# SUBJECT TEACHING GUIDE

## G788 - Polymerisation Engineering

## Degree in Chemical Engineering
## First Degree in Chemical Engineering

Academic year 2024-2025

| 1. IDENTIFYING DATA | | | | | |
|---|---|---|---|---|---|
| Degree | Degree in Chemical Engineering<br>First Degree in Chemical Engineering | | | Type and Year | Optional. Year 4<br>Optional. Year 4 |
| Faculty | School of Industrial Engineering and Telecommunications | | | | |
| Discipline | Subject Area: Option A: Fundamental Chemical Engineering<br>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: - 5. DESPACHO (S5005) |
| 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 knowlegde of the polymers as one of the most important chemical products synthesized and used in many applications nowdays with an engineering approach

## 6. SUBJECT PROGRAM

| 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 and test exam to evaluate each block/part (70%) | Others | No | Yes | 70,00 |
| TOTAL | | | | 100,00 |

Observations

In case of sanitary crisis is finalised or when remote and attendance teaching are simultaneous, the evaluation will proceed as follows:
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)

In case of emergency sanitary and only remote teaching, the format of the tests and exercises and works will be adapted to proceed through remote teaching platforms

Observations for part-time students

part time students will have the possibility to pass the course with a final exam in ordinary and extraordinary calls for exams

## 8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

Areizaga, J., Cortazar, M.M., Elorza, J.M., Iruin, J.J. "Polímeros". Editorial Síntesis, Madrid (2002)
Pasquiní, N. "Polypropylene Handbook" Hanser Gadner Publications. Munich (2005)
Mulder, M. "Basic Principles of Membrane Technology", Kluwer Academic Publishing, Dodtrecht (1991)