

## 26820 - Optical Technology III

### Información del Plan Docente

Academic Year	2016/17
Academic center	100 - Facultad de Ciencias
Degree	297 - Degree in Optics and Optometry
ECTS	6.0
Course	4
Period	First semester
Subject Type	Compulsory
Module	---

### 1. Basic info

#### 1.1. Recommendations to take this course

#### 1.2. Activities and key dates for the course

### 2. Initiation

#### 2.1. Learning outcomes that define the subject

#### 2.2. Introduction

### 3. Context and competences

#### 3.1. Goals

#### 3.2. Context and meaning of the subject in the degree

#### 3.3. Competences

#### 3.4. Importance of learning outcomes

### 4. Evaluation

### 5. Activities and resources

#### 5.1. General methodological presentation

Theoretical sessions consist mainly in participatory lectures, both theoretical and practical problems or cases in which student participation is encouraged.

The practical sessions with real cases, consist of carrying out roles of a process of evaluation, prescription, ordering, assembly and follow-up of at least two cases with real patient.

## 26820 - Optical Technology III

The computer practice sessions will consist of individual practical simulation with ray tracing programs.

Continuous learning will be stimulated by tasks proposed sessions both theory and practice, the students will hand through the moodle platform.

### 5.2.Learning activities

1. Prescription, mounting and monitoring of a refractive compensation (1 ECTS)

Methodology: individual practices with rotating allocation of roles.

2. Learning real ray tracing software in eye lens systems. (2.5 ECTS)

Methodology: 1. Individual guided practices. 2. Exercises.

3. Knowledge acquisition for characterization, design and prescription of ophthalmic lenses in glasses. (1.5 ECTS)

Methodology: large group lectures.

4. Contacting with ophthalmic industry professionals (0.5 ECTS)

Methodology: Seminars and visits the ophthalmic industry factories.

5. Knowledge acquisition on ophthalmic lenses market (0.5 ECTS).

Methodology: 1 Lectures 2. Exercises by ADD 3. Development of group work, defense and debate.

### 5.3.Program

Theoretical contents:

- 1: Review of paraxial approximation, surfaces and aberrations.

- 2: Design of lenses with spherical surfaces

## 26820 - Optical Technology III

3: Design of lenses with aspheric surfaces

4: Design of astigmatic lenses

5: Design of progressive lenses

6: Free-form

7: Commercial ophthalmic lenses

8: Commercial progressive lenses

### PRACTICES:

#### Raytracing (OSLO):

- Program OSLO raytracing to design of ophthalmic lenses
- Analysis of image quality (spot diagram, Zernike coefficients, chromatic aberration)
- Analysis of the performance of ophthalmic lenses decentered and tilted
- Analysis of the performance of ophthalmic lens at oblique gaze

#### Practices with patients:

- Patients subjective refraction
- Election of ophthalmic compensation and mounting conditions
- Lenses order
- Assembly Compensation
- Compensation testing

## 5.4.Planning and scheduling

### Schedule sessions and presentation of works

## 26820 - Optical Technology III

The calendar of classroom sessions is set by the Faculty of Science.

The date of realization of each of the lab sessions will be published at the beginning of the school year by the Grade Coordinator and can be consulted by enrolled students in the web of the subject.

### 5.5. Bibliography and recommended resources

**BB** Jalie, Mo. Ophthalmic lenses & dispensing / Mo Jalie. 2nd ed. Edinburgh : Butterworth-Heinemann, 2003

**BB** Jalie, Mo. Ophthalmic lenses and dispensing / Mo Jalie . 3rd ed. Edinburgh, [etc] : Butterworth-Heinemann, 2008