

## 26946 - Dosimetry and Radioprotection

### Syllabus Information

**Academic year:** 2023/24

**Subject:** 26946 - Dosimetry and Radioprotection

**Faculty / School:** 100 - Facultad de Ciencias

**Degree:** 447 - Degree in Physics

**ECTS:** 5.0

**Year:**

**Semester:** First semester

**Subject type:** Optional

**Module:**

### 1. General information

The subject explains the basic knowledge of ionizing radiation dosimetry, the operational techniques of radiation protection and its applications in hospital radio physics, radiation monitoring and industry.

The objectives of the subject are aligned with some Sustainable Development Goals (SDGs) of the Agenda 2030 of United Nations (<https://www.un.org/sustainabledevelopment/es/>), so that the acquisition of the learning results of the subject contributes to some extent to:

- Goal 3: Health and wellness.
- Goal 4: Quality Education.

### 2. Learning results

- To understand the different types of ionizing radiation and to understand the main mechanisms of their interactions with matter.
- To know the fundamental magnitudes of radiation dosimetry, the specific instrumentation used in dosimetry and the physical and biological effects of ionizing radiation.
- To know the physical fundamentals of diagnosis and therapy with ionizing radiation.
- To apply the current legislation on radiation and radiation protection techniques to different radiation protection situations.

### 3. Syllabus

1. Interaction of photons with matter
2. Interaction of charged particles with matter
3. Radiation dosimetry
4. Biological effects of radiation
5. Radioprotection and exposure limits
6. Protection against external radiation

### 4. Academic activities

**The subject consists of 5 ECTS organized as follows:**

- Theory classes: 30 hours
- Problem classes: 10 hours
- Laboratory practices: 10 hours
- Assessment tests. 2 hours
- Personal study. 73 hours

## 5. Assessment system

- Evaluation of laboratory reports (note L). Writing of the reports of the practical laboratory sessions (including introduction, methodology and results) and its delivery on the established dates. In this activity the student can achieve up to 10 points. Reports not submitted by the deadline will be graded with 0 points.
- Evaluation of the resolution of proposed works or practical exercises (T grade), which will be presented during the class schedule. In this activity the student can achieve up to 10 points.
- Theoretical-practical test (grade P) on the date established in the academic calendar. In this activity the student can achieve up to 10 points.

Students whose L grade is lower than 5 points will also have to take a practical test in the laboratory. The final grade will be the highest of

$$N1 = 0.25 * L + 0.15 * T + 0.60 * P \text{ or } N2 = 0.25 * L + 0.75 * P$$

and must be greater than or equal to 5 points to pass the subject.