



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	Chemical Engineering			
Coordinator	Cancela Carral, María Ángeles			
Lecturers	Cancela Carral, María Ángeles Sánchez Bermúdez, Ángel Manuel			
E-mail	chiqui@uvigo.es			
Web	http://faitic.uvigo.es/			
General description	(*)Esta materia pretende repasar e homoxenizar os conceptos básicos de química con fin de que sirvan de base para outras materias.			

Competencies

Code	
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.

Learning outcomes

Expected results from this subject	Training and Learning Results
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Cognition and comprehension learning results	C7	D4
R1 Understanding and understanding two scientific and mathematical principles that subxacen a branch of enxeñaría.		D7
R2 Unha systematic understanding two concepts and aspects crave dá súa branch enxeñaría.		D8
R4 Awareness of multidisciplinary context gives enxeñaría.		D9

Learning results of Análise in enxeñaría.

R5 A ability to apply or build and understand to identify, formulate and solve problems enxeñaría using established methods.

R6 A ability to apply or be aware of and understand the analysis of products, processes and methods.

Learning results of Enxeñaría's Proxectos.

R8 A ability to apply your ideas to develop and carry out projects that meet specific requirements.

R9 Understanding two different methods and ability to use them.

Learning results of Research and Innovation

R10 A ability to perform bibliographic searches, use databases and other sources of information.

R11 A ability to design and carry out experiments, interpret data and draw conclusions.

R12 Technical and laboratory competences.

Applied Learning Results of Enxeñaría Practice

R13 A ability to select and use equipment, ferramentas and suitable methods.

R14 A ability to combine theory and practice to solve problems of enxeñaría.

Transversais Competency Learning Results

R17 Operate effectively both individually and as a team.

R18 Use different methods to communicate effectively with the community of enxeñeiros e coa sociedade en xeral.

R21 Need to understand the capacity to voluntarily develop to learn continuously.

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 practices	14	22	36
Group tutoring	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
Laboratory practices	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.

Group tutoring	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 attention

Methodologies	Description
Laboratory practices	They realise you practise them *basandose in the *metodologia of learning by projects.
Group tutoring	They resolve doubts of problems and exercises
Presentation	They present the projects of practices
Problem solving	They do seminars in class and deliver exercises to resolve home

Assessment

	Description	Qualification	Training and Learning Results
Laboratory practices(*)	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 ejercicios entregados durante o curso.	20	
Lecturing	(*)Realizarse un examen final de toda a materia, basado en preguntas tipo test e ejercicios numéricos. Asi mesmo poderanse realizar exames de control o largo de todo o curso.	50	

Other comments on the Evaluation

Approve the matter involves necessarily approve each one of the activities that it constitute, so that it non can approve activities independently. Once approved all, the final note will be the sum of each one of the parts;

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 quimica 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.