

26806 - Optical Technology I

Syllabus Information

Academic year: 2024/25

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 main objective of the subject is for the student to be able to mount full-frame single vision lenses both metallic and paste (or hybrid) for any optometric prescription.

To do this, it is necessary to acquire skills in organized management in an optics workshop and be able to handle the technical tariff documents that connect the refraction cabinet, the assembly workshop and the commercial lens manufacturing houses.

2. Learning results

In order to pass this subject, the students shall demonstrate they have 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:

- Practical exam I (practice 5): 20 %.
- Practical exam II (practice 9): 30 %.
- 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.

6. Sustainable Development Goals

3 - Good Health & Well-Being

4 - Quality Education

12 - Responsible Production and Consumption