MASTER

MOBILITY AND ELECTRIC VEHICLES

ARTS ET MÉTIERS PARISTECH, ENSTA PARISTECH, ÉCOLE DES PONTS PARISTECH, MINES PARISTECH

The Master in Mobility and Electric Vehicles provides engineers with the scientific knowledge required for the emergence of new forms of mobility and their eco-system.

The Renault Foundation and ParisTech joined forces in 2010 to create the Master in Mobility and Electric Vehicles. The aim was to respond to the general desire of industrial groups and public authorities to promote forms of mobility that are more environmentally-friendly and use less energy.

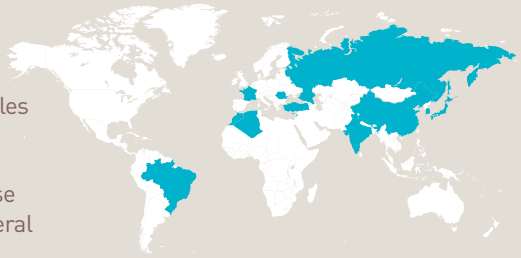
Entry requirements:
- A degree from an internationally-recognized higher education institution at least equivalent to French Master 1 level (in the fields of electrical, mechanical or industrial engineering)
- Adequate proficiency in French (minimum TFI test score of 550)
- Aged under 35 on September 1st of the year of arrival in France
- The program is also open to young professionals graduating from foreign universities partnered with the Renault Foundation

Applications:
Applications must be made via the Renault Foundation website and students will be informed when applications open. Candidates must attach:
- A resume
- A cover letter detailing their interest in electric vehicles
- Diplomas and letters of recommendation
- Information regarding their career plans and the relevance of this master's degree to those career plans

The selection process takes place in 2 stages:
- Review of candidates' application files by the institutions concerned and the Renault Foundation
- An interview in French to assess the quality and motivation of the candidate

SUSTAINABLE MOBILITY – LIFE CYCLE ANALYSIS – NETWORKS – ELECTRIC POWER TRAINS – MODELLING TOOLS – STORAGE – THERMAL – MATERIALS – ACOUSTICS – ECO-CONCEPTION – MECHATRONICS

Objective:
The Master in Mobility and Electric Vehicles trains engineers in the technologies needed to design the vehicles of the future, teaching them to broaden their scope of knowledge with a global approach to electric drive systems. These issues are approached according to several categories:
- The understanding required when dealing with transport requirements
- The possible sustainable responses from a technical, behavioral and organizational point of view
- The specific technological knowledge needed to work on the following aspects: vehicle energy, electrical and mechanical architecture, vehicle instrumentation and control within its eco-system



FOR WHO?
Algeria, Brazil, China, South Korea, France, India, Japan, Lebanon, Morocco, Romania, Russia, Turkey

WHERE?
Paris, and Lille
France

Arts et Métiers ParisTech · ENSTA ParisTech · École des Ponts ParisTech · Mines ParisTech · ParisTech Institut des sciences et technologies Paris Institute of Technology · Fondation RENAULT d'entreprise

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Advantages of the program:

- Training at the cutting edge of automotive developments, combining the skills of 4 of the best French engineering institutions and benefiting from a high level of quality assurance as well as individual progress monitoring for students
- Teaching closely linked to industry and its developments
- A internship of 6 months, following a 2.5-month placement in a research laboratory
- A highly international context
- Paris and France

Skills acquired:

