

## 26806 - Optical Technology I

### Syllabus Information

**Academic year:** 2023/24

**Subject:** 26806 - Optical Technology I

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

**Degree:** 297 - Degree in Optics and Optometry

**ECTS:** 6.0

**Year:** 1

**Semester:** Second semester

**Subject type:** Compulsory

**Module:**

### 1. General information

The general objective of this subject is that the student can develop in an organized way in an optical workshop and be able to produce prescription glasses with monofocal lenses and full rim frames as it is done in an optical center. The approaches and objectives are aligned with the following Sustainable Development Goals (SDGs) of the United Nations Agenda 2030 <https://www.un.org/sustainabledevelopment/es/> : Goal 3: Health and wellness; Goal 4: Quality education, Goal 12: responsible production and consumption.

### 2. Learning results

In order to pass this subject, the students shall demonstrate they has acquired the following results:

- Recognize and handle with dexterity the different workshop utensils as well as maintain order and cleanliness in the laboratory during the practices.
- Demonstrate basic knowledge in the recognition of ophthalmic lenses as well as their treatments, properties and indications.
- Calculate the most relevant geometrical, optical and physical parameters that characterize monofocal ophthalmic lenses Distinguish the physical properties of the materials used in ophthalmic lenses.
- Be able to mount single vision lenses in full rim frames according to a given prescription with any type of bezel any type of bevel.
- Know how to accurately calculate interpupillary, nasopupillary distances and pupil height for a given patient and frame
- Give the correct pricing for single vision lenses according to commercially available market rates.

### 3. Syllabus

- Identification of spherical and astigmatic lenses. Optical materials and treatments.
- Handling of the frontophocometer: power of spherical and astigmatic lenses. Marking of astigmatic lenses. Calculation of spherocylindrical formulas.
- Handling of the spherometer, thickness and sagimeter. Boxing System. Prismatic effect of a lens.
- Adjustment of frames. Heights and distances and naso-pupillary.
- Introduction to the pricing of single vision lenses. Handling of rates with supplements.
- Handling of the manual beveller, centering machine and automatic beveller. Manual bevelling.
- Assembly of metal and acetate glasses. Manual retouching.
- Creation of a talc by means of digital tracing. Glass recycling.
- Bevels: percentage, parallel to external face and manual.

### 4. Academic activities

The theoretical part (1.2 ECTS) consists of 12 hours of lectures and the practical part (4.8 ECTS) consists of 12 sessions throughout the first four-month period of 4 hours duration in small groups of students. In each session the student will carry out the programmed activities guided by the teacher by filling in the programmed practice form. The following will be carried out knowledge questionnaires via Moodle during the practical sessions and at home to monitor their progress in the contents

## 5. Assessment system

**Option A.** Regular attendance to the practices is a prerequisite for this evaluation modality (2 excused absences ). Practical part (4/5 of the final grade), which will be calculated:

- Elaboration and delivery of the proposed questionnaires via Moodle: 10% of the practices grade.
- Practical exam I (practice 5): 20 %.
- Practical exam II (practice 9): 20 %.
- Practical exam III (practice 12): 50%.

The theoretical part (1/5 of the final grade): written exam with problems and questions. For this type of evaluation, it is necessary to obtain a minimum grade of 5 out of 10 in the theoretical exam and a grade of 5 out of 10 in the final practical exam.

**Option B.** This evaluation modality will be applied when regular attendance to the laboratory practices is not possible or the subject has not been passed by means of option A. Practical part (4/5 of the final grade): Final practical exam in June.

Theoretical part (1/5 of the final grade): Written examination.