Teaching Guide				
Identifying Data				2017/18
Subject (*)	Physics 1		Code	730G05002
Study programme	Grao en Enxeñaría Naval e Oceánica			
Descriptors				
Cycle	Period	Year	Type	Credits
Graduate	1st four-month period	First	FB	6
Language	SpanishGalicianEnglish			
Teaching method	Face-to-face			
Prerequisites				
Department	Enxeñaría Naval e Industrial			
Coordinador	Alvarez Feal, Jose Carlos Juan	E-mail	carlos.alvarez@udc.es	
Lecturers	Alvarez Feal, Jose Carlos Juan Saavedra Otero, Emilio	E-mail	carlos.alvarez@udc.es emilio.saavedra@udc.es	
Web				
General description	Comprensión e dominio dos conceptos básicos sobre as leis xerais da mecánica, termodinámica, campos e ondas e electromagnetismo, así como da súa aplicación para resolver problemas propios da enxeñaría.			

Study programme competences	
Code	Study programme competences
A1	Skill for the resolution of the mathematical problems that can be formulated in the engineering. Aptitude for applying the knowledge on: linear algebra; geometry; differential geometry; differential and integral calculation; differential equations and in partial derivatives; numerical methods; algorithmic numerical; statistics and optimization
A2	Understanding and domination of the basic concepts on the general laws of the, thermodynamics, mechanics, fields and waves and electromagnetism and its application for the resolution of problems characteristic of 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
B3	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
B6	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.
C5	Assuming the importance of the learning as professional and as citizen throughout the life.

Learning outcomes			
Learning outcomes	Study programme competences		
Understanding and know-how of static, kinematic, dynamic, waves, and their applications for the resolution of engineering situations.	A1 A2	B1 B2 B3 B6	C1
			C5

Contents	
Topic	Sub-topic

The following chapters expand the topics that the Memoria de Verificación stipulates:	magnitudes, physical unities and dimensions, vectors, kinematics, statics, dynamics of particles, dynamics of a sistem of particles and dynamics of rigid solid, fluid mechanics and mechanical waves.
Chapter I INTRODUCTION	Section 1 Introduction Section 2 Physical magnitudes Section 3 Vectors
Chapter II STATIC EQUILIBRIUM	Section 4 Equilibrium of particles Section 5 Systems of forces Section 6 Equilibrium of rigid bodies
Chapter III KINEMATICS	Section 7 Kinematics of particles Section 8 Relative movement
Chapter IV DYNAMICS OF A SINGLE PARTICLE	Section 9 Principles Section 10 Work and energy
Chapter V DYNAMICS OF RIGID BODIES	Section 11 Dynamics of particles systems Section 12 Dynamics of rigid bodies
Chapter VI DYNAMICS OF DEFORMABLE MEDIA	Section 13 Deformable media Section 14 Statics of fluids Section 15 Dynamics of fluids
Chapter VII Mechanical waves	Section 16 Wave movement Section 17 Sound

Planning				
Methodologies / tests	Competencies	Ordinary class hours	Student?s personal work hours	Total hours
Guest lecture / keynote speech	A2 B6 C5	21	21	42
Problem solving	A1 B1 B2 B3 C1	11	44	55
Laboratory practice	C1	10	4	14
Objective test	A1 A2 B1 B3 B6	2	3	5
Objective test	A1 A2 B1 B3 B6	4	8	12
Objective test	A1 A2 B1 B3 B6	4	8	12
Personalized attention		10	0	10
(*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.				

Methodologies	
Methodologies	Description
Guest lecture / keynote speech	Lecture Explanation and resolution of fundamentals. Comments on bibliography
Problem solving	Medium group: Study of cases and problem solving.
Laboratory practice	Laboratory: students will perform 4 laboratory practices (2 h per sesion) and an exam about the practices
Objective test	The curse is divided in 2 parts, each one with their exam. The first part includes: vectors, static and kinematics. The exam will be held on a date fixed by the official calendar.

