

29807 - Physics II

Información del Plan Docente

Academic Year	2018/19
Subject	29807 - Physics 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	Half-yearly
Subject Type	Basic Education

Module

1.General information

1.1.Aims of the course

1.2.Context and importance of this course in the degree

1.3.Recommendations to take this course

2.Learning goals

2.1.Competences

2.2.Learning goals

2.3.Importance of learning goals

3.Assessment (1st and 2nd call)

3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

Subject's learning process is based on the following aspects:

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1. Masterclasses where the lecturer will explain the main theoretical concepts as well as will illustrate the application of the theoretical material via exercises and practical cases. Active students' participation is intended in this activity. In

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parallel, the students should spend self-study time in order to take advantage of the masterclasses.

2. Laboratory sessions will be scheduled during the semester. Lab sessions' assessment will contribute to the single overall mark. Lab sessions' groups will consist of two or three members.
3. Supervised projects where students will work in problem solving tasks or a practical question proposed by the professor and related with the concepts learned in the subject.
4. Self-study time, learning the subject as well as performing problem solving tasks. This activity is essential for the student's learning process as well as to have success to pass the subject.

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- Classroom sessions where the lecturer explains the main theoretical concepts and will illustrate the application of this theoretical material via exercises and cases. Active students' participation is intended.
- Laboratory sessions every two weeks. Students form groups of two or three members to solve a set of experimental tasks. The assessment of this activity will contribute to the final mark.
- Supervised projects. Students must solve a set of exercises or practical questions related with the concepts learned.
- Student personal work essential to achieve significant learning and to have success with all the assessment activities proposed.

4.2.Learning tasks

The planned subject's learning activities are listed as follows:

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1.- Masterclasses T1 (43 hours) (classroom activity)

This activity is intended to present the basics of the discipline illustrated with practical examples in order to facilitate the understanding and assimilation of the concepts. Problem solving tasks and illustrative examples will take place in the practical sessions with the cooperation of students. Students will be encouraged to solve prior to the masterclasses some problems proposed by the professor. This activity will take place on-site in the classical classroom.

2.- Laboratory sessions T3 (12 hours) (classroom activity)

Laboratory sessions' scripts will be available for the students in the ADD. Scripts consist of a theoretical introduction and the steps to perform during the lab activity. Reading the script prior to attend to the laboratory session is a must for the student. Writing a full report including the main result is recommended after completing the lab sessions.

3.- Supervised projects T6 (8 hours) (non-classroom activity)

This task could be:

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

4.- Study T7 (82 hours) (non-classroom activity)

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It is of importance for the student to devote constant efforts, during the semester, for personal study, problem-solving tasks and writing lab sessions' reports.

5.- **Assesment T8** (5 hours) (classroom activity)

The overall assessment is planned at the end of the semester, but the continuous assessment will be a learning tool for formative and summative assessment during the semester. In this way, students can check their learning during the progress of the course.

6.- **Tutoring**

The professor's tutoring timetable will be available for the student to ask question about the subject.

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1.- **Classrooms sessions** (45 hours) Attendance is optional.

The theoretical concepts and their application via exercises and cases are 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 upon this in-face sessions are aligned to the thematic blocks described in 5.3 Program.

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 to 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 solved individually providing a reasoned report with the achieved results. The teacher allocates several classroom sessions to solve doubts about this task.

4.- **Personal work** (60 hours) Non-presential

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**

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The lecturer allocates a tutorial timetable. All the students can solve doubts related to the subject 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 sumative assessment takes place during the whole semester 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 syllabus for proposed to achieve the learning results is listed as follows:

ELECTROMAGNETISM

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

WAVES

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

4.4.Course planning and calendar

Schedule for on-site sessions and reports' deadline.

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Schedule for the masterclasses, problem-solving sessions and laboratory sessions will be planned by the university center and will be published in the center's website. The remainder activities will be planned depending on the amount of students and the schedule will be provided in advance.

The professor will inform about the tutoring timetable.

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The schedule of lectures, practice sessions and laboratory sessions is decided upon by the university centre and will be published before the beginning of the course (<http://eupt.unizar.es/>).

Every teacher will inform about his/her tutorial timetable.

4.5. Bibliography and recommended resources