Physic I

Academic Year: (2023 / 2024) **Review date: 25/05/2023 14:45:43**

Department assigned to the subject: Physics Department

Coordinating teacher: GALIANA BLANCO, BEATRIZ

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)

It is recommended that students have a basic knowledge of Physics at the high school level.

OBJECTIVES

The goal of this course is that the student can understand the physical phenomena involved in Classical Mechanics and Thermodynamics.

In order to achieve this goal, the following competences and skills have to be acquired
- Ability to understand and know basic concepts of mechanics and thermodynamics.
- Ability to understand and use the mathematics involved in the physical models.
- Ability to understand and use the scientific method.
- Ability to develop skills to solve problems.
- Ability to use scientific instruments and analyze experimental data.
- Ability to retrieve and analyse information from different sources.

DESCRIPTION OF CONTENTS: PROGRAMME

1. Kinematics of a particle
2. Dynamics of a particle
3. Conservative and non-conservative forces. Work and energy.
4. Systems of particles
5. Kinematics of the Rigid Body
6. Dynamics of the Rigid Body
7. Introduction to Thermodynamics
8. First principle
9. Second principle
10. Entropy

LEARNING ACTIVITIES AND METHODOLOGY

THEORETICAL PRACTICAL CLASSES.
Knowledge and concepts students must acquire. Receive course notes and will have basic reference texts. Students partake in exercises to resolve practical problems.

TUTORING SESSIONS.
Individualized attendance (individual tutoring) or in-group (group tutoring) for students with a teacher. Subjects with 6 credits have 4 hours of tutoring/ 100% on- site attendance.

STUDENT INDIVIDUAL WORK OR GROUP WORK.
Subjects with 6 credits have 98 hours/0% on-site.

WORKSHOPS AND LABORATORY SESSIONS.
Subjects with 3 credits have 4 hours with 100% on-site instruction. Subjects with 6 credits have 8 hours/100% on-site instruction.

ASSESSMENT SYSTEM

% end-of-term-examination/test:	60
% of continuous assessment (assigments, laboratory, practicals…):	40

FINAL EXAM.
Global assessment of knowledge, skills and capacities acquired throughout the course. The percentage of the evaluation varies for each subject between 60% and 0%.

CONTINUOUS EVALUATION.
Assesses papers, projects, class presentations, debates, exercises, internships and workshops throughout the course. The percentage of the evaluation varies for each subject between 40% and 100% of the final grade.

BASIC BIBLIOGRAPHY

- Serway & Jewett Physics for Science and Engineering, Thomson.

- Tipler &Mosca Physics for Scientists and Engineers, MacMillan.

- Young & Freedman University Physics with modern Physics, Pearson.

ADDITIONAL BIBLIOGRAPHY

- Bedford & Fowler Engineering Mechanics: Statics & Dynamics, Pearson.

- Beer & Johnston Vector Mechanics for Engineers, McGraw-Hill.

- Cengel & Boles Thermodynamics: An Engineering Approach, McGraw-Hill.