Objective test	The second exam includes: dynamics of particles, dynamics of rigid bodies, fluids and waves. The date coincides with the final exam which will be approved by Xunta de Centro.
Objective test	Professors will decide on the matter for your second opportunity exam. This exam will carry out in the date approved by Xunta de Centro.

Personalized attention	
Methodologies	**Description**
Problem solving	Tutorials about lectures, exercies, and other situations in relation with the course. Students with recognition of part time dedication and academician dispenses of assistance will be evaluated of the same way that the rest.

Assessment			
Methodologies	**Competencies**	**Description**	**Qualification**
Laboratory practice	C1	? Attendance at lab is compulsory. To get a final qualification students must make 5 practices. ? They will be not admitted lack of assistance without justification ? Qualifiaciton of practices represents 10% of the total.	10
Objective test	A1 A2 B1 B3 B6	? There will be a Objetive test that will be held during the four-month period. This exam includes the chapters of introduction to Physics, estatics and kinematics ? The contribution of this objetive test is 30%. The test will be in 3 parts: theory (T = 40 % of the score), problems solving (30 % of the score) and homeworks (30% of the score). ? The total qualification is given by: NOTA (E1)=0.4T+0.3P+0.3E ? If a lack of attendance before the exam NOTA(E1) = 0.4T+0.3P+0.3E - 0.4	21

Objective test	A1 A2 B1 B3 B6	? The final Objective test will include the second part of the course: dynamics of particles, dynamics of rigid solid, fluids and waves. ? The score of this exam is 50%. ? The score distribution is equaul to the previous one. ? The exam date will coincides with the final exame date to be approved in the Xunta de Centro. ? In July, students will only have to examine suspended parts.	35
Guest lecture / keynote speech	A2 B6 C5	? Attendance at lectures is compulsory. ? 5 unexcused absences are only allowed.	10
Problem solving	A1 B1 B2 B3 C1	? Attendance at problem solving is compulsory. ? In total, there will be 65 problems (30+35). A minimum limit is required to score, 80 % of right solutions. Score will start in 5 (80% of right solutions) to 10 (100% right). ? Attendance at tutorial hours is compulsory (4 tutorials per exam, 8 in total). Other the score would be penalised.	24
Objective test	A1 A2 B1 B3 B6	During the second opportunity exam, students are only going to be tested about the parts which will be pointed out by the professors. The scores of assistance, lab and homeworks will be preserved in the final mark.	0

Assessment comments

Final qualification is given by the equation: Nota = 0.1* Practices + 0.1*Asistence + 0.3*E1 + 0.5*E2
where:Practices is the score of lab practicesAsistence is the ratio number of attendance/ total E1 is the score of the first Objective test
E2 is the score of the first Objective test
Criteria for the
evaluation of objective tests and problem solving
Rubric will be used to
evaluate the competency Understanding and mastery of the
fundamentals about statics, kinematics, dynamics and waves and their
applications to engineering problems. The following
sub-competencies shall be taken into account:
The student has
knowledge about general laws

The student analyzes
problems, identifies magnitudes and their relative importance.

The student uses the
appropriate tools to analyse and to calculate.

The student is
capable of analyzing the coherence of the results.

The student gets
error-free numerical results.

The student expresses
the result with the appropriate units.

Sources of information	
Basic	- Francis Sears, Zemansky, Young (1986-1998). Física Universitaria. Addison-Wesley - Tipler, Paul Allen (1992). Física. Reverté - Serway, Raymond A. (1992). Física. McGraw-Hill
Complementary	

Recommendations
Subjects that it is recommended to have taken before
Subjects that are recommended to be taken simultaneously
CÁLCULO/730G02101 EXPRESION GRAFICA/730G02103 ÁLXEBRA/730G02106 ECUACIÓNS DIFERENCIAIS/730G02110
Subjects that continue the syllabus
Other comments

(*)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.