Course guide
370049 - CIRREFR - Refractive Surgery

Last modified: 29/05/2025

Unit in charge: Terrassa School of Optics and Optometry
Teaching unit: 731 - OO - Department of Optics and Optometry.

Degree: BACHELOR'S DEGREE IN OPTICS AND OPTOMETRY (Syllabus 2020). (Optional subject).

Academic year: 2025 **ECTS Credits:** 3.0 **Languages:** Catalan

LECTURER

Coordinating lecturer: MIKEL ALDABA AREVALO
https://futur.upc.edu/MikelAldabaArevalo/o/YWN0aXZpdHlfY2FfcGVyc29uc19zb3J0IGRlc2M=

Others: Aldaba Arevalo, Mikel

TEACHING METHODOLOGY

MD1 - Participatory expository class of theoretical and practical contents
MD3 - Practical resolution class, with the participation of students, of practical cases and/or exercises related to the contents of the subject.
MD4 - Laboratory practices
MD5 - Reading teaching material, texts and articles related to the contents of the subject
MD6 - Completion of problems, exercises, assignments and resolution of doubts through the Atenea virtual campus
MD7 - Tutorials

LEARNING OBJECTIVES OF THE SUBJECT

Refractive surgery is one of the most common surgical interventions in ophthalmology. The objective of this type of surgery is to seek the correction of patients' refractive errors through treatments that modify the corneal surface or through the implantation of intraocular lenses or other implants. In these interventions, the clinical optometrist plays an important role, participating in pre-operative examinations, providing assistance during surgery in the operating room and taking charge of postoperative tests.

The general objective of this subject is to describe the fundamentals of refractive surgery. More specifically, the specific learning objectives of the subject include:
- Know the general concepts about refractive surgery and its history.
- The study of the different refractive surgery techniques.
- The selection of the technique depending on the patient.
- Know the pre- and post-operative clinical examination and post-operative complications.

STUDY LOAD

Type	Hours	Percentage
Self study	45,0	60.00
Hours medium group	22,5	30.00
Hours small group	7,5	10.00

Total learning time: 75 h

CONTENTS

1. Options for the correction of refractive error: refractive surgery.

Description:
Refractive error Emmetropization and refractive changes with age. Refractive error compensation and correction options. Introduction to refractive surgery.

Full-or-part-time: 9h
Practical classes: 3h
Self study : 6h

2. Types of refractive surgeries. Corneal incisional surgery.

Description:
Corneals. Incisional: Description, advantages and disadvantages.

Full-or-part-time: 9h
Practical classes: 3h
Self study : 6h

3. Types of refractive surgeries. Corneal surface ablational surgery.

Description:
Corneal surface ablational surgery: Description, advantages and disadvantages.

Full-or-part-time: 9h
Practical classes: 3h
Self study : 6h

4. Types of refractive surgeries. Corneal estromal ablational surgery.

Description:
Corneal estromal ablational surgery: Description, advantages and disadvantages.

Full-or-part-time: 14h
Practical classes: 4h
Laboratory classes: 2h
Self study : 8h

5. Types of refractive surgeries. Corneal surgery, other options.

Description:
Corneal surgery, others: Description, advantages and disadvantages.

Full-or-part-time: 9h
Practical classes: 3h
Self study : 6h

6. Intraocular lenses.

Description:
Intraocular lenses: Description, advantages and disadvantages.

Full-or-part-time: 11h
Practical classes: 3h
Laboratory classes: 2h
Self study : 6h

7. Clinical examination.

Description:
Pre-operative: Diagnostic tests; Patiente selection; Selection of type of surgery: técnica, treatment, suitable ablation profile. Post-operative and follow-up: Diagnostic tests; Complications of refractive surgery. Postoperative clinical decisiones: retouching, biopsias and cataract surgery post-refractive surgery.

Full-or-part-time: 14h
Practical classes: 3h 30m
Laboratory classes: 3h 30m
Self study : 7h

ACTIVITIES

Laboratory practice

Description:
Pre- and post-operative clinical examination. Tests may include: Preoperative analysis of refractive status, biometry, topography, pachymetry, pupillometry and aberrometry. Post-operative clinical examination, complications and post-operative clinical decisions: touch-up, bioptics and cataract surgery post-refractive surgery.

Full-or-part-time: 4h
Laboratory classes: 4h

Group work

Description:
Work in small groups or in pairs. Preparation and presentation of a paper on a topic of the subject.

Full-or