

SUBJECT TEACHING GUIDE

G1772 - Product Design Project

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	G1772 - Product Design Project		
Number of ECTS credits allocated	6	Term	Semester based (1)
Web			
Language of instruction	English	Mode of delivery	Face-to-face

Department	DPTO. DE QUIMICA E INGENIERIA DE PROCESOS Y RECURSOS.		
Name of lecturer	BERTA GALAN CORTA		
E-mail	berta.galan@unican.es		
Office	E.T.S. de Ingenieros Industriales y de Telecomunicación. Planta: - 3. DESPACHO PROFESORES (S3015)		
Other lecturers			

3.1 LEARNING OUTCOMES

- The student learns how to define the needs of a new chemical product; how to identify the candidate chemicals and/or mixtures of chemicals and how to quickly evaluate the important process design issues .
- Effective communication of a product design cases through presentations.
- After a thorough introduction of the product concept design path (following the tradition of Cussler and Moggridge) the course utilizes several case studies of product design in order to introduce the concepts of specialty chemicals, micro- and macstructured products and devices for chemical changes.

4. OBJECTIVES

The main goal of this course is to learn how to design a new chemical product from market surveys till the stage where the manufacturing process is considered. The course introduces basic concepts and methodologies essential to attain the above mentioned objectives. Examples are given to illustrate methodologies and integrate previous knowledge of chemical engineering fundamentals and technologies.

The objective of this course is to give the student a view of chemical product design

The objective is also to highlight the currently available methods and tools that can be applied to solve various types of problems associated with product-process design in a systematic and integrated manner.

6. COURSE ORGANIZATION

CONTENTS

1	Lesson 1. Introduction of Product Design.
2	Lesson 2. Innovations in product design—History and approaches.
3	Lesson 3. Needs
4	Lesson 4. Ideas and selection.
5	Lesson 5. Product manufacture
6	Lesson 6. Molecular Structure–Property Relations
7	Lesson 7. Case studies
8	Lesson 8. Conferences
9	Lesson 9: Visit
10	Lesson 10: Intellectual Property

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Oral presentations	Others	No	Yes	20,00
Oral presentation	Others	No	Yes	20,00
Oral presentations	Others	No	Yes	20,00
Oral presentation	Others	No	Yes	20,00
Final presentation	Work	No	Yes	20,00
TOTAL				100,00
Observations				
If the student do not give the presentations on time, it is necessary to do the final exam.				
Observations for part-time students				
Part-time student have to attendt the final exam.				

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

- Wei, J., Product Engineering—Molecular Structure and Property, Oxford University Press, 2007.
- Cussler, E. L. and G. D. Moggridge, Chemical Product Design, Cambridge University Press, 2011.
- Seider, W. D., J. D. Seader, and D. R. Lewin, Product & Process Design Principles, Wiley, 2008.
- Ulrich, K. T. and S. D. Eppinger, Product Design and Development, McGraw-Hill, 2008.
- * U. Brockel, W. Meier, G. Wagner, Product, Design and Engineering, Wiley_VCH, 2007.
- * KM M BG, Gani, R., K. Dam-Johansen, Chemical Product Design, Elsevier, 2007.