

SUBJECT TEACHING GUIDE

G788 - Polymerisation Engineering

Degree in Chemical Engineering

Academic year 2019-2020

1. IDENTIFYING DATA					
Degree	Degree in Chemical Engineering			Type and Year	Optional. Year 4
Faculty	School of Industrial Engineering and Telecommunications				
Discipline	Subject Area: Option A: Fundamental Chemical Engineering Optional Module				
Course unit title and code	G788 - Polymerisation Engineering				
Number of ECTS credits allocated	6	Term	Semester based (1)		
Web					
Language of instruction	Spanish	English Friendly	Yes	Mode of delivery	Face-to-face

Department	DPTO. INGENIERIAS QUIMICA Y BIOMOLECULAR				
Name of lecturer	NAZELY DIBAN-IBRAHIM GOMEZ				
E-mail	nazely.diban@unican.es				
Office	E.T.S. de Ingenieros Industriales y de Telecomunicación. Planta: - 4. SEMINARIO (S4058)				
Other lecturers	AXEL ARRUTI FERNANDEZ				

3.1 LEARNING OUTCOMES

-An overall theoretical and practical study of the polymers from an engineering point of view:

1. Fundamentals on chemistry and polymer properties
2. Polymerization reaction mechanisms
3. Polymer processing techniques of commodity products and specialties
4. Polymeric life cycle assessment tools

4. OBJECTIVES

To give specific and integral knowledge of the polymers as one of the most important chemical products synthesized and used in many applications nowadays with an engineering approach

6. COURSE ORGANIZATION	
CONTENTS	
1	Part I. Introduction to polymer engineering fundamentals and polymerization reaction mechanisms
2	Part II. Special polymers and polymer products: Biodegradable and biocompatible polymers and polymeric membranes
3	Part III: Polymer technology: Processing techniques; decision matrix
4	Part IV: life cycle assessment of Polymers. Case study:polypropylene

7. ASSESSMENT METHODS AND CRITERIA				
Description	Type	Final Eval.	Reassessn	%
Final group project report and oral presentation (30%)	Work	No	Yes	30,00
continuous assessment by means of individual practical exercises, test exam to evaluate each block/part, and report of the visit to a industry of the polymeric sector (70%)	Others	No	Yes	70,00
TOTAL				100,00
Observations				
Continuous assessment: periodic reports (each 1-2 weeks) of the solution to the exercises presented by the teacher during the theory and experimental classes. Submission must be electronic (60% out of the 70% of the final mark) -multiple choice type exams at the end of each part (40% out of the 70% of the final mark)				
Observations for part-time students				
part time students will have the possibility to pass the course with a final exam to be done in February or in September				

8. BIBLIOGRAPHY AND TEACHING MATERIALS
BASIC
"Polímeros". Areizaga, J., Cortazar, M.M., Elorza, J.M., Iruin, J.J. Editorial Síntesis, Madrid (2002)
"Polypropylene Handbook" Pasquini, N. Hanser Gardner Publications. Munich (2005)
"Basic Principles of Membrane Technology", Mulder, M. Kluwer Academic Publishing, Dordrecht (1991)