

26906 - Physics Laboratory Work

Syllabus Information

Academic year: 2023/24

Subject: 26906 - Physics Laboratory Work

Faculty / School: 100 - Facultad de Ciencias

Degree: 447 - Degree in Physics

ECTS: 6.0

Year: 1

Semester: Second semester

Subject type: Basic Education

Module:

1. General information

The objective of the subject is to introduce the student to experimental work and the scientific method. Likewise, the experiences to be carried out in the laboratory will serve to exemplify the concepts and laws studied in the Fundamentals of Physics subjects. The subject is included in a basic module. It is recommended to be taking or having taken the subjects "Fundamentals of Physics I" and "Fundamentals of Physics II".

General Objectives:

O1. Obtaining basic knowledge of Experimental Physics.

O2. Acquisition of the necessary skills in the manipulation of laboratory instruments for the measurement of physical quantities.

O3. Determination of errors, handling of units and processing of experimental data.

These approaches and objectives are aligned with the Sustainable Development Goals (SDGs) of the United Nations Agenda 2030 (<https://www.un.org/sustainabledevelopment/es/>), in such a way that the acquisition of the learning results of the subject will contribute to some extent to the achievement of SDG 4.

2. Learning results

The student, in order to pass this subject, must demonstrate the following results:

- Reports of the different experiments carried out in the laboratory.
- Clear exposition of the measurement process and results obtained from one of the experiences carried out.

3. Syllabus

Program of theoretical classes:

1. Error handling.

2. Statistical distributions.

3. Error propagation.

4. Least squares adjustments.

5. Spreadsheet management.

Practical program:

P1. Rigid solid.

P2. Vibratory motion.

P3. Mechanical properties.

P4. Thermal properties.

P5. Fluids.

P6. Electrical quantities.

P7. Electric and magnetic fields.

P8. Light and sound.

P9. Fundamental constants.

P10. Basic properties of light.

4. Academic activities

The subject consists of the following academic activities:

- Acquisition of fundamental knowledge: 10 classroom hours.
- Conducting laboratory experiments in small groups: 11 laboratory practices of 4 hours .
- Exhibition of the work done: Oral presentation of the report corresponding to one of the practices.
- Practice test: Practical test of 2 hours per student, and following a scheme equivalent to the development of a practice. It will take place during the final weeks of the term.
- Final exam of the subject It will be held on the date indicated by the Faculty of Sciences.

5. Assessment system

Option A. Continuous learning assessment.

This option consists of the evaluation of the student's work in the laboratory through the correction of the reports submitted for each of the laboratory sessions, the evaluation of the oral presentation and the realization of a final practical test in the laboratory. The evaluation of the reports contributes 50% to the overall grade , the oral presentation 10% and the practical test in the laboratory the other 40%. To pass the subject, the student must obtain a minimum grade of 3.0 in the practical test, since the opposite would mean that the competences have not been acquired in a homogeneous and global way.

Option B. Evaluation by means of a single theoretical-practical test.

In this option, the evaluation of the acquisition of competencies is carried out by means of a single theoretical-practical test in the laboratory, once the period of progressive evaluation has concluded. It is held on the dates established by the Faculty for this purpose.