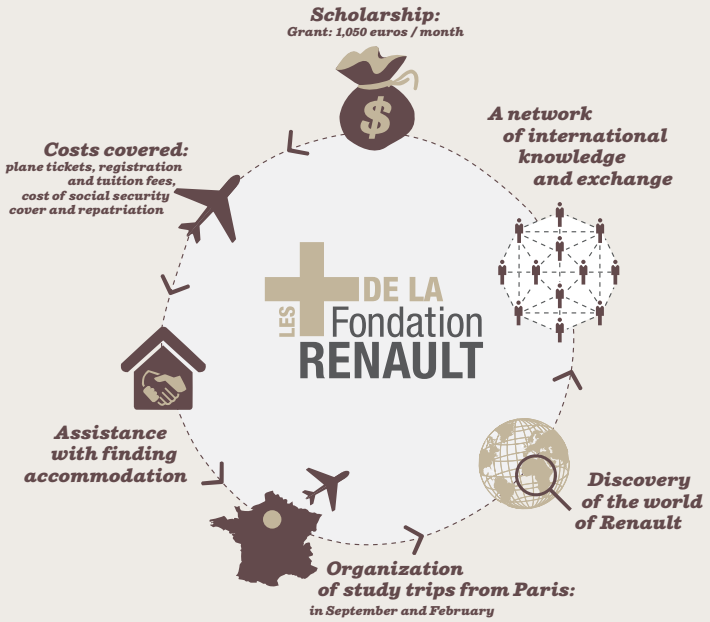
The Master in Mobility and Electric Vehicles is directly in line with the demands of tomorrow's automobile sector, opening up opportunities in high-level managerial positions in France and abroad within national or international companies or organizations working on the design and production of electric/hybrid vehicles and the development of the infrastructure required for their use

Career prospects:

The Master in Mobility and Electric Vehicles provides students with broad professional skills and enables them to access careers in sectors linked to electric vehicles (design, test, R&D, calculations engineer, etc.), with scope for higher positions when they have gained experience (R&D/industrial project manager, head of engineering, etc.).

Graduates will quickly move on to high-responsibility positions in an emerging sector with major global automobile manufacturers or their subcontractors. More specifically, they could be recruited by:

- Transport equipment companies or automobile manufacturers
- Companies managing passenger transport networks
- Service companies: public companies in charge of urban transport, vehicle hire companies or taxi firms
- Design and consultancy companies specializing in regional and town planning or the management of transport infrastructures



Validation :
90 ECTS credits across 3 consecutive full-time semesters

Program language:
100% French language

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Curriculum

Semesters 1 and 2	**September - April**	**Introduction to electric vehicles** (Pilot : Arts et Métiers ParisTech)	**22h**
		Sustainable mobility issues (Pilot : École des Ponts ParisTech) Sustainable mobilities Materials recyclability and Life Cycle Analysis for Electrical Vehicle	**51h**
		Electric vehicle power engineering (Pilot: Arts et Métiers ParisTech) Electric and plug-in hybrid vehicles considered within the issue of networks Power engineering for electric drive chains Modeling tools for energy flows in electric drive systems On-board energy storage Cabin heating and engine cooling	**121h**
		Electrical architecture for electric and hybrid vehicles (Pilot: Arts et Métiers ParisTech) Electricity in conventional vehicles Electromechanical conversion: traditional/engine-wheel technologies Electrical conversion via power electronics	**160h**
		Mechanical architecture and design for electric vehicle (Pilot: ENSTA) Mechanical architecture and materials for electric vehicles Electric vehicle acoustics Innovative design/eco-design for electric vehicles	**100h**
		Instrumentation and control for the entire technological chain (Pilot: Mines ParisTech) Science and ICT of electric vehicles within their eco-system Operating safety and HMI for electric vehicles	**66h**
		Instrumentation and control of electric vehicle drive chains through a project approach (Pilot: MEGEVH)	**96h**
		Project management (Pilot: ENSTA)	**32h**
	April-June	Individual Laboratory research project (linked to the professional mission)	**2,5 months**
Semester 3	**July - December**	Internship in a company	**5,5 months**

Schedule

1. **Start of September in year Y:**
   - Renault Foundation and Renault orientation
   - Introductory visit to Renault Foundation with fellow scholarship students
2. **Mid-September in year Y – April in year Y+1:**
   - Study period
   - March: Weekend visit to Renault Foundation with fellow scholarship students
3. **April – July in year Y+1:**
   - Research laboratory
4. **July – mid-December in year Y+1:**
   - Internship
5. **December in year Y+1:**
   - Presentation of the end-of-study thesis to a panel
   - Graduation

www.fondation.renault.com / www.mastermobilite-ve.com/fr / www.facebook.com/renaultfoundation