

## 26806 - Optical Technology I

### Syllabus Information

**Academic Year:** 2020/21

**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

#### 1.1.Aims of the course

#### 1.2.Context and importance of this course in the degree

#### 1.3.Recommendations to take this course

### 2.Learning goals

#### 2.1.Competences

#### 2.2.Learning goals

#### 2.3.Importance of learning goals

### 3.Assessment (1st and 2nd call)

#### 3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

### 4.Methodology, learning tasks, syllabus and resources

#### 4.1.Methodological overview

The learning process that is designed for this subject is based on the following:

- Lectures in large group
- Individual practices
- Individual self-assessment work through the ADD
- Individual tutorials- Rotating small groups to arrange the workshop

#### 4.2.Learning tasks

1. basic understanding of lenses an frames. (1 ECTS)

1.Participatory lectures in large group.

2.Individual tutorials

3.Individual laboratory practices.

2. Non-refractive characterization of ophthalmic lenses. (0.2 ECTS)

1. Laboratory practices in small groups.

3. Lens mounting in full ring frames. (2.5 ECTS)

1. Peer learning.
2. Laboratory practices in large groups.

4. Tidying and inventory carrying tooling workshop (0.1 ECTS)

1. Laboratory practices in large groups
2. Individual laboratory practices.

5. Refractive characterization of ophthalmic lenses. (1.2 ECTS)

1. Performing self-assessment exercises via ADD.
2. Individual laboratory practices.

6. Market introduction to ophthalmic lenses and management books rates. (1 ECTS)

1. Performing self-assessment exercises via ADD.
2. Creation and resolution of possible test questions.
3. Laboratory practices in large groups.

### 4.3.Syllabus

#### THEORETICAL CONTENTS:

1. Classification of ophthalmic lenses.
2. Properties of ophthalmic lenses.
3. Spherical, aspherical and astigmatic lenses.
4. Manufacturing of lenses.
5. Manufacturing of frames.
6. Basics of adaptation of ophthalmic lenses.

#### PRACTICES:

Practice I: Inventory. Identification of positive and negative lenses. Identification of materials and treatments. Introduction to management lensometry. Spherical and cylindrical lenses measurement.

Practice II: Management of lensometry (II): astigmatic lenses, lens marking and measurement. Sphero-cylinder calculation. Spherometer, Boxing system.

Practice III: Lensometry management (III): astigmatic lenses. Measurement of mounted glasses. Adjusting frames interpupillary distances and nasopupillares height

Practice IV: Review lensometry management: astigmatic lenses, lens marking, measurement of mounted lenses. Measurement of prismatic effects. Lens manual retouching. Management fees.

Practice V: Control test I (parities I-III).

Practice VI: Introduction to automatic chamfering. Management fees: Introduction to supplements.

Practice VII: Mounting glasses with bezel parallel to the outer face and proportional. Catalog and fees management.

Practice VIII: Mounting glasses: acetate and metal. Manual bezel for curved lenses. Catalog and fees management.

Practice IX: Control test II (practices VI-VIII).

Practice X: Choosing the best mount. Different mounting bezels: percentage, parallel to anterior face and manual. Catalog and fees management.

Practice XI: Mounting different bezels: percentage, parallel to anterior face and manual. Catalog and fees management.

Practice XII: Final Exam.

#### 4.4. Course planning and calendar

##### Schedule sessions and presentation of works

1.2 ECTS. The theoretical part consists of 12 one-hour lectures distributed during the first weeks of the second quarter. The calendar of classroom sessions will be set by the Faculty of Science.

4.8 ECTS. The practical part at the laboratory workshop is divided into 12 sessions of four hours per week in the second quarter. Each practice has associated assessment work in the environment of ADD that students must perform before the next session in the laboratory.

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.

#### 4.5. Bibliography and recommended resources

- BB** Borish's clinical refraction / editor, William J. Benjamin ; consultant, Irvin M. Borish. - 2nd ed. St. Louis : Butterworth I cop. 2006
- BB** Brooks, Clifford W.. Essentials of ophthalmic lens finishing / Clifford W. Brooks . - 2nd ed. St. Louis, Missouri : Butter cop. 2003
- BB** Brooks, Clifford W.. System for ophthalmic dispensing / Clifford W. Brooks, Irvin M. Borish . - 3rd ed. St. Louis : Butte cop. 2007
- BB** Jalie, Mo. Ophthalmic lenses & dispensing / Mo Jalie. - 2nd ed. Edinburgh : Butterworth-Heinemann, 2003
- BB** Montés-Micó, Robert. Optometría : principios básicos y aplicación clínica / Robert Montés-Micó Barcelona : Elsevier
- BB** Tecnología óptica : lentes oftálmicas, diseño y adaptación / Jesús Caum Aregay ... [et al.] . - 1ª ed. Politecnos Barce 2001