

Master in Materials Science and Engineering

Track: **MATERIALS FOR THE FUTURE: DESIGN AND ENGINEERING (MADI)**

2nd year of Master degree - Fall semester

All students may follow **core courses**. In addition to these courses, **each student must choose only one option out of five (Elective)**, with each option consisting of **fundamental** and **complementary courses**:

- Elective Sustainable Processes and Materials (E1)
- Elective Innovative metal materials (E2)
- Elective Design and Innovation of Materials (E3)
- Elective Soft Matter Formulation (E4)
- Elective Sustainable Energy and Materials (E5)

The exchange offer **corresponds to** the first half of the academic year, **fall semester (from September to January)**. *Full year exchange possible, please note that the second semester (starting from February) is entirely dedicated to a 5-6 months period of internship (position and stipend to be found by the student during the first semester).*

A minimum of **20 ECTS** (European Credit Transfer and Accumulation System) are **required** for the **learning agreement**.

All courses are taught in **English**.

Please note that **courses** are **place-limited**.

For information on the **requirements of each course**, please check the **syllabus** on our [website](#) or [here](#)

Courses take place at **various campuses**, all located near the **Panthéon** and the **Luxembourg Garden**:

- **Chimie ParisTech-PSL**, located at: **11 Rue Pierre et Marie Curie, 75005 Paris**
- **Mines Paris-PSL**, located at: **60 boulevard Saint-Michel, 75006 Paris**
- **ESPCI Paris-PSL**, located at: **10 rue Vauquelin, 75005 Paris**

CORE COURSES

Due to their **simultaneous programming**, “**Managing the unknown**” and “**PSL Week**” are **not compatible**, please take this into account to avoid planning difficulties.

<p>All courses are eligible for selection. From 1 onwards, with the possibility of attending all 3 courses.</p>	<p>Only one course per sub-section can be selected.</p>
<ul style="list-style-type: none"> • MH35MAT3 - Selection and design of materials for a sustainable city (4 ECTS) • MHMADANG - Language: FLE- French as Foreign Language or English (2 ECTS) • MHMADPSL - PSL WEEK (2 ECTS) 	<ul style="list-style-type: none"> • MHMADINNO - Managing the unknown (3 ECTS) <p style="text-align: center; color: red;">or</p> <ul style="list-style-type: none"> • MHMADTHK - Design Thinking (3 ECTS)
	<ul style="list-style-type: none"> • MHMADIND - Tutored project (3 ECTS) <p style="text-align: center; color: red;">or</p> <ul style="list-style-type: none"> • MHMADDES - Design Project (3 ECTS)

OPTION: SUSTAINABLE PROCESSES AND MATERIALS (E1)

<p>All courses are eligible for selection. From 1 onwards, with the possibility of attending both.</p>	<p>All courses are eligible for selection. Please carefully check the timetable to avoid planning difficulties.</p>
<ul style="list-style-type: none"> • MH35MAT8 - Materials and Environment (4 ECTS) • MH35CVE4 - From ecodesign to recycling (4 ECTS) 	<ul style="list-style-type: none"> • MHMADQUOT - Materials of everyday life : scientific challenges (4 ECTS) • MHMADAGE - Endurance and durability of metal materials (4 ECTS) • MH35CVE1 - Valorization of bioresources (4 ECTS) • MHMADCOAT - Processes and coatings (4 ECTS) • MH35MAT2 - Materials of the cultural heritage and durability (4 ECTS)

OPTION: INNOVATIVE METAL MATERIALS (E2)

All courses are eligible for selection. From 1 onwards, with the possibility of attending both.

- MHMADAGE - **Endurance and durability of metal materials** (4 ECTS)
- MHMADPHYS - **Physical metallurgy** (4 ECTS)

All courses are eligible for selection. Please carefully **check the timetable** to avoid planning difficulties.

- MH35CVE4 - **From ecodesign to recycling** (4 ECTS)
- MHMADCOAT - **Processes and coatings** (4 ECTS)
- MADMECA - **From mechanical tests to constitutive laws** (4 ECTS)
- MADPAT – **Materials of the cultural heritage and durability** (4 ECTS)

OPTION: DESIGN AND INNOVATION OF MATERIALS (E3)

All courses are eligible for selection. From 1 onwards, with the possibility of attending both.

- MH35CVE4 - **From ecodesign to recycling** (4 ECTS)
- MHMADQUOT - **Materials of everyday life: scientific challenges** (4 ECTS)

All courses are eligible for selection. Please carefully **check the timetable** to avoid planning difficulties.

- MH35MAT8 - **Materials and Environment** (4 ECTS)
- MH35PFC5 - **Physicochemistry and formulation of colloidal dispersions** (4 ECTS)
- MHMADCOAT - **Processes and coatings** (4 ECTS)

OPTION: SOFT MATTER FORMULATION (E4)

All courses are eligible for selection. From 1 onwards, with the possibility of attending both.

- MH35PFC5 - **Physicochemistry and formulation of colloidal dispersions** (4 ECTS)
- MHMADPROS - **Formulation and processing of soft matter** (4 ECTS)

All courses are eligible for selection. Please carefully **check the timetable** to avoid planning difficulties.

- MH35MAT8 - **Materials and Environment** (4 ECTS)
- MHMADQUOT - **Materials of everyday life: scientific challenges** (4 ECTS)
- MHMADCOAT - **Processes and coatings** (4 ECTS)

OPTION: SUSTAINABLE ENERGY AND MATERIALS (E5)

<p>Course eligible for selection.</p>	<p>All courses are eligible for selection. Please carefully check the timetable to avoid planning difficulties.</p>
<ul style="list-style-type: none"> MHMADENE - Sustainable Energy and Materials (8 ECTS) 	<ul style="list-style-type: none"> MH35MAT8 - Materials and Environment (4 ECTS) MH35CVE4 - From ecodesign to recycling (4 ECTS) MHMADQUOT - Materials of everyday life: scientific challenges (4 ECTS) MADAGE - Endurance and durability of metal materials (4 ECTS) MH35CVE1 - Valorization of bioresources (4 ECTS) MHMADCOAT - Processes and coatings (4 ECTS) MH35MAT2 - Materials of the cultural heritage and durability (4 ECTS)

TIMETABLE

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
AM	*	MH35CVE1 MHMADCOAT	MH35PFC5 MHMADAGE MHMADENE	MH35MAT3	MADMECA
PM	MHMADTHK	MH35MAT2 MHMADQUOT	MHMADPHYS MHMADENE	MH35CVE4 MHMADPROS	MH35MAT8 MADMECA