		Teaching Guide		
	ldentifying I	Data		2019/20
Subject (*)	Chemistry		Code	730G05004
Study programme	Grao en Enxeñaría Naval e Oceánic	a		
		Descriptors		
Cycle	Period	Year	Туре	Credits
Graduate	1st four-month period	First	Basic training	6
Language	Spanish			·
Teaching method	Face-to-face			
Prerequisites				
Department	Química			
Coordinador	Gonzalez Soto, Elena	E-mai	l elena.gsoto@ud	c.es
Lecturers	Gonzalez Soto, Elena	E-mai	l elena.gsoto@ud	c.es
Web				
General description	This subject pretends to form the stu	udents in fundamental chen	nical concepts that will allow	w them comprise and resolve
	problems that will present them in th	eir professional life and is l	pasic to other subjects of th	ne career. It contributes
	knowledges for the understanding of	f technological applications		

	Study programme competences / results
Code	Study programme competences / results
A4	Have a capacity so that it understands and applies the beginnings of basic knowledge of the general chemist, organic and inorganic
	chemistry and its applications in the engineering
B1	That the students proved to have and to understand knowledge in an area of study what part of the base of the secondary education, and
	itself tends to find to a level that, although it leans in advanced text books, it includes also some aspects that knowledge implicates
	proceeding from the vanguard of its field of study
B2	That the students know how to apply its knowledge to its work or vocation in a professional way and possess the competences that tend to
	prove itself by the elaboration and defense of arguments and the resolution of problems in its area of study
В3	That the students have the ability to bring together and to interpret relevant data (normally in its area of study) to emit judgments that
	include a reflection on relevant subjects of social, scientific or ethical kind
B4	That the students can transmit information, ideas, problems and solutions to a public as much specialized as not specialized
B5	That the students developed those skills of learning necessary to start subsequent studies with a high degree of autonomy
В6	Be able to carrying out a critical analysis, evaluation and synthesis of new and complex ideas.
C1	Using the basic tools of the technologies of the information and the communications (TIC) necessary for the exercise of its profession and
	for the learning throughout its life.
C2	Coming across for the exercise of a, cultivated open citizenship, awkward, democratic and supportive criticism, capable of analyzing the
	reality, diagnosing problems, formulating and implanting solutions based on the knowledge and orientated to the common good.
C5	Assuming the importance of the learning as professional and as citizen throughout the life.
C6	Recognizing the importance that has the research, the innovation and the technological development in the socioeconomic and cultural
	advance of the society.

Learning outcomes			
Learning outcomes	Study programme		mme
	competences /		es/
		results	
Have a capacity so that it understands and applies the beginnings of basic knowledge of the general chemist, organic and			
inorganic chemistry and its applications in the engineering			
That the students know how to apply its knowledge to its work or vocation in a professional way and possess the competences		B2	
that tend to prove itself by the elaboration and defense of arguments and the resolution of problems in its area of study			
That the students have the ability to bring together and to interpret relevant data (normally in its area of study) to emit		В3	
judgments that include a reflection on relevant subjects of social, scientific or ethical kind			

That the students can transmit information, ideas, problems and solutions to a public as much specialized as not specialized	B4	
That the students developed those skills of learning necessary to start subsequent studies with a high degree of autonomy	B5	
Be able to carrying out a critical analysis, evaluation and synthesis of new and complex ideas.	B6	
Que os estudantes demostren posuír e comprender coñecementos nunha área de estudo que parte da base da educación	B1	
secundaria xeral e adoita encontrarse a un nivel que, aínda que se apoia en libros de texto avanzados, inclúe tamén algúns		
aspectos que implican coñecementos procedentes da vangarda do seu campo de estudo		
Desenvolverse para o exercicio dunha cidadanía aberta, culta, crítica, comprometida, democrática e solidaria, capaz de		C2
analizar a realidade, diagnosticar problemas, formular e implantar solucións baseadas no coñecemento e orientadas ao ben		
común		
Asumir como profesionais e cidadáns a importancia da aprendizaxe ao longo da vida		C5
Valorar a importancia da investigación, a innovación e o desenvolvemento tecnolóxico no avance socioeconómico e cultural		C6
da sociedade		
Utilizar as ferramentas básicas das tecnoloxías da información e as comunicacións (TIC) necesarias para o exercicio da		C1
profesión e para a aprendizaxe ao longo da vida		

	Contents		
Topic	Sub-topic		
Fundamental Chemical Concepts.	- Stoichiometry. Percent Yield of a Reaction. Limiting Reactant.		
	- Atom. Quantum Theory.		
	- Periodic table and Periodic Properties.		
	- Chemical Bonding. Types of Bonding: Ionic, Covalent, Metallic. Intermolecular		
	strengths.		
2. Thermochemistry.	- Changes of Energy in the Chemical Reactions.		
	- Enthalpy.		
	- Calorimetry.		
	- Introduction to the Thermodynamics.		
5. Electrochemistry I.	- Redox Reactions. Balance of Redox Reactions.		
	- Standard Electrode Potentials.		
	- Spontaneity of the Redox Reactions.		
	- Nernst Equation.		
3. Organic Chemistry.	- Introduction to Organic Chemistry.		
	- Functional Groups.		
	- Nomenclature.		
	- Isomery.		
	- General Types of Organic Reactions.		
ABORATORY PRACTICE	- Heat of Reaction.		
	- Acids and Bases.		
	- Determination of the Content of Copper in an Alloy.		
	- Electrodeposition.		
	- Redox Reactions.		
	- Polymers.		

