Universidad Zaragoza

Year : 2019/20

26820 - Optical Technology III

Syllabus Information

Academic Year: 2019/20
Subject: 26820 - Optical Technology III
Faculty / School: 100 - Facultad de Ciencias
Degree: 297 - Degree in Optics and Optometry
ECTS: 6.0
Year: 4
Semester: First 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

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.

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.

4.2.Learning tasks

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.

4.3.Syllabus

Theoretical contents:

1: Review of paraxial approximation, surfaces and aberrations.
2: Design of lenses with spherical surfaces
3: Design of lenses with aspheric surfaces
4: Design of astigmatic lenses
5: Design of progressive lenses
6: Free-form
7: Commercial ophtalmic 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

4.4.Course planning and calendar

Schedule sessions and presentation of works

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.

4.5.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