MASTER'S DEGREE IN
MATERIALS ENGINEERING

1ST SEMESTER (FALL)

COMPULSORY SUBJECTS (30 ECTS)

30 ECTS OF COMMON SUBJECTS

- Microstructural Characterization (6ECTS)
- Properties of Materials (4.5ECTS)
- Advanced Manufacturing of Structural Materials (3ECTS)
- Materials for Energy (3ECTS)
- Advanced Manufacturing of Functional Materials (3ECTS)
- Modelling and Simulation in Materials Engineering (6ECTS)
- Biological Materials (4.5ECTS)

3 ECTS OF PRE-REQUISITE SUBJECTS (SOME STUDENTS, DEPENDING ON THEIR PREVIOUS BSc DEGREE)

- Physics and Chemistry of Materials
- Mechanics of Materials

2ND SEMESTER (SPRING)

ITINERARY OF YOUR CHOICE (30 ECTS)

9 ITINERARY-COMPULSORY SUBJECTS+1 ELECTIVE FROM THE OTHER ITINERARY

9 SUBJECTS (3ECTS EACH)

STRUCTURAL MATERIALS ITINERARY

- Structural design
- Polymers
- Structural Integrity
- Impact Mechanics
- Forensic Engineering
- Nanocomposites and nanostructured Hybrid Materials
- Materials for Extreme Conditions
- Alloy Design and Adv. Physical metalurgy
- Introduction to Research in Materials Science and Engineering

CHOOSE ONE FROM THE OTHER ITINERARY

9 SUBJECTS (3ECTS EACH)

FUNCTIONAL MATERIALS ITINERARY

- Electrochemistry for Energy-related Applications
- Photovoltaic Materials and Devices
- Materials for Photonic Devices
- Nanoelectronics
- Solid-state Lighting
- Metamaterials and Plasmonics
- Future Magnetic Materials
- Laboratory of Nanoelectronics
- Introduction to Research in Materials Science and Engineering

3RD SEMESTER (FALL)

MASTER THESIS (30 ECTS)

30 ECTS

- Master Thesis

UNIVERSIDAD POLITÉCNICA DE MADRID