

Identifying Data 2020/1 Study programme Grae en enceñarla en Tecnoloxías Industrials Code 730/674051 Study programme Grae en enceñarla en Tecnoloxías Industrials Descriptors Cendits Cycle Period Year Type Credits Graduale 1st four-month period Third Obligatory 6 Language Spanish Gailan Encentral attrauture attrauture Encentral <th></th> <th></th> <th>Teachin</th> <th>ng Guide</th> <th></th> <th></th> <th></th>			Teachin	ng Guide			
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		activity will go to the mixed test.					
5. Modifications of the bibliography or webgraphy		5. Modifications of the bibliography or webgraphy					
No changes will be made.		No changes will be made.					



Code	Study programme competences / results
A28	TEQ3 Capacidade para o deseño e xestión de procedementos de experimentación aplicada, especialmente para a determinación de
	propiedades termodinámicas e de transporte, e modelado de fenómenos e sistemas no ámbito da enxeñaría química, sistemas con fluxo
	de fluídos, transmisión de calor, operacións de transferencia de materia, cinética das reaccións químicas e reactores.
B4	CB4 Que os estudantes poidan transmitir información, ideas, problemas e solucións a un público tanto especializado como leigo
B6	B3 Ser capaz de concibir, deseñar ou poñer en práctica e adoptar un proceso substancial de investigación con rigor científico para
	resolver calquera problema formulado, así como de comunicar as súas conclusións ?e os coñecementos e razóns últimas que as
	sustentan? a un público tanto especializados como leigo dun xeito claro e sen ambigüidades
B7	B5 Ser capaz de realizar unha análise crítica, avaliación e síntese de ideas novas e complexas
B8	B7 Deseñar e realizar investigacións en ámbitos novos ou pouco coñecidos, con aplicación de técnicas de investigación (con
	metodoloxías tanto cuantitativas como cualitativas) en distintos contextos (ámbito público ou privado, con equipos homoxéneos ou
	multidisciplinares etc.) para identificar problemas e necesidades
C3	C5 Entender a importancia da cultura emprendedora e coñecer os medios ao alcance das persoas emprendedoras.
C4	C6 Valorar criticamente o coñecemento, a tecnoloxía e a información dispoñible para resolver os problemas cos que deben enfrontarse.
C6	C8 Valorar a importancia que ten a investigación, a innovación e o desenvolvemento tecnolóxico no avance socioeconómico e cultural da
	sociedade.

Learning outcomes			
Learning outcomes	Study	/ progra	mme
	competences /		
results			
Know the physical separation systems as well as the transfer operations applied to the	A28	B4	C3
Industrial chemical processes. To know and design the equipment necessary for the development of the Solid-gas separation.		B6	C4
Understand storage possibilities and associated issues.		B7	C6
		B8	

Contents			
Торіс	Sub-topic		
Blocks or topics to develop the levels laid down in the	Auxiliary services in industries: introduction to chemical technology, materials		
verification of memory tab	protection, water, gas distribution networks. Operations		
	handling: storage of fluids, flow of fluids, measuring and pumping of fluids, piping and		
	accessories, operations with solids.		
	Separation operations: introduction to systems solid, separation (sedimentation and		
	flotation) solid-liquid, solid-liquid separation		
	(filtration and centrifugation), separation of solids and liquids into gases. Transfer		
	operations: solid-liquid extraction, extraction		
	liquidoliquido; Distillation, absorption, adsorption and ion exchange.		
AUXILIARY SERVICES IN INDUSTRIES	Introduction to chemical technology		
	Water distribution networks		
	Gases		
	Protection of materials		
HANDLING OPERATIONS	Fluid storage		
	Fluid flow		
	Measuring and pumping fluids		
	Pipes and fittings		
	Operations with solids		
SEPARATION OPERATIONS	Introduction to solid-fluid systems		
	Solid-liquid separation: sedimentation, flotation, filtration and centrifugation		
	Separation of solids and liquids into gases		



MATERIAL TRANSFER OPERATIONS

Solid-liquid extraction Liquid-liquid extraction Distillation Absorption Adsorption and ion exchange

