

27102 - Physics

Información del Plan Docente

Academic Year	2016/17
Academic center	100 - Facultad de Ciencias
Degree	446 - Degree in Biotechnology
ECTS	9.0
Course	1
Period	Annual
Subject Type	Basic Education
Module	---

1. Basic info

1.1. Recommendations to take this course

1.2. Activities and key dates for the course

Para aquellos alumnos matriculados los lugares, horarios y fechas de clases teóricas y sesiones prácticas se harán públicos a través del TABLON DE ANUNCIOS DEL GRADO en la plataforma Moodle de la Universidad de Zaragoza <https://moodle2.unizar.es/add/> y en el moodle de la asignatura. Dichas vías serán también utilizadas para comunicar a los alumnos matriculados su distribución por grupos de prácticas que serán organizados desde la Coordinación del Grado.

Unas fechas provisionales se podrán consultar en la página web de la Facultad de Ciencias en la sección correspondiente del Grado en Biotecnología: <https://ciencias.unizar.es/grado-en-biotecnologia>.

En dicha web se podrán consultar también las fechas de exámenes en el apartado Grado en Biotecnología.

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

Scheduled Learning activities.

Formative Activity 1 : Acquisition of basic knowledge of Physics (6 ECTS).

Methodology:

participatory Lectures in large group.

Tutorials (small and / or individual groups).

Working with Web support

Reporting on topics proposed by the teacher, presentation and discussion in class.

Formative Activity 2 . Troubleshooting and analysis of case studies in small groups in the lab and / or classroom (3 ECTS)

Methodology:

Personal study.

Problem-based learning.

Working in the laboratory.

Prepare reports on laboratory work according to the model proposed by Professor

5.2.Learning activities

- Lectures
- Interactive classes on problems.
- Laboratory practical work in small groups.
- Personalized tutoring.

Support using the available resources in the space allocated to the subject in moodle.

It will serve as a repository of materials: presentations of topics, exercises, virtual laboratory, etc.

5.3.Program

Classical mechanics.

Dynamics of a particle. Newton's laws. Static.

Energy and work. Conservation theorems.

Forces of friction and drag. Elasticity.

Fluid Mechanics.

Statics of fluids. Ideal fluid dynamics. Real fluids.

Phenomena surface.

Statistical Mechanics.

Kinetic theory of gases.

Thermal equilibrium and temperature.

Thermodynamics.

Internal energy. Heat and work. First principle.

Entropy and second principle.

Thermal properties of matter.

Electromagnetism.

Electrostatics: field and potential.

Dielectrics and conductors.

Stationary electric current.

The static magnetic field.

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Electric and magnetic properties of matter.

Electromagnetic waves.

Optics.

Light propagation. Reflection and refraction.

Diffraction and interference phenomena.

Formation of the optical image. The eye.

The structure of matter.

The atom and atomic nucleus. Radioactivity. Radiation-matter interaction.

Biological effects of radiation. Dosimetry and radiation protection.

5.4.Planning and scheduling

Schedules of lectures and problems will coincide with the officially established and will be available at:

<https://ciencias.unizar.es/grado-en-biotecnologia> .

The places, calendar and groups for training and practical sessions will be established in coordination with the rest of matters at beginning of course. The Coordinator will produce the groups of students for these activities at beginning of course to avoid overlaps with other subjects.

Personalized tutoring: 1 hour / month per student in groups of 10 students at a time to be agreed with the teacher.

Calendar of submission: each proposal will appear in the moodle platform along with the date of delivery

5.5.Bibliography and recommended resources