

## 60028 - Optics in the industrial environment

### Syllabus Information

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**Academic year:** 2023/24

**Subject:** 60028 - Optics in the industrial environment

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

**Degree:** 538 - Master's in Physics and Physical Technologies  
589 - Master's in Physics and Physical Technologies

**ECTS:** 5.0

**Year:** 1

**Semester:** First semester

**Subject type:** Optional

**Module:**

### 1. General information

The main objective of this subject is to train the student in the main applications offered by the field of Optics in our nearest productive industrial environment. More specifically, the production process (design, manufacture and characterization) of ophthalmic lenses and/or optical measuring instruments will be addressed in detail, with special emphasis on the optical design stage of the product.

The student will also have the opportunity to work with a set of tools for the fabrication, analytical design and characterization of thin film coatings for the improvement of the optical properties of different optical substrates that are being widely applied in many technological sectors.

These approaches and objectives are aligned with the following Sustainable Development Goals (SDGs) of the United Nations Agenda 2030 (<https://www.un.org/sustainabledevelopment/es/>), so that the acquisition of the learning results of the subject provides training and competence to contribute to some extent to their achievement:

SDG 3 Health and well-being.

SDG 7 Affordable and clean energy.

SDG 9 Industry, innovation and infrastructure.

### 2. Learning results

- To apply physical techniques in the development of multilayers for architectural glass.
- To apply physical techniques in the solar thermal and photovoltaic industry.
- To apply instrumentation and measurement techniques in the industrial environment related to coatings.

### 3. Syllabus

1. The application of optics in the industrial environment.
2. The ophthalmic lens industry.
3. Ophthalmic lens design.
4. Optical coatings in architecture.
5. Physics in the solar thermal and photovoltaic industry.
6. Optical instrumentation and industrial measurement. Regulations.

### 4. Academic activities

- Participative lectures and analysis of practical cases (4 ECTS).
- Participatory seminars or field visits dedicated to different industrial activities (1 ECTS). Experts in the field will be invited to the subject.

### 5. Assessment system

Continuous assessment of the student's learning through the solving of problems, questions and other activities proposed by the

teachers: 30% of the total grade.

Completion of at least one theoretical-practical test during the subject: 70% of the total grade. This test will consist of the writing of a report on a topic proposed in the subject. During the test the student will be allowed access to the available documentation.

Passing the subject by means of a single global test:

The subject is designed for continuous work, and therefore makes use of seminars, field visits and case studies. However, a single test will be offered at the end of the subject for those students who have not been able to attend classes or who have not passed the subject through the assessment activities described above.

This single written test will consist of a report on a topic proposed in the subject. During the test the student will be allowed access to the available documentation.