Planning				
Methodologies / tests	Competencies /	Teaching hours	Student?s personal	Total hours
	Results	(in-person & virtual)	work hours	
Supervised projects	B6 B7 B8 C3 C4 C6	8	12	20
Field trip	C4	4	2	6
Laboratory practice	A28 B4	6	9	15
Mixed objective/subjective test	A28 B6 B7	0	10	10
Problem solving	B7 C4 C6	7	21	28
Guest lecture / keynote speech	A28 B6 B7	32	32	64
Personalized attention		7	0	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	It is an option based on the resolution by the students of the responsibility for their own learning.
	This teaching system is based on two basic elements: the independent learning of the students and the monitoring of this
	learning by the teacher-tutor
Field trip	Activities developed in a context external to the university academic environment (companies,
	Institutions, agencies, monuments, etc.) related to the field of study of the subject.
Laboratory practice	Methodology that allows students to learn effectively through practical activities, such as demonstrations, exercises,
	experiments and research
Mixed	Exam that integrates standard questions and objective type questions. As for the former, it includes open-ended questions of
objective/subjective	development, the latter can combine multiple-choice, ranking, short-answer, discrimination, completion and association
test	questions.
Problem solving	Technique through which a specific problem situation has to be solved, based on the knowledge that has been worked on,
	which may have more than one possible solution
Guest lecture /	
keynote speech	Oral presentation complemented by the use of audiovisual media in order to transmit knowledge and facilitate learning.

	Personalized attention
Methodologies	Description
Guest lecture /	Tutored works: assistance to personalized tutorials is recommended. The student will receive guidance on how to start and
keynote speech	carry out the work according to the criteria specified below.
Supervised projects	
Field trip	Oral presentation: made with the support of slides and each group of students will have a set time for it.
Laboratory practice	
	Laboratory Practices: The student will be cited in advance on the Moodle platform or on the bulletin board of the School. The
	practices will be carried out in the Laboratory of Chemical Technology and Environment of the Building of Workshops and
	must be provided with the manual of practices of the subject (Copy-shop)
	In case of academic dispensation the student will contact the teachers of the subject to agree on the planning of teaching activities, meeting the needs that the student may have within the existing possibilities.



Assessment			
Methodologies	Competencies /	Description	Qualification
	Results		
Mixed	A28 B6 B7	Exam	65
objective/subjective			
test			
Supervised projects	B6 B7 B8 C3 C4 C6	Protected works will be carried out by the students with the help of teachers of the	30
		subject. These works must provide to teachers both in paper format by email or	
		platform designated by the faculty.	
Laboratory practice	A28 B4	It consists of carrying out the laboratory practices and the final report of the same	5

Assessment comments

It is necessary to take a minimum of 3.5 in the partial exams (if any) and an average of 4 to count the other methodologies. In case there are no partial exams, the necessary grade to be able to do average with the other activities will be 4.In case of not being able to perform any of the above mentioned methodologies the evaluation of the same Will pass to the objective test. Attendance at more than 90% of scheduled sessions will be mandatory. In case the field exits are made, they will be obligatory to surpass the subject. The laboratory practices will be necessary to overcome the matter

	Sources of information
Basic	- J.M.Coulson (). Ingeniería química.
	- Andrés Arévalo (). Tecnología química.
	- Ángel Vian Ortuño (). Introducción a la química industrial.
	- Eugenio Muñoz Camacho (). Ingeniería química.
Complementary	

Recommendations
Subjects that it is recommended to have taken before
QUÍMICA/730G04005
Subjects that are recommended to be taken simultaneously
Subjects that continue the syllabus

Other comments

1. The delivery of the documentary works carried out in this matter:1.1. It will be requested in virtual format and / or computer support.1.2. It will be done through Moodle, in digital format without the need to print them1.3. If done on paper:-No plastics will be used.- Double-sided prints will be made.-Recycled paper will be used.- Draft printing will be avoided.2.- A sustainable use of resources and the prevention of negative impacts on the natural environment must be made.3.- The importance of ethical principles related to the values of sustainability in personal and professional behavior must be taken into account.4.- As stated in the different regulations of application for university teaching, the gender perspective must be incorporated in this matter (non-sexist language will be used, bibliography of authors of both sexes will be used, intervention in class of students will be encouraged and students ...).5.- Work will be done to identify and modify prejudices and sexist attitudes, and the environment will be influenced to modify them and promote values ??of respect and equality.6. Situations of discrimination based on gender must be detected and actions and measures will be proposed to correct them.7. The full integration of students who for physical, sensorial, psychic or sociocultural reasons, experience difficulties to adequate, equal and beneficial access to university life will be facilitated.

(*)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.