	Plannin	g		
Methodologies / tests	Competencies /	Teaching hours	Student?s personal	Total hours
	Results	(in-person & virtual)	work hours	
Mixed objective/subjective test	A4 B1 B2 B5 B6	5	5	10
Guest lecture / keynote speech	A4 B2 B5 B6 C5	27	27	54
Problem solving	A4 B1 B2 B3 B4 B5	20	20	40
	B6			

Supervised projects	A4 B1 B2 B3 B4 B5	3	18	21
	B6 C1 C2 C6			
Laboratory practice	A4 B1 B2 B3 B4 B5	10	10	20
	B6 C6			
Personalized attention		5	0	5
(A) The information in the planning table is for guidance only and does not take into account the between engine of the students				

(*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

	Methodologies		
Methodologies	Description		
Mixed	Written proof used for the evaluation of the learning of the student.		
objective/subjective			
test			
Guest lecture /	The teacher will present the fundamental contents of each of the topics. For better learning, students will have to advance the		
keynote speech	development of these sessions teaching materials suitable for your personal preparation. All students can consult the teacher		
	any aspect of the matter in the tutorial schedule established for this purpose. He taught in large group.		
Problem solving	Sessions devoted to the resolution of problems and issues with the active participation of students.		
Supervised projects	Realisation of directed studies. Presentation and correction.		
Laboratory practice	Comprehensive reading of the practice. The student carries out the experimental work. He poses and resolves the numerical		
	calculations associated as well as the questions that poses him . He examines and values the final result.		

	Personalized attention
Methodologies	Description
Laboratory practice	Review of the development of the intermediate stages and final of the directed study.
Supervised projects	
	Resolution of punctual questions that prevent him to follow-up the subject.

		Assessment	
Methodologies	Competencies /	Competencies / Description	
	Results		
Laboratory practice	A4 B1 B2 B3 B4 B5	It will assess the performance of the prelaboratorios, abilities and skills of students in	5
	B6 C6	the experimental work, their ability to interpret the results, etc.	
Mixed	A4 B1 B2 B5 B6	In the half of the 1st four-month period, we will realise an eliminatory first partial	70
objective/subjective		examination (theory and problems) corresponding to the matter given until this	
test		moment. At the end of the 1st four-month period, we will realise a second partial	
		examination (theory and problems) for the students that have surpassed the first	
		partial and a global examination of the subject(theory and problems) for the students	
		that had not presented or had not approved the first partial examination.	
		Each examination will consist of two independent parts, being necessary to obtain a	
		minimum note in each one of them to compensate them:	
		- theory, maximum punctuation 4 points, minimum punctuation to compensate 1,5	
		points.	
		- Problems, maximum punctuation 3 points, minimum punctuation to compensate 1	
		points.	
Problem solving	A4 B1 B2 B3 B4 B5	Some short tests will be done periodically to assess the evolution of the student.	15
	B6		
Supervised projects	A4 B1 B2 B3 B4 B5	Realisation of three directed activities.	10
	B6 C1 C2 C6	Interest and attitude of the student.	

Assessment comments



- To be able to add the points of the different activities to the note of the examination, it will be necessary to reach in this a minimum of 3 points.
- To make the examination, students have to make all the laboratory practice, Students have to make all the laboratory practice to pass the subject.Those students that have realised and surpassed the laboratory practice of the subject in previous courses, will be able to decide if they do them again or not. In case of not repeating them, the qualification obtained will keep them.- The corresponding qualification to the realisation of supervised projects does not keep from a course to another one.

	Sources of information		
Basic	- Pérez Iglesias J. y Seco Lago H.M. (2006). Experimentos de Química: Aplicaciones a la Vida Cotidiana. Mc		
	Graw-Hill Calamonte (Badajoz), Filarias		
	- Vinagre F. y Vázquez de Miguel L.M. (1996). Fundamentos y Problemas de Química, 2ª edición. Alianza		
	- http://eup.cdf.udc.es ()		
	- Mc Murry, Fay (2009). Química General. Prentice Hall		
	- Chang R. (2010). Química, 10ª edición. Mc Graw-Hill		
	- Petrucci R.H. (2011). Química General: Principios y Aplicaciones Modernas. Prentice Hall		
Complementary	- Peterson (1993). Formulación y Nomenclatura Química Inorgánica. EDUNSA		
	- Vale Parapar, Fernández Pereira y otros (2004). Problemas Resueltos de Química para Ingeniería. Thomson		
	- Paz M., Castro F. y Miró J. (1995). Química. UNED		
	- Kotz, Treichel, Harman (2003). Química y Reactividad Química, 5ª edición. Thomson		
	- Willis (1995). Resolución de Problemas de Química General. Reverté		
	- Rosenberg J., Epstein L. y Krieger P. (2014). Química Schaum. McGraw Hill		

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

- It is essential that the students know the inorganic chemical formulation: in the exams those exercises in which the formulation is incorrect will not be corrected.- To help achieve a sustained immediate environment and comply with the objective of action 5: "Teaching and healthy and sustainable environmental and social research" of the "Green Campus Ferrol Action Plan", in the delivery of the work to be carried out in this area: 1. Plastics shall not be used. 2. Double-sided printing shall be carried out. 3. Recycled paper shall be used. 4. Avoid printing erasers. -anbsp;In the implementation of laboratory practices, a sustainable use of resources and the prevention of negative impacts on the natural environment must be made.

(*)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.