		Teachin	g Guide			
	Identifying Data					
Subject (*)	Física 2 Code			610G01004		
Study programme	Grao en Química					
		Desci	riptors			
Cycle	Period	Ye	ear	Туре	Credits	
Graduate	2nd four-month period	Fi	rst	FB	6	
Language	SpanishGalician					
Teaching method	Face-to-face					
Prerequisites						
Department	Física					
Coordinador	Rilo Siso, Esther E-mail esther.rilo.siso@udc.es				@udc.es	
Lecturers	Rico Varela, Maite E-mail maite.rico@udc.es			.es		
	Rilo Siso, Esther			esther.rilo.siso@	@udc.es	
Web						
General description	Provides knowledge of General I	Physics required	d for substantiation	of the laws and pheno	omena of chemistry. This is a	
	subject that is the link between n	nathematics and	d chemistry in the s	sense of giving a forma	al formulation of scientific	
	observations that establish laws	and results with	out which you can	not "close" the scienti	fic method. The laws of physics	
	provide the basic ingredients in v	which most scie	nces are supported	d, as well as instrumen	tation and measurement	
	techniques used in all scientific f	ields, and espec	cially in chemistry.	Hence its importance	and presence in the first year of	
	the degree, since along with Physics 1 provides students with the necessary basis for understanding matters of other					
	modules and courses for the deg	gree.				

	Study programme competences
Code	Study programme competences
A1	Ability to use chemistry terminology, nomenclature, conventions and units
А3	Knowledge of characteristics of the different states of matter and theories used to describe them
A12	Ability to relate macroscopic properties of matter to its microscopic structure
A14	Ability to demonstrate knowledge and understanding of concepts, principles and theories in chemistry
A15	Ability to recognise and analyse new problems and develop solution strategies
A19	Ability to follow standard procedures and handle scientific equipment
A20	Ability to interpret data resulting from laboratory observation and measurement
A22	Ability to plan, design and develop projects and experiments
A23	Critical standards of excellence in experimental technique and analysis
A24	Ability to explain chemical processes and phenomena clearly and simply
A25	Ability to recognise and analyse link between chemistry and other disciplines, and presence of chemical processes in everyday life
A27	Ability to teach chemistry and related subjects at different academic levels
B1	Learning to learn
B2	Effective problem solving
В3	Application of logical, critical, creative thinking
B4	Working independently on own initiative
B5	Teamwork and collaboration
В7	Effective workplace communication
C1	Ability to express oneself accurately in the official languages of Galicia (oral and in written)
C3	Ability to use basic information and communications technology (ICT) tools for professional purposes and learning throughout life
C6	Ability to assess critically the knowledge, technology and information available for problem solving

Learning outcomes	
Learning outcomes	Study programme
	competences

Dispoñer dos fundamentos teóricos mínimos que permitan a comprensión dos aspectos da química relacionados coa	A1		C1
mecánica de fluidos e cos fenómenos eléctricos e magnéticos.	А3		
	A12		
	A14		
	A25		
Saber reducir os problemas reais ós seus aspectos máis esenciais e aplicalos ó campo da química	A14	B1	C1
	A15	B2	C3
	A27	В3	C6
		B4	
		B5	
		В7	
Aplicar as técnicas básicas de laboratorio, incluindo os cálculos necesarios e expresando os resultados de manera axeitada.	A19	B1	C3
Utilizar o material e aplicar as normas básicas de seguridade para traballar nun laboratorio.	A20	B2	C6
	A22	В3	
	A23	B5	
	A24	В7	

	Contents
Topic	Sub-topic
1. Field theory	Scalar and vector field
	Gradient, divergence and rotational
	Circulation and flux
	Central force fields
2. Fluids	Ideal fluids
	Real fluids
	Surface phenomenon
3. Gravity	Gravitational field
	Gravitational potential energy
4. Electricity	Electric field and potential
	Capacity
	Electric current and directs current circuits
5. Magnetism	Magnetic field
	Magnetic induction
	Alternating current circuits
6. Oscillations and waves	Oscillations
	Waves motion
7. Ligth	Properties
	Optical images
	Interferences and difraction
Practical teaching: surface tension and density measurements	
for different methods, resistance measurement using a	
Wheatstone bridge, mass/charge rate for electron,	
measurements of voltage, resistance and current in electrical	
circuits.	

