

Academic Year/course: 2021/22

## 29807 - Physics II

### Syllabus Information

**Academic Year:** 2021/22

**Subject:** 29807 - Física II

**Faculty / School:** 110 - Escuela de Ingeniería y Arquitectura

326 - Escuela Universitaria Politécnica de Teruel

**Degree:** 440 - Bachelor's Degree in Electronic and Automatic Engineering

444 - Bachelor's Degree in Electronic and Automatic Engineering

**ECTS:** 6.0

**Year:** 1

**Semester:** 440-First semester o Second semester

107-Second semester

444-Second semester

**Subject Type:** Basic Education

**Module:**

## 1. General information

## 2. Learning goals

## 3. Assessment (1st and 2nd call)

## 4. Methodology, learning tasks, syllabus and resources

### 4.1. Methodological overview

The methodology followed in this course is oriented towards the achievement of the learning objectives. It is based on participation and the active role of the student favors the development of communication and decision-making skills. A wide range of teaching and learning tasks are implemented, such as lectures, assignments, computer lab sessions, autonomous work, and tutorials.

Students are expected to participate actively in the class throughout the semester.

Classroom materials will be available via Moodle. These include a repository of the lecture notes used in class, the course syllabus, as well as other course-specific learning materials, including a discussion forum.

Further information regarding the course will be provided on the first day of class.

### 4.2. Learning tasks

#### **CAMPUS RÍO EBRO (ZARAGOZA)**

This is a 6 ECTS course organized as follows:

##### **1.- Lectures** (43 hours - 1.72 ECTS)

This activity is planned to display the contents of the discipline illustrated with practical examples to facilitate the understanding and assimilation of the main concepts. Problem-solving tasks and illustrative examples will take place in the practice sessions with the cooperation of students. Students will be encouraged to solve some exercises proposed by the teacher prior to the lectures. This activity will take place on-site, in the classroom.

##### **2.- Laboratory sessions** (12 hours - 0.48 ECTS)

Laboratory sessions' scripts will be available for the students via Moodle. Scripts consist of a theoretical introduction and a description of the steps to follow during the lab activity. Reading the script previously to attend the laboratory

session is mandatory for the students. Writing a full report including the main results is recommended after completing the lab sessions.

### 3.- Assignments (8 hours - 0.32 ECTS)

Assignments can be:

- 1) Writing of the lab sessions' reports.
- 2) The professor will propose topics for individual or team works about different course parts. Students will be supervised during these tasks.

### 4.- Autonomous work (82 hours - 3.28 ECTS)

Students are expected to dedicate adequate efforts during the semester, for personal study, problem-solving tasks and writing lab sessions' reports.

### 5.- Assessment (5 hours - 0.20 ECTS)

The final exam will be scheduled at the end of the semester, but also the continuous assessment will constitute a learning tool for formative and summative alternative assessment during the term. In this way, students can check their learning outcomes during the progress of the course.

### 6.- Tutorials

Teachers' office hours will be available for the student to solve questions and discuss any doubts about course contents.

## CAMPUS DE TERUEL

### 1.- Lectures (45 hours) Attendance is optional.

The theoretical concepts and their application via exercises and cases will be explained by the lecturer. Students are encouraged to take part actively in the resolution of practical questions. In this way, they will assimilate the learning concepts building their own knowledge.

The concepts worked in these on-site sessions are aligned to the sections described in 4.3 Syllabus.

### 2.- Laboratory sessions (12 hours) Attendance is compulsory.

Students carry out experimental tasks following the information provided in the lab session instructions. It is very advisable to understand this information before attending the laboratory room. Every lab group must produce a report on the activity after the end of the session.

### 3.- Supervised projects (30 hours) Attendance is optional.

The teacher proposes a set of practical exercises that students must solve individually providing a reasoned report with the achieved results. The teacher allocates several classroom sessions to solve doubts about this task.

### 4.- Autonomous work (60 hours)

It is very important for the student to work in a continuous and independent way on the understanding of the theoretical concepts, the resolution of exercises and cases and the writing of the lab reports.

### 5.- Tutorials

The lecturer allocates a tutorial timetable. All the students can solve doubts related to the course at these specific hours.

### 6.- Assessment (3 hours) Attendance compulsory

Three hours are allocated to the final exam at the end of the semester. However, a continuous formative and summative assessment takes place during the whole term by means of the laboratory sessions and the supervised projects. In this way, students can check their learning during the progress of the course.

## 4.3. Syllabus

**The course will address the following topics:**

### ELECTROMAGNETISM

1. Electrostatic field.
2. Electrical current.
3. Static magnetic field.
4. Electromagnetic induction. Maxwell's equations.

### WAVES AND OPTICS

5. Waves in solids and fluids. Acoustics.
6. Electromagnetic waves.
7. Optics.

## 4.4. Course planning and calendar

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course will be provided on the first day of class or please refer to the website (<http://eina.unizar.es> or <http://eupt.unizar.es>).