



## IDENTIFYING DATA

### Chemistry: Chemistry

Subject	Chemistry: Chemistry			
Code	P03G370V01204			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	9	Basic education	1st	2nd
Teaching language				
Department				
Coordinator	Cancela Carral, María Ángeles			
Lecturers	Cancela Carral, María Ángeles			
E-mail	chiqui@uvigo.es			
Web	<a href="http://fatic.uvigo.es/">http://fatic.uvigo.es/</a>			
General description	(*)Esta materia pretende repasar e homoxenizar os conceptos básicos de química con fin de que sirvan de base para outras materias.			

## Skills

Code	
B1	Ability to understand the biological, chemical, physical, mathematical and representation systems necessary for the development of professional activity, as well as to identify the different biotic and physical elements of the forest environment and renewable natural resources susceptible to protection, conservation and exploitations in the forest area.
C7	Basic knowledge of general chemistry, organic and inorganic chemistry and its applications in engineering.
D4	Sustainability and environmental commitment
D7	Skill in the use of IT tools and ICTs.
D8	Ability to solve problems, critical reasoning and decision making
D9	Teamwork skills, skills in interpersonal relationships and leadership.
D10	Autonomous Learning

## Learning outcomes

Expected results from this subject	Training and Learning Results
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1R. 2018 Knowledge and understanding of the mathematicians and other inherent basic sciences to the his speciality in engineering, it a level that allow them purchase the rest of the competitions of the qualifications.	B1	C7	D4
3R. 2018 Be conscious of the multidisciplinary context of the engineering.			D7
4R. 2018 Capacity to #analyze products, processes and complex systems in the his field of study; choose and apply analytical methods, of calculation and experimental *relevantes of form *relevante and interpret correctly the results of these analyses.			D8
5R. 2018 Capacity to identify, formulate and resolve problems of engineering in the his speciality; choose and apply analytical methods, of calculation and experiments properly established; Recognize the importance of the social restrictions, of health and security, environmental, economic and industrial.			D9
6R. 2018 Capacity to project, design and develop complex products (pieces, component, products finished, etc.), processes and systems of the his speciality, that fulfil the requirements established, including the knowledge of the social aspects, of health and environmental security, economic and industrial; as well as select and apply methods of appropriate project.			D10
7R. 2018 Capacity of the project using any knowledges advanced of the his speciality in engineering.			
8R. 2018 Capacity to realize bibliographic researches, consult and use databases and other sources of information with discretion, to realize @simulación and analysis with the objective to realize investigations on technical subjects of the his speciality.			
9R. 2018 Capacity to consult and apply codes of good practices and security of the his speciality.			
10R. 2018 Capacity and capacity to project and realize experimental investigations, interpret results and obtain conclusions in the his field of study.			
12R. 2018 practical Competition to resolve complex problems, realize complex projects of engineering and realize specific investigations stop his speciality.			
13R. 2018 Knowledge of the application of materials, teams and tools, technological processes and of engineering and his limitations within the scope of the his speciality.			
19R. 2018 Capacity to communicate of effective way information, ideas, problems and solutions in the field of the engineering and with the society in general.			
21R. 2018 Capacity to recognize the need of a continuous training and realize this activity of independent way during his professional life.			
22R. 2018 Capacity to be to the day of the scientific and technological news.			

## Contents

Topic	
1. Fundamental concepts.	Atoms. Periodic table. Molecules. Mixes. Units of concentration. Chemical reactions and stoichiometry.
2.- Atomic structure and chemical link.	Quantum mechanical description. Periodic properties. Covalent link. Geometry and hybridisation. Polarity. Ionic link and metallic Link. Intermolecular strengths
3. Gases, solids and liquids. Ideal gas, real gas. Liquid state and solid state.	Ideal gas, real gas. Liquid state and solid state.
4. Thermodynamics and Thermochemical	Energy. Enthalpy. Calorimetry. Free energy and spontaneity.
5.- Chemical balances	Balance Gaseous chemical, acid- Base, solubility, balance redox.
6.- Kinetical chemical	Speed of reaction and kinetical equation
7.- Basic concepts of organic chemistry.	Functional groups, isomerism. Reactions and intervals. Mechanisms of reaction
8.- Basic principles of inorganic chemistry	Metallurgy and chemistry of metals
9.- Chemical industrial.	Ways of operation. Processes and basic operations. Diagrams of flow.
10.- Exploitation Of the biomass. Biorefinery	Bioenergy utilization: biopetroleum, biogas, biodiesel and bioethanol Use alimentary: vitamins, mineral and feed. Harnessing Like biomaterials: bioplastics and biopolymers

## Planning

	Class hours	Hours outside the classroom	Total hours
Laboratory practical	14	22	36
Seminars	2	4	6
Presentation	1	3	4
Problem solving	16	54	70
Lecturing	45	62	107

