

Physics

Academic Year: (2019 / 2020)

Review date: 29-04-2019

Department assigned to the subject: Physics Department

Coordinating teacher: BRIZ PACHECO, SUSANA

Type: Basic Core ECTS Credits : 6.0

Year : 1 Semester : 1

Branch of knowledge: Engineering and Architecture

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Physics and Mathematics at high school level.

Physics: fundamentals of kinematics, dynamics, electric and magnetic field

Mathematics: derivatives and integrals

OBJECTIVES

Acquire the knowledge of basic physical phenomena related with engineering.

Understanding the mathematical models involved in general physics.

Understanding and using the scientific method, and scientific language.

Development of reasoning strategies and techniques for analysing and solving problems (PO a).

Analysis and interpretation of experimental data (PO b.).

Dealing with laboratory instruments (PO b).

DESCRIPTION OF CONTENTS: PROGRAMME

Topics covered:

Particle kinematics. Particle dynamics. Coulomb's law. Electric field. Gauss law. Electric potential. Conductors.

Capacitors, dielectrics and field energy. Magnetic forces and magnetic field. Sources of the magnetic field. Magnetic materials. Faraday's induction law. Wave propagation. Acoustic and electromagnetic waves.

LEARNING ACTIVITIES AND METHODOLOGY

Lectures on the specific topics together with a simple guide for problem solving. Provide a theoretical background on physics. (3 ECTS).

Recitation classes, discussion of specific concepts previously addressed, and solving assigned problems. (3 ECTS).

Practical laboratory sessions, the pupils must carry out experimental measurements and analyse the results.

ASSESSMENT SYSTEM

In the laboratory, a report of each experiment should be submitted by the student, these reports together with the work performed and the attitude in the laboratory accounts for 15% of the final mark . Attendance to laboratory sessions and submission of reports by the due date is compulsory (PO b).

A regular evaluative process is conducted in the recitation classes through short exams, and exercises proposed during the class or for homework. This process accounts for 25% of the final mark. (PO a).

A final exam will be carried out accounting for 60 % of the final mark. In order to apply these percentages, the minimum grade of the final exam will be equal to or greater than 3.

% end-of-term-examination: 60**% of continuous assessment (assignments, laboratory, practicals...):** 40

BASIC BIBLIOGRAPHY

- Paul A. Tipler Physics for Scientists and engineers, Ed. W.A. Freeman and Company.
- Wolfgang Bauer, Gary D. Wesfall University Physics with Modern Physics, Ed. Mc Graw Hill.

