



Teaching Guide

Teaching Guide				
Identifying Data				2017/18
Subject (*)	Specific chemical technology		Code	730497016
Study programme	Mestrado Universitario en Enxeñaría Industrial (plan 2012)			
Descriptors				
Cycle	Period	Year	Type	Credits
Official Master's Degree	1st four-month period	First	Obligatoria	6
Language	SpanishGalician			
Teaching method	Face-to-face			
Prerequisites				
Department	Enxeñaría Naval e IndustrialQuímica			
Coordinador	Filgueira Vizoso, Almudena	E-mail	almudena.filgueira.vizoso@udc.es	
Lecturers	Filgueira Vizoso, Almudena	E-mail	almudena.filgueira.vizoso@udc.es	
Web				
General description				

Study programme competences

Code	Study programme competences
A30	Coñecementos sobre balances de materia e enerxía, biotecnoloxía, trasfega de materia, operacións de separación, enxeñaría da reacción química, deseño de reactores e valorización e transformación de materias primas e recursos enerxéticos.
A31	Capacidade para o deseño e a xestión de procedementos de experimentación aplicada, especialmente para a determinación de propiedades termodinámicas e de transporte, así como a modelaxe de fenómenos e sistemas no ámbito da enxeñaría química, sistemas con fluxo de fluídos, transmisión de calor, operacións de trasfega de materia, cinética das reaccións químicas e reactores.
B2	Que os estudantes saiban aplicar os coñecementos adquiridos e a súa capacidade de resolución de problemas en ámbitos novos ou pouco coñecidos dentro de contextos máis amplos (ou multidisciplinares) relacionados coa súa área de estudo.
B3	Que os estudantes sexan capaces de integrar coñecementos e enfrontarse á complexidade de formular xuízos a partir dunha información que, sendo incompleta ou limitada, inclúa reflexións sobre as responsabilidades sociais e éticas vinculadas á aplicación dos seus coñecementos e xuízos.
B4	Que os estudantes saiban comunicar as súas conclusións -e os coñecementos e razóns últimas que as sustentan- a públicos especializados e profanos dun modo claro e sen ambigüidades.
C1	Utilizar as ferramentas básicas das tecnoloxías da información e as comunicacións (TIC) necesarias para o exercicio da súa profesión e para a aprendizaxe ao longo da súa vida.

Learning outcomes

Learning outcomes	Study programme competences		
Know the separation via physical systems as well as transfer operations applied to industrial chemical processes. Understand and design the necessary equipment for the development of the solid-gas separation. Understand storage possibilities and the same issues. Identify and understand the principles of chemical reactions. Learn about the different types of reactors and their optimization.	AJ30 AJ31	BJ2 BJ3 BJ4	CJ1

Contents

Topic	Sub-topic
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Blocks or topics to develop the levels laid down in the verification of memory tab	<p>Introduction to chemical technology, materials protection, water, gas distribution networks. Storage of fluids, fluid flow, Measuring and pumping of fluids, piping and accessories, operations with solids. Introduction to systems solid, solid-liquid separation (sedimentation and flotation), solid-liquid separation (filtration and centrifugation), separation of solids and liquids into gases.</p> <p>Extraction solid-liquid, liquid-liquid extraction; Distillation, absorption, adsorption and ion exchange.</p> <p>Chemical kinetics. Reaction parameters; Homogeneous reactions; Molecular and reaction order; Prediction of speed. Introduction to the design of reactors: Ideal reactors; Design for simple reactions; Design for multiple reactions; Reactors for homogeneous systems. Effects of temperature and pressure. Catalyst</p>
AUXILIARY SERVICES IN INDUSTRIES	<p>Introduction to chemical technology</p> <p>Water distribution networks</p> <p>Gases</p> <p>Protection of materials</p>
HANDLING OPERATIONS	<p>Fluid storage</p> <p>Fluid flow</p> <p>Measuring and pumping fluids</p> <p>Pipes and fittings</p> <p>Operations with solids</p>
SEPARATION OPERATIONS	<p>Introduction to solid-fluid systems</p> <p>Solid-liquid separation: sedimentation, flotation, filtration and centrifugation</p> <p>Separation of solids and liquids into gases</p>
MATERIAL TRANSFER OPERATIONS	<p>Solid-liquid extraction</p> <p>Liquid-liquid extraction</p> <p>Distillation</p> <p>Absorption</p> <p>Adsorption and ion exchange</p>

Planning				
Methodologies / tests	Competencies	Ordinary class hours	Student's personal work hours	Total hours
Supervised projects	A30 A31 B4 B2 C1	8	40	48
Oral presentation	B2 B3 B4	2.5	5	7.5
Problem solving	B2 B3 C1	0.5	0.5	1
Objective test	A30 A31 B2 B3 B4	4	40	44
Field trip	B2 B3	4	0.8	4.8
Guest lecture / keynote speech	A30 A31	24	12	36
Personalized attention		8.7	0	8.7
(*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.				

Methodologies	
Methodologies	Description
Supervised projects	<p>It is a choice based on the resolution by the students of the responsibility for their own learning.</p> <p>This education system is based on two basic elements: the independent learning of the students and that the tutor</p>
Oral presentation	All the students will present the the work/s during the course in the time assigned to them and in front of their peers.
Problem solving	Technique by means of which has resolved a problematic situation, from the knowledge that have worked, which can have more than one possible solution.



Objective test	Exam written used for the evaluation of learning. You can combine different types of questions: questions multiple-choice, problems, etc.
Field trip	Activities that take place in a context that is external to the University academic environment (companies, institutions, agencies, monuments, etc.) related to the field of study of the subject.
Guest lecture / keynote speech	Oral presentation complemented with the use of audiovisual media in order to pass on knowledge and facilitate learning.

Personalized attention	
Methodologies	Description
Supervised projects Guest lecture / keynote speech Oral presentation Objective test Problem solving	It will assist students at indicated tutoring hours

Assessment			
Methodologies	Competencies	Description	Qualification
Supervised projects	A30 A31 B4 B2 C1	The coursework will be carried out by students with faculty of matter auuda. These works must provide to teachers both in paper format by email or platform designated by the faculty.	20
Oral presentation	B2 B3 B4	The work done during the course must be presented by the authors on dates deemed appropriate by the faculty. Works will be preferably in groups, and all the members of each of the groups will have to present orally the obtained results.	15
Objective test	A30 A31 B2 B3 B4	It consists in the realization of the corresponding midterms and/or final exam.	60
Problem solving	B2 B3 C1	Different activities that the student must resolve and give teachers will take place along the course.	5

Assessment comments
Is necessary to remove a minimum of 3.5 in the midterms (if any) and a half 4 so entering computer the other metodologías. If not be able to perform any of the above methodologies the valuation of the same will happen to the objective test. Assistance to more than 90% of the scheduled sessions is mandatory. In the event that the field trips are carried out, shall be binding to overcome matter

Sources of information	
Basic	<ul style="list-style-type: none"> - Eugenio Muñoz Camacho (). Ingeniería química. - Ángel Vian Ortuño (). Introducción a la química industrial. - Andrés Arévalo (). Tecnología química. - J.M.Coulson (). Ingeniería química. <p>Apuntes de clase e traballosApuntes de clase e traballos</p>
Complementary	

Recommendations
Subjects that it is recommended to have taken before
Subjects that are recommended to be taken simultaneously
Subjects that continue the syllabus
Other comments



(*)The teaching guide is the document in which the URV publishes the information about all its courses. It is a public document and cannot be modified. Only in exceptional cases can it be revised by the competent agent or duly revised so that it is in line with current legislation.