone project through which the students can develop their management and engineering skills.

At the end of the program, the students will be able to

- Choose pathways to produce, store, distribute and consume hydrogen
- Write an offer describing the technical and financial relevance of hydrogen for an application
- Lead a project to develop a new hydrogen business in a public-private partnership
- Integrate construction & operations, financing, and contractual & legal aspects of a project
- Build partnerships with major players in the Hydrogen sector

Admission

- Required: an engineering or master's degree or a Bachelor's degree with 3-year of professional experience in the energy sector
- Background: chemical engineering, materials, energy, electricity, etc.

MS MASTÈRE SPÉCIALISÉ

IFP School is handi-friendly

Find out more: **www.ifp-school.com**

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