

28801 - Physics I

Syllabus Information

Academic year: 2023/24

Subject: 28801 - Physics I

Faculty / School: 175 - Escuela Universitaria Politécnica de La Almunia

Degree: 424 - Bachelor's Degree in Mechatronic Engineering

ECTS: 6.0

Year: 1

Semester: First semester

Subject type: Basic Education

Module:

1. General information

The subject and its expected results respond to the following approach: Analyze and solve autonomously problems that integrate different aspects of physics, recognizing the various physical and technical fundamentals underlying the problem.

The above approach is aligned with the following Sustainable Development Goals (SDGs):

- Goal 7: Affordable and Clean Energy
- Goal 8: Sustainable Cities and Communities

The development of the subject of Physics requires knowledge of:

- Physics: understanding the fundamental equations and laws of mechanics and thermodynamics.
- Mathematics: mastery of the basic notions of calculus.

A level of second year of Bachillerato in both mathematics and physics is recommended for to take the subject. As well as simultaneously take the subject Mathematics I of the degree.

2. Learning results

Upon completion of the subject, the student will be able to:

- Application of the basic concepts of the general laws of mechanics and thermodynamics.
- Use the computer as a tool to support the calculation.
- Handle the scientific-technical terminology of the subject.

3. Syllabus

The program of the subject comprises 6 topics:

- I. Kinematics.
- II. Single and multi-particle dynamics. Static.
- III. Dynamics of the rigid solid.
- IV. Oscillatory motion.
- V. Elasticity and fluids.
- VI. Thermodynamics

4. Academic activities

The subject consists of 6 ECTS credits, which represents 150 hours of student work in the subject during the semester. 40% of this work (60 h.) will be done in the classroom, and the rest will be autonomous.

The program offered to the student includes the following activities:

- Theoretical classes: Theoretical activities taught in a fundamentally expository manner by the teacher.
- Practical classes: Practical discussion activities and exercises, carried out in the classroom, and that require a high level of student participation. The practical classes may also involve the realization of experimental practices including the use of different instruments and appropriate software.
- Group and individual tutoring. They will be scheduled according to the needs of the term.

5. Assessment system

The student must demonstrate that they have achieved the expected learning results by means of the following assessment activities. There is the possibility of passing the subject by two different ways:

Continuous Assessment:

To be eligible for the Continuous Assessment system, at least 80% of the classes must be attended. It will consist of two written tests. To pass this part, a grade of 4.0 or higher on each written test is required.

The final grade for the subject will be the average of both tests.

In order to pass the subject, the student must obtain an average grade of 5.0 or higher.

Global Assessment:

The Global Evaluation will consist of a final written test whose grade must be greater than or equal to 5.0 to pass the subject . The final grade will be the grade obtained in the final written test.

The same assessment procedure will be followed in the two global evaluation calls.

Note: in case the student does not pass the course through Continuous Assessment, they will be able to do it through Global Assessment . In addition, in case the student has passed the subject through Continuous Assessment and wants to improve their grade, they can take the 1st call of the Global Assessment without the risk of lowering their grade.