Macromolecular materials I: Properties and Applications

Course coordinator: Nora Aramburu (nora.aramburu@ehu.eus)

European credits ECTS: 6

Teaching Language: Spanish (English Friendly Course)

Supporting files: Spanish and English

	Number of course slots (1h)	Number of course slots (1h)
Magisterial	40	
Seminars	10	
Practical		10

Description

- This subject aims to introduce students to the main families of industrial polymers for general purpose, as well as those employed in adhesive and coating technologies. The main objective is to learn the main characteristics of each of them and especially to understand the relationship between its structure, its properties and its applications.
- The subject includes, in addition to a general description of the polymeric materials, the introduction to the main methods for characterization and testing of polymeric materials. Also, concepts about the effect that polymeric materials can have on the environment, will be studied.

Outline

Part 1: Description of polymeric materials

Amorphous and crystalline polymers.

Elastomers

Thermosetting polymers

Adhesives

Coatings/Paints

Additives for polymers

Polymer blends and composites

Part 2: Properties of macromolecular materials

Mechanical properties: tensile tests, impact test, other

Electrical properties

Thermal properties

Part 3: Macromolecular materials and environment
Environmental problems of polymers

Types of recycling

Biodegradable polymers

Experimental practical contents

- Tensile tests: Structure-Mechanical Properties relationship for different polymeric materials
- Impact tests
- Measuring thermal properties of polymers: MFI and Vicat softening temperature determination