UNIVERSIDADE DA CORUÑA

Teaching Guide					
Identifying Data					2019/20
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		Basic training	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 / results	
Code	Study programme competences / results
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
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
B5	That the students developed those skills of learning necessary to start subsequent studies with a high degree of autonomy
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 / results		
Understanding and know-how of static, kinematic, dynamic, waves, and their applications for the resolution of engineering situations.	A2	B1 B3 B5 B6	C1
Assume as a professional and citizen the importance of continuous learning throughout life.			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 / Results	Teaching hours (in-person & virtual)	Student?s personal work hours	Total hours
Guest lecture / keynote speech	A2 B6 C5	30	27	57
Problem solving	B1 B3 B5 C1	20	20	40
Laboratory practice	B5 C1	10	4	14
Mixed objective/subjective test	A2 B1 B3 B6	2	3	5
Mixed objective/subjective test	A2 B6 B3 B1	4	8	12
Mixed objective/subjective test	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)
Mixed objective/subjective 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.
Mixed objective/subjective 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.

Mixed objective/subjective 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, exercises, and other situations in relation with the course. Students with academic exemption must: i attend to the exams, ii carry out the four lab experiments, to do that, lectures are able suitable dates iii deliver the task in the delivery date, the exercises can be deliver both by hand and electronically Tutorials will be attended electronically Students with academic exemption are exempt from attending to theory classes.

Assessment			
Methodologies	**Competencies / Results**	**Description**	**Qualification**
Laboratory practice	B5 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
Mixed objective/subjective test	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

Mixed objective/subjective test	A2 B6 B3 B1	? 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. ? Students with academic exemption are exempt from attending to theory classes.	10
Problem solving	B1 B3 B5 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
Mixed objective/subjective test	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: Mark = 0.1* Practices + 0.1*Asistence + 0.3*E1 + 0.5*E2
Final qualification for students with academic exemption: Mark = 0.1* Practices + 0.3375*E1 + 0.5625*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.
The criteria for the second oportunity (exam in June/July) are the same as in the other objective tests.

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

To achieve a sustainable environment and accomplishing with the objective of 5th action: ?Docencia e investigación saúdable e sustentable ambiental e social? of the "Plan de Acción Green Campus Ferrol":   1.- The presentation of documental works about this subject:1.1 will be requested on virtual format and/or on computerized form1.2 will be carried out through Moodle, on digital format avoiding their printing1.3 When it will be necessary the printout on a piece of paperPlastics will be avoided The printing will be carried out double-sided recycled sheets must be usedAvoid to print draftsMoreover, during the lecture on this subject, the gender perspective is going to be considered (non sexist language will be used, both sex author bibliography will be considered, it will be fostered the involvement of all gender students?)