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

## Methodologies

Description
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Laboratory practical	Sessions of laboratory of two hours in groups of two students, of where will explain the appearances applied of the part of the theoretical contents. Each *prácticatiene incorporated a series of questions that have to be delivered before the realisation of the following practical.
Seminars	Group tutoring of compulsory assistance, in where the students explain the work realised on a number reduced of exercises proposed previously.
Presentation	Each student will have to realise an oral presentation and written of any of the practices realised in the laboratory.
Problem solving	They will explain and/they will resolve it problems in groups reduced of students from a series of billed facilitated by the professor. The students will have to resolve a small number of exercises for each one of the subjects, that will have to deliver in the term indicated for *sua qualification.
Lecturing	Classes in the classroom to numerous groups, in where they explain the corresponding contents to each subject.

### Personalized assistance

Methodologies	Description
Laboratory practical	they are resolution of real cases.
Seminars	In the course, there are nine seminars. The first part of the seminar will be made in classroom and the second part will be made at home.
Presentation	It is mandatory to present the project in classroom.
Problem solving	

### Assessment

	Description	Qualification	Training and Learning Results
Laboratory practical(*)	Evaluarase o traballo contínuo durante o curso (actitud, implicación e traballo en grupo) Evaluarase a calidade da memoria presentada de forma oral e escrita.	30	
Problem solving	(*)Evaluarase a resolución dos exercicios entregados durante o curso.	20	
Lecturing	(*)Realizarase un examen final de toda a materia, basado en preguntas tipo test e exercicios numéricos. Así mesmo poderanse realizar exames de control o largo de todo o curso.	50	

### Other comments on the Evaluation

the matter will be pass if you pass each activities that it constitute, so that it can not approve activities independently. The final note will be the sum of each one of the parts.

EXAMS DATA 2019-2020

First Call: May 25, 2020, 10:00 Hours.

Second Call: May 10, 2020, 10:00 Hours.

The official dates can be found in the official table of the Forest Engineering School and web <http://forestaes.uvigo.es/gl/>

### Sources of information

#### Basic Bibliography

BROWN, T.L. y otros, **Química: la Ciencia Central**, 7ª, Prentice-Hall, 1998

CHANG, RAYMOND, **Química**, 6ª, McGraw-Hill, 1995

PETRUCCI, HARWOOD, **Química General**, 8ª, Prentice Hall, 2003

Willis, C.J., **Resolucion de problemas de química general**, Reverté, 1980

#### Complementary Bibliography

KOTZ, JOHN C.y otros, **Química y Reactividad Química**, International Thomson,

### Recommendations

#### Subjects that are recommended to be taken simultaneously

Mathematics: Overview of mathematics/P03G370V01203

Mathematics: Mathematics and IT/P03G370V01103

### Other comments

\*Consideranse Necessary previous requirements the following:

- Know the system of units.
- Know realise basic mathematical calculations.
- Know basic concepts of the type: atoms, element, composed, mix, density, composition \*porcentual and inorganic basic formulation.

To surpass the \*asignatura is necessary to achieve the less 50% of the qualification of each one of the sections \*evaluables. The assistance the face-to-face educational activities are compulsory. Absences in the justified, upper 20% of the hours scheduled, suppose a suspense in each one of the sections and in consequence in the matter.

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## **Contingency plan**

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### **Description**

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Changes in teaching methodology in exceptional circumstances:

In this matter, we will cover all the content included in the teaching guide.

Master classes: They are held at the same time as those established on the center's website, but through online platforms, with the Remote Campus platform and the Faitic platform. Thematic slides, teaching units, and teaching pills are available from Faitic.

Practices: the experimental part of the two blocks of projects will be carried out in the laboratory, will be presented orally through the remote campus and the reports will be sent to the teachers of the subject. If, due to circumstances, you cannot go to the laboratory, the work will be carried out on the basis of bibliographic data.

Seminars: Problems will be explained through the remote campus platform, exercises that students must send by email or will be uploaded to Faitic.

Changes in personalized attention.

The request is answered by email, email or from the remote campus.

Changes in evaluation methodologies:

The Chemistry course will be evaluated in person following the criteria established in the teaching guide. Master class 50%, laboratory practices 30% and problem solving 20%.

The master class will be evaluated with theory tests and problem tests. Theoretical exams are carried out on every two subjects and the test model is used through the Faitic platform. The problem tests will be two partial exams, with the possibility of gradually passing parts of the subject and making the evaluation more continuous. This will be done through the Remote Campus platform (50%).

Work exhibitions (internship projects) take place across the remote campus and correspond to laboratory internships. (30%)

The delivery of the seminars will be done by email and will correspond to the resolution of problems. (20%)

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