

## 68526 - Discipline content for Physics

### Información del Plan Docente

<b>Academic Year</b>	2016/17
<b>Academic center</b>	107 - Facultad de Educación
<b>Degree</b>	415 - Master's in Teacher Training for Obligatory Secondary Education, Sixth Form, Professional Training and Language, Arts and Sports Teaching 360 - University Master's in Secondary School Teaching: Physics and Chemistry
<b>ECTS</b>	4.0
<b>Course</b>	---
<b>Period</b>	Indeterminate
<b>Subject Type</b>	Optional, Compulsory
<b>Module</b>	---

### 1. Basic info

#### 1.1. Recommendations to take this course

#### 1.2. Activities and key dates for the course

### 2. Initiation

#### 2.1. Learning outcomes that define the subject

In order to pass the course, student should be able to:

1. Apply the basic physical concepts with a global and phenomenological perspective with a focused didactic treatment for a secondary education level.
2. Identify the structure and levels of matter and to identify basic forces working at the nuclear, atomic-molecular and cosmic contexts.
3. Identify the physical events working in the natural environment analyzing them and the exchanges of energy in the processes.
4. Apply physical concepts to solving problems of the contemporary world looking for the implications in the social and technological field.
5. Identify different agents making and orienting activities and expositions for learning physical concepts as a complement to the school and evaluate how these actions work with the curricular contents.

#### 2.2. Introduction

Physicist disciplinary contents is thought for the science students whose degree is different from a Physicist degree and his goal is to complete the physicist knowledges helping students in the teaching processes of physicist subjects in Secondary Education.

Sessions will be presence-based modality composing by the next activities:

## **68526 - Discipline content for Physics**

- Teacher showing representative physical events of contents for every teaching unit.
- Group work analyze in order to identify the main physical principles to apply.
- Individual search of internet materials about physical foundations, interactive and audio-video resources.
- Common setting of materials
- Developing learning portfolio
- Students presentations

The first sessions it will be dedicated to:

- Presentation of the subject and the teaching guide
- Analyze formation of the students (previous formation, physicist knowledge, motivations, etc.)

The next sessions it will be useful to confront necessities of students with the different area of physics contents. Students will develop a presentation around a topic of physics contents.

### **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**

#### **5.2.Learning activities**

#### **5.3.Program**

The subject is divided in seven blocks around the most important areas of the physics. The aim is not to introduce students in every physics topic but to improve some questions and especially developing a science technology and society perspective from some relevant physics questions attending every theme. The majority of these themes it will be presented in relation to the contemporary research, the human culture and another disciplinary areas.

1. Matter and Universe.
2. Optics.
3. Classical Mechanics.
4. Mechanics of fluids.
5. Waves.
6. Thermodynamics.
7. Electromagnetism

## **68526 - Discipline content for Physics**

### **5.4.Planning and scheduling**

### **5.5.Bibliography and recommended resources**