ANEXO I

Faculty Experimental Sciences

GENERAL SPECIFICATIONS

Chemistry degree

Subject Data

Name:
PHYSICS

English name:
PHYSICS

Code:	Type:
757509108	Compulsory (in-person)

Hours:

	Total	In class	Out class
Time distribution	150	60	90

ECTS:

Standard group	Small groups			
	Classroom	Lab	Practices	Computer classroom
3.45	1.55	1		

Departments:	Knowledge areas:
Ciencias Integradas / Integrated Sciences	Física Aplicada / Applied Physics

Year:	Semester
1	1

TEACHING STAFF

Name:	E-mail:	Telephone
MIGUEL CARVAJAL ZAERA	miguel.carvajal@dfa.uhu.es	959219792

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Others Data (Tutoring, schedule...)
Office: P4- N1-14 (Faculty of Experimental Sciences) Office hours: First Semester: 11:00–14:00 Mondays & Fridays Second Semester: 11:00–14:00 Mondays & Fridays

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SPECIFIC INFORMATION OF THE COURSE

1. Contents description:

1.1 In English:

Physics is a course that provides an introduction to the fundamental principles in Physics with particular focus on the concepts of Classical Mechanics, Gravitation, Fluid Mechanics and Waves.

1.2 In Spanish:

La asignatura Física proporciona al alumno conocimientos básicos y aplicados sobre los principios fundamentales físicos de la naturaleza, incluyendo conceptos básicos de Mecánica Clásica, Campo Gravitatorio, Mecánica de Fluidos y Ondas.

2. Background:

2.1 Situation within the Degree:

This course is specially intended for students in the first year of a Chemistry degree. The subject "Physics" provides the students the basis for a basic academic training leading to obtain the Chemistry degree. This subject will allow the understanding of other subjects in higher courses. Thus it is taught during the first semester of the first year for the studies.

2.2 Recommendations

Students should have studied Physics and Mathematics at high school.

3. Objectives (as result of teaching):

On completion of this course, students should be able to:
- demonstrate an understanding of the scientific method and basic experimental techniques in Physics.
- apply basic principles of Physics.
- solve problems involving classical mechanics, including motion in one and two dimensions, gravitation and fluid mechanics.
- solve problems involving dynamics, oscillations and wave motion

4. Skills to be acquired

4.1 Specific Skills:

C31 - Conocer y utilizar las magnitudes físicas fundamentales y derivadas, los sistemas de unidades en que se miden y la equivalencia entre ellos.
C32 - Conocer y utilizar los principios de la mecánica y las relaciones que se derivan de ellos, aplicándolos al movimiento de una partícula, y al de sistemas de partículas y fluidos.
C33 - Conocer y aplicar los conceptos de campo, campos eléctrico y magnético a fenómenos relativos a fuerzas y potenciales electrostáticos, radiación electromagnética y fenómenos ópticos.
Q2 - Capacidad de aplicar dichos conocimientos a la resolución de problemas cualitativos y cuantitativos según modelos previamente desarrollados.
Q4 - Capacidad para reconocer y llevar a cabo buenas prácticas en el trabajo científico y profesional.
Q5 - Competencia para presentar, tanto en forma escrita como oral, material y argumentación científica a una audiencia especializada.
P5 - . Interpretación de datos procedentes de observaciones y medidas en el laboratorio en términos de su significación y de las teorías que la sustentan.

4.2 General, Basic or Transversal Skills:

CG1 - Que los estudiantes hayan desarrollado y demostrado poseer habilidades de aprendizaje y conocimientos procedentes de su campo de estudio, siendo capaces de aplicarlos en su trabajo, interpretando datos relevantes para emitir juicios de temas de diversa índole pudiendo transmitirlos a un público tanto especializado como no especializado.

CB1 - Que los estudiantes hayan demostrado poseer y comprender conocimientos en un área de estudio que parte de la base de la educación secundaria general, y se suele encontrar a un nivel que, si bien se apoya en libros de texto avanzados, incluye también algunos aspectos que implican conocimientos procedentes de la vanguardia de su campo de estudio.
CB2 - Que los estudiantes sepan aplicar sus conocimientos a su trabajo o vocación de una forma profesional y posean las competencias que suelen demostrarse por medio de la elaboración y defensa de argumentos y la resolución de problemas dentro de su área de estudio.
CB3 - Que los estudiantes tengan la capacidad de reunir e interpretar datos relevantes (normalmente dentro de su área de estudio) para emitir juicios que incluyan una reflexión sobre temas relevantes de índole social, científica o ética.
CB4 - Que los estudiantes puedan transmitir información, ideas, problemas y soluciones a un público tanto especializado como no especializado.
CB5 - Que los estudiantes hayan desarrollado aquellas habilidades de aprendizaje necesarias para emprender estudios posteriores con un alto grado de autonomía.
B1 - Capacidad de análisis y síntesis.

B2 - Capacidad de organización y planificación.
B3 - Comunicación oral y escrita en la lengua nativa.
B5 - Capacidad para la gestión de datos y la generación de información/conocimiento.
B6 - Resolución de problemas.
B8 - Trabajo en equipo.
B9 - Razonamiento crítico.

5. Training Activities and Teaching Methods

5.1 Training Activities:

In this course the theoretical explanation of the subject and the resolution of some exercises are carried out in the standard group of students. Small groups are organized in the classroom so that the students can solve some exercises or questions by student-teamworks under the professor supervision. In addition, the set of experiments are performed in the lab by groups of four students at most.

5.2 Teaching Methods::

- Lectures
- Laboratory Sessions
- Supervised resolution of exercises
- Individual and group tutorials
- Exams

5.3 Development and Justification:

During the lectures the professor will explain the basic principles of Physics and solve some problems and exercises.

Laboratory sessions consist in one theoretical class about the scientific method and the basic procedures to deal with the experimental data and three experiments carried out in the lab.

The sessions devoted to the supervised resolution of exercises will be carried out in the classroom. There the students will have the chance to solve some problems under the supervision of the professor.

The individual and group tutorials will be aimed to answer and solve any question of the students about the subject.

6. Detailed Contents

MECHANICS
Unit 1. Physical quantities, units and vectors.
Unit 2. Kinematics and dynamics of a particle.
Unit 3. Systems of particles. Conservation laws.
Unit 4. Dynamics of Rotational Motion.

GRAVITATION
Unit 5. Gravitational field.

FLUID MECHANICS
Unit 6. Fluid Statics.
Unit 7. Fluid Dynamics.

OSCILLATIONS AND WAVES
Unit 8. Oscillatory motion.
Unit 9. Wave Motion.

7. Bibliography

7.1 Basic Bibliography:

- Sears and Zemansky's university physics : with modern physics. -- 13th ed./ Hugh D. Young, Roger A. Freedman; contributing author, A. Lewis Ford. Pearson Education, Inc., publishing as Addison-Wesley, 2012.

7.2 Additional Bibliography:

- R. Serway, J.W Jewett. Physics for Scientists and Engineers. Brooks Cole Pub Co. 2013
- P. A. Tipler, G. Mosca. Physics for scientist and engineers: with modern physics. New York : W.H. Freeman and Company, 2008.
- F. J. Keller, W. E. Gettys, M. J. Skove, Physics Classical and Modern (2nd edition), McGraw-Hill, Inc., 1993.
- R.P. Feynman, R.B. Leighton, M. Sands, The Feynman Lectures on Physics, Vol. I, Addison-Wesley Pub, 1963.

8. Systems and Assessment Criteria

8.1 System for Assessment:

- Written exams: They will consist in a set of practical exercises and theoretical questions to be solved.

- Laboratory sessions. Its assessment will take into account:
* the attendance and participation of the students during the four lab sessions.
* a the mark obtained from reports sent to professor and/or lab exam.

- Continuous evaluation. Its assessment will take into account:
* the attendance and participation of the students during the sessions.
* the evaluation of academic works that are specific exercises and/or questions to be solved by student-teamworks under professor supervision.

8.2 Assessment Criteria and Marks:

8.2.1 Examinations Convocatory I

- Written exams (theory and problems): 68%
- Laboratory sessions: 20%
- Continuous evaluation (solving exercises): 12%

Those students willing to be assessed through only one final evaluation need to communicate their choice to the coordinator teacher, by email or via the moodle platform, during the period set by the rules of the University. They should take then a final exam (100%), which they can be asked in about theoretical questions and practical and lab exercises. Therewith, in order to pass this final exam, they should get at least a mark of 5.

‘Final results will be given in terms of a numerical scale between 0 and 10 (including tenths), with the corresponding qualitative ratings below:
≤4.9: Fail (D)
5.0 - 6.9: Pass (C)
7.0 - 8.9: Pass with Merit (B)
9.0 - 10: Distinction (A)

The total number of distinctions cannot exceed 5% of the students enrolled in the subject in the academic year (unless the number of students enrolled is lower to 20, in which case one distinction can be awarded).

The grading system is subject to the Bachelor's Degree Exam Regulations of the University of Huelva (Normativa de Evaluación para las Titulaciones de Grado de la Universidad de Huelva). Please refer to: < http://www.uhu.es/sec.general/Normativa/Texto_Normativa/Normativa_de_Evaluacion_grados.pdf >.

In particular, please note that make-up exams and other special circumstances will be subject to article 19 of these regulations.'

8.2.2 Examinations Convocatory II

The students having followed the standard progressive evaluation can take a final exam (68%), and they will keep the marks obtained from the academic works' evaluation (12%) and from the laboratory examination (20%). Alternatively, in case that the students require it, they may opt for taking a final exam (100%) where they can be asked about theoretical questions and practical and lab exercises, and be thus fully assessed to get the final mark. Therewith, in order to pass, they should get at least a mark of 5. The latter also applies to those students having failed after following the evaluation through only one final exam.

8.2.3 Examinations Convocatory III

They should take then a final exam (100%), which they can be asked in about theoretical questions and practical and lab exercises. Therewith, in order to pass this final exam, they should get at least a mark of 5.

8.2.4 Extraordinary Convocatory

They should take then a final exam (100%), which they can be asked in about theoretical questions and practical and lab exercises. Therewith, in order to pass this final exam, they should get at least a mark of 5.

8.3 Single Final Evaluation:

Those students willing to be assessed through only one final evaluation need to communicate their choice to the coordinator teacher, by email or via the moodle platform, during the period set by the rules of the University. They should take then a final exam (100%), which they can be asked in about theoretical questions and practical and lab exercises. Therewith, in order to pass this final exam, they should get at least a mark of 5.

9. Illustrative week schedule:

Date	Standard Group	Small group				Exams and evaluation activities	Content
		Classroom	Lab.	Practices	Comp. Classr.		
1st week	1 hours						Unit 1
2nd	3	1					U2
3rd	3	1	2.5				U2/U3
4th	3	1	2.5				U3
5th	3	1	2.5				U4
6th	3	1	2.5				U4/U5
7th	3	1					U5
8th	2	2					U6
9th	2	1					U6

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10th	2	1					U7
11th	2	1					U7
12th	2	1					U8
13th	2	1					U8
14th	2	1					U9
15th	2	1					U9
Total	35	15	10				