Universidad Zaragoza

Academic Year/course: 2024/25

26818 - Optical Technology II

Syllabus Information

Academic year: 2024/25
Subject: 26818 - Optical Technology II
Faculty / School: 100 - Facultad de Ciencias
Degree: 297 - Degree in Optics and Optometry
ECTS: 6.0
Year: 3
Semester: First semester
Subject type: Compulsory
Module:

1. General information

This is a continuation of Optical Technology I concerning optical workshop work for the assembly of eyeglasses. In it , the student will solve optometric or clinical problems that they will face in their professional life . The general objective is for the student to know how to work in an optical workshop by measuring and assembling bifocal and multifocal lenses in grooved, air and full rim lenses, handling of optical-optometric market prices , solving practical cases and prism problems.

It is recommended to have taken: Optical Technology I, Visual Optics I, Visual Optics II, Optical Instruments and optometric, Optometry I and Optometry II.

2. Learning results

2.1. Competencies

- To know and measure the most relevant geometrical, optical and physical parameters that characterize bifocal and multifocal ophthalmic lenses
- To know the physical properties of the materials used in glasses lens adaptation.
- To master the techniques of adaptation, assembly and manipulation of all types of lenses for all types of glasses.
- To price and differentiate the offer of lenses from the main companies in the market.
- To decide the most suitable type of centration for monofocal lenses according to conditions of use and the patient's binocular vision characteristics.
- To be able to maintain order during the work in an optical workshop.

2.2. Learning Results

- Perform with cleanliness and precision the assembly of any type of ophthalmic lens on any spectacle according to the prescription.
- To accurately calculate the price of a lens according to prescription and manufacturer.
- Proper selection of the ideal lens and spectacle for a given patient and use.
- Accurately measure the position and orientation of spectacle-mounted lenses.
- Correctly determine the most appropriate lens centration for the patient's binocular conditions
- Know how to select the best type of multifocal lens for each case.

2.3. Importance of learning results

This subject enables the student to work in an optical workshop, for the performance of their duties as an optician within a work group and are necessary as a basis for later subjects in the degree.

3. Syllabus

The subject consists of:

- Large group participatory lectures and seminars.

- Practices in the optical technology workshop in a small group.
- Individual exercises and quizzes via Moodle.
- Individualized tutorials or specific guided work.

Distribution of ECTS of the theoretical and practical part:

- 1 ECTS. The theoretical part consists of 12 lecture hours in which the theoretical foundations necessary for the practices carried out in the laboratory will be explained..
- 5 ECTS. The practical part is divided into 12 sessions of 4 hours per week in the first semester. Weekly exercise submissions via Moodle will be scheduled and must be submitted in the format and by the deadline indicated.

4. Academic activities

Theoretical classes

- Topic 1. Review of monofocal lenses.
- Topic 2. Ophthalmic prisms and prismatic effect.
- Topic 3. Bifocal lenses.
- Topic 4. Progressive lenses.
- Topic 5. Adaptation of monofocal lenses.

PRACTICES

- Practice 1. Frontophocometer review and measurement of spherical and spherocylindrical lenses. Mounting of single vision lenses in full metal rim frames.
- Practice 2. Mounting of single vision lenses in full metal and plastic rim frames. Prices of ophthalmic lenses.
- Practice 3: Vertex distance, facial and patoscopic angle measurements. Frames adjustement. Generation of prismatic decentration in single vision lenses.
- Practice 4. Bifocal and progressive lens assembly in a full rim spectacle. Prices of ophthalmic lenses.
- Practice 5. Assembly of bifocal and progressive lenses in manual slit spectacles. Prices of ophthalmic lenses..
- Practice 6. Test.
- Practice 7. Measurement and assembly of bifocal and progressive in automatic slotted glasses. Change of nylon, nose pads and adjustment of frames.
- Practice 8. Silhouette type rimless glasses assembly. Manual and automatic drilling and progressive/bifocal frame adjustment.
- Practice 9. Silhouette type rimless glasses assembly. Prismatic effects distributed between both single vision lenses.
- Practice 10. General review.
- Practice 11. Test.
- Practice 12. Simulation and ordering of lenses through a commercial platform for a given frame and patient.

The teaching and evaluation activities will be carried out face-to-face, unless, due to the health situation, the provisions issued by the competent authorities and by the University of Zaragoza require them to be to be carried out telematically or semi-telematically with rotating reduced seating capacity.

5. Assessment system

Option A.

Regular attendance to practices is a prerequisite for this evaluation modality.

- Practical part (5/6 of the final grade).

  - Seminars, workshop and computer practical exams: 90%
    * Midterm exam 25%
    * Final exam 65%
  - Questionnaires, rates, on-line ordering and self-assessment exercises: 10%

- It is mandatory to get a 4 in both practical exams to average with the rest of the practical grades
- A maximum of 2 practices may be missed in order to go on with the continuous evaluation.

- Theoretical part (1/6 of the final grade).

  - Final written exam: 60%
  - Questionnaires and exercises.
    * Questionnaire 1: 20%
    * Questionnaire 2: 20%
  - A 4 in the quizzes and in the theoretical exam is mandatory to average.

It is ESSENTIAL to achieve a four or a higher grade in both parts to be able to average the grade of the subject.

Option B.

This evaluation modality will be applied when regular attendance to the laboratory practices is not possible.

- Final practical exam (5/6 of the final grade).
- Theoretical exam (1/6 of the final grade).

It is ESSENTIAL to have a four or higher in both parts to be able to average the grade of the subject.

6. Sustainable Development Goals

3 - Good Health & Well-Being
4 - Quality Education
5 - Gender Equality