Methodologies / tests	Competencies	Ordinary class	Student?s personal	Total hours
		hours	work hours	
Guest lecture / keynote speech	A1 A3 A12 A14 A15	27	67.5	94.5
	A24 A25 A27 B1 B2			
	B3 C6			
Problem solving	A14 A15 A27 B1 B2	9	13.5	22.5
	B3 B4 B5 B7 C1 C3			
	C6			
Laboratory practice	A19 A20 A22 A23	15	15	30
	A24 B1 B2 B3 B5 C3			
	C6			
Mixed objective/subjective test	A1 A3 A12 A14 A15	2	0	2
	A24 A25 B2 B3 C6			
Personalized attention		1	0	1

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	Methodologies					
Methodologies	Description					
Guest lecture /	During these sessions, teacher will explain lessons including different formats (theory, problems and general examples),					
keynote speech	emphasizing the more important aspects and in the more difficult ones.					
Problem solving	In this sessions, some problems related to theory contents explained before will be proposed and solved. Students must solve					
	this problems and questions under teacher supervision, individually or in groups. There will be included in these classes					
	activities that imply the participation of the pupils, that will contribute to the continuous assessment. So teacher can observe					
	the difficulties of comprehension that every pupil presents in the resolution of problems.					
Laboratory practice	Students will perform laboratory practice for the application of knowledge acquired in the keynote sessions and problem					
	solving. With this methodology, they acquire skills needed to work properly in a physics lab, which includes the use of					
	instruments for measurement, data processing and analysis of results of physic properties and magnitudes. A guide for each					
	practice will be given to the student, and they will have all necessary material to mount and do them.					
Mixed	It is the test for the evaluation of knowledge, which allows teacher assessing the level of student learning.					
objective/subjective						
test						

Personalized attention				
Methodologies	Description			
Laboratory practice	Students will be attended individually to help them to understand and resolve all problems related with the subject they can			
Problem solving	Problem solving have. Moreover, teacher regularly invite students to tutorials with the intention of receiving the necessary guidance.			

		Assessment	
Methodologies	Competencies	Description	Qualification
Laboratory practice	A19 A20 A22 A23	Attendance to Laboratory practices is MANDATORY, so you cannot pass the course	15
	A24 B1 B2 B3 B5 C3	without making them. The highest mark that can be obtained is 1.5 points, and the	
	C6	minimum one required to pass them is 0.7. It will be evaluated on the basis of	
		participation and results delivery of each session, and a test that will take place during	
		the last session. Competences evaluated A19, A20, A22, A23, A24, B1, B3, B5, B7,	
		C3	

Problem solving	A14 A15 A27 B1 B2	Attendance will be evaluated (up to 0,5 points). Participation on the resolution of	15
	B3 B4 B5 B7 C1 C3	problems and exercises also will be evaluated. Teacher may periodically collect	
	C6	exercises or questions proposed during these sessions. Competences evaluated: A1,	
		A3, A12, A15, B1, B2, C1	
Mixed	A1 A3 A12 A14 A15	Examination accounts for 70% of the final grade	70
objective/subjective	A24 A25 B2 B3 C6	During the term a mid-course assesment exam will be done. Competences evaluated:	
test		A1, A3, A12, A14, A15, B2, C1.	

Assessment comments

Exam mark should not

be less than 4 (up to 10). The final mark must

be 5 or higher to pass course, and will be calculated as follows: exam mark*0.7+laboratory+problem

solving. If a student, having a final mark higher than 5, fails

the minimum mark in any activity, he/she will have a mark of 4.5, i.e., Fail.

In the

July opportunity will be saved the qualifications of Laboratory and Seminars of problems.

For qualifying students as NON PRESENTED they must not

have participated in more than 25%

of evaluable scheduled activities.

Students evaluated on the second opportunity

will be eligible for the honors if the maximum

number of that for the

corresponding course was not covered at the first opportunity.

The

laboratory practices must be done in the official calendar published at the

beginning of the term.

Concerning successive academic years, the teaching-learning process,

including assessment, refers to an academic course, and therefore start again

with each new course, including

all activities and evaluation procedures

were scheduled for

that course.

Sources of information		
Basic	- Tippler & Mosca (). Física para la ciencia y la tecnología . Reverté	
	- Sears, Zemansky, Young & Driversitaria . Addison Wesley Longman	
	- Fidalgo & amp; Fernández (). Física General. Everest	
Complementary	- Burbano de Ercilla, Burbano García & amp; Gracia Muñoz (). Problemas de Física. Mira	
	- Lea & Burke (). Física, la naturaleza de las cosas. Paraninfo	
	- Angel Franco García (2006). Prácticas de Física. http://www.sc.ehu.es/sbweb/fisica_/	

	Recommendations
	Subjects that it is recommended to have taken before
Matemáticas 1/610G01001	
Física 1/610G01003	
	Subjects that are recommended to be taken simultaneously
Matemáticas 2/610G01002	
	Subjects that continue the syllabus



Other comments

You need to have knowledge of physics and mathematics from high school. It is recommended to attend the leveling course taught in the Facultade de Ciencias in September.

(*)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.