

28901 - Physics I

Información del Plan Docente

Academic Year	2016/17
Academic center	201 - Escuela Politécnica Superior
Degree	437 - Degree in Rural and Agri-Food Engineering
ECTS	6.0
Course	1
Period	First semester
Subject Type	Basic Education
Module	---

1. Basic info

1.1. Recommendations to take this course

1.2. Activities and key dates for the course

2. Initiation

2.1. Learning outcomes that define the subject

2.2. Introduction

3. Context and competences

3.1. Goals

3.2. Context and meaning of the subject in the degree

3.3. Competences

3.4. Importance of learning outcomes

4. Evaluation

5. Activities and resources

5.1. General methodological presentation

The learning process used in this subject is based on the following methodology:

- **Interactive exposition** combining an expositive and a demonstrative method. All the contents explained in the theory classroom will be complemented by the problem-solving. It offers students opportunities to test their ideas and opinions against the ideas and opinions of their peers.
- **Cooperative working** in the laboratory sessions.
- **Autonomous work** of the student, especially regarding the study and comprehension of the theoretical concepts and problem-solving.

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5.2. Learning activities

The learning process designed for this subject is based on the following activities:

- **Theoretical sessions**, including exposure of the theory and **problems resolution**. Students will have the content of each lecture as well as the collection of numerical exercises at the beginning of each session.
- **Laboratory sessions**, that include the presentation of the report elaborated from the results obtained. These laboratory sessions will take 2 hours, approximately every 15 days. Students will have the content before the session, which includes the practical procedure and the theoretical contents.
- **Individualized tutoring** will monitor the learning process development.

5.3. Program

Theory programme

UNIT I: STATICS

- Topic I.1. Statics of the particle. Equilibrium of the rigid solid.
- Topic I.2. Shared forces: centres of gravity and moments of inertia of areas.
- Topic I.3. Analysis of structures.
- Topic I.4. Dry friction.

UNIT II: DYNAMICS

- Topic II.1. Kinematics of particles.
- Topic II.2. Kinetics of particles. Method of the energy of moments.
- Topic II.3. Dynamics of rotation of the rigid solid.

UNIT III: MECHANICS OF SOLIDS AND FLUIDS

- Topic III.1. Elasticity.
- Topic III.2. Statics of fluids.
- Topic III.3. Dynamics of fluids.

Programme of practicals

Practical 1.- Statics

Practical 2.- The simple pendulum and the torsion pendulum

Practical 3.- Elasticity: Hooke's Law and Young's modulus

Practical 4.- Measurement of densities and viscosities

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Practical 5.- Physical properties of liquids

5.4.Planning and scheduling

It is estimated that an average student should devote to this subject, 6 ECTS, a total of 150 hours. This time must include both classroom and non-attendance activities. The student must ensure that the dedication is distributed evenly throughout the quarter.

Type Activity/week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
Presentia activity																					59
Theory	2	2	2	2	2	2	2	2	2	2			2	2							28
Problems	2	2			2		2		2		2							1			15
Laboratory sessions						2		2		2			2	2							10
Team work																					0
Evaluation										1								1		4	6
Non presentia work																					91
Individual work	4	4	4	6	4	4	2,5	4	2,5	3	2,5	8	4	2,5	4	6,5	5	8	5		83,5
Team work							1,5		1,5		1,5			1,5		1,5					7,5
TOTAL	8	8	8	8	8	8	8	8	8	8	8	8	8	8	4	8	9	8	9		150

5.5.Bibliography and recomended resources

BB

Basic Bibliography

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