

m Mondragon Unibertsitatea Goi Eskola Politeknikoa Escuela Politécnica

	GENERAL IN	FORMATION				
Studies UNIVERSITY MAS		Subject ?				
ENGINEERING Semester 1	Course 2	Mention / Field of				
Character COMPULSORY		specialisation				
Plan 2022	Modality Face-to-face	Language CA	ASTELLANO			
Credits 3	Hours/week 1.72	Total hours 31	class hours + 4 ours	4 non-cla	ass hours	= <u>75 to</u>
	2030 AGEN					
7 classes 9 Montal law iii ····································						
	PROFE	SSORS				
AROSTEGUI OCHOA, ASIER						
OTEGI MARTINEZ, NAGORE						
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	LEARNING					
ARNING RESULTS			K	с ѕк	AB	ECT
RA04 - To analyze and design che RA27 - To demonstrate the ability t		the complexity of formula	ating	x x		2,36 0,2
gments based on information that, ilth and safety, environmental, eco	being incomplete or limited, inclunomic and industrial implications	udes reflections on the search and responsibilities	ocial,	X		
RA28 - To communicate your conc pecialized and non-specialized au			port them	x		0,12
RA30 - To work with people, involv	ing and directing them in a dynar	mic aimed at a common	objective	x		0,12
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Course: 2024 / 2025 - Course planning

EVALUATION SYSTEM		MAKE-UP MECHANISMS				
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	20%	Reports on the completion of exercises, case studies, compute exercises, simulation exercises, laboratory exercises, term projects, challenges and problems				
Individual written and/or oral tests or individual coding/programming tests	80%	Individual written and/or oral tests or individual coding/programming tests				
:H - Class hours: 26 h. I CH - Non-class hours: 34 h. H - Total hours: 60 h.						
RMH142 [!] Conoce y diseña operaciones básicas de	la ingenie	ería química				
RMH142 [!] Conoce y diseña operaciones básicas de	la ingenie	ería química				
	la ingenie	ería química	сн	псн	ТН	
LEARNING ACTIVITIES Development and writing of records, reports, presentation projects/work experience/challenges/case studies/experir	ns, audiovis	sual material, etc. on	<u>СН</u> 5 h.	<u>NCH</u> 10 h.	<i>TH</i> 15 h.	
LEARNING ACTIVITIES Development and writing of records, reports, presentation projects/work experience/challenges/case studies/experir individually and/or in teams	ns, audiovis	sual material, etc. on	5 h.			
RMH142 [!] Conoce y diseña operaciones básicas de LEARNING ACTIVITIES Development and writing of records, reports, presentation projects/work experience/challenges/case studies/experinindividually and/or in teams	ns, audiovis	sual material, etc. on				
LEARNING ACTIVITIES Development and writing of records, reports, presentation projects/work experience/challenges/case studies/experin individually and/or in teams EVALUATION SYSTEM Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	ns, audiovis mental inve	sual material, etc. on stigations carried out	5 h. SMS etion of exer exercises, la	10 h. cises, case stu boratory exerc	15 h. udies, compute	
LEARNING ACTIVITIES Development and writing of records, reports, presentation projects/work experience/challenges/case studies/experir individually and/or in teams EVALUATION SYSTEM Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory	ns, audiovia mental inve	sual material, etc. on estigations carried out MAKE-UP MECHANIS Reports on the comple exercises, simulation of	5 h. SMS etion of exer exercises, la	10 h. cises, case stu boratory exerc	15 h. udies, compute	

CONTENTS

1. Separation techniques1.1. Introduction1.2. Equilibrium-based separations1.3. Multi-stage separations2. Balances of matter in chemical processes2.1. Balance equations. Total balance of matter2.2. Balances of matter in stationary regime2.3. Balances of matter in non-steady-state regime3. Energy balances in chemic al processes3.1. Forms of energy: the first law of thermodynamics3.2. Energy balances in non-reactive pro cesses 3.3.3.3. Energy balances in reactive processes 3.3.4. Chemical reactors. Fundamentals and types4.1 . Introduction to reactors4.2. Types of reactors4.3. Ideal reactors4.4. Catalytic reactors

LEARNING RESOURCES AND BIBLIOGRAPHY				
Learning resources	Bibliography			
Moodle Platform Slides of the subject	Felder R.M., Rousseau R.W. Principios elementales de los procesos químicos, 3a edición, J. Wiley, 2000.			
Topic related web quires	Himmelblau D.M. Principios básicos y cálculos en Ingeniería Química, 6a Ed., Pearson Educación, 2002.			
	Levenspiel O. Ingeniería de las reacciones químicas. 3a ed. México: Limusa Wiley, 2004.			
	Scott Fogler H. Elementos de ingeniería de las reacciones químicas, Pearson Prentice Hall, 2008.			
	Calleia G. García F. De Lucas A. Prats D. Rodríguez, I.M.			

Calleja, G., García, F., De Lucas, A., Prats, D., Rodríguez, J.M. Introducción a la Ingeniería Química, Ed. Síntesis, 2004