Name	*Macromolecules*
ECTS credits	*3*
Year / Semester	*II/1°*
Specific learning outcomes	*On successful completion of this module students should be able to:* *1* Choose appropriate processing techniques and equipment to produce plastic & polymer based products *2* Select appropriate polymers for specified applications based on understanding of the basic chemistry and properties of polymers 3 Identify polymers in everyday and specialized use based on their properties and application *4* Select required tests for quality analysis of polymers *5* Be able to draw the chemical structures of some common plastics and polymers *6* Distinguish between plastics and other types of polymers
Contents	Generalities: What are polymers? Classification and structures of Polymers Molecular weight Determination How Polymer structure affects properties and functionality Quality Testing of Polymers Methods for Processing of Polymers into Products Chain Polymerization Step by Step Polymerization Some Example novel applications of Polymers
Teaching and learning methods	*Face to face course :22.5 hours, face to face tutorial 22.5 hours,*
Teaching techniques	*Practical classes, 15 hours*
Assessment methods	*Written* *Two mid-term written tests, Pratical test, and a final-term written test are foreseen*
Assessment criteria	Knowledge: The main objective of the course is to provide students with the general criteria useful for an industrial chemical process planning and with the fundamental concepts that must be taken into account in designing a plant. To this aim, chemical processes are described and analyzed in terms of thermodynamic and kinetic aspects and are also highlighted the most important technology. Problems associated with the cost, sustainability and safety of an industrial process are also discussed. Applying knowledge and understanding: students will acquire the ability to analyze thermodynamically and kinetically an industrial process, highlighting the most important aspects and technological solutions.
Assessment metrics	*Attribution of a final grade*
Criteria of attribution of the final grade	*The grade goes from 0 (minimum) up to 20 (maximum). The minimum threshold to pass is 7. To pass the exam students should obtain at minimum an average of 7/20* *The final grade will be determined according to the following rules:* *Mid-term written test: 20%* *Practical test:30%* *Final term written test: 50%*
Preparatory course units	*N.A.*
Didactic material	1.Michel Fontanille et Yves Gnanou. Chimie et physico-chimie des polymères 2. L. H. Sperling . Introduction to Physical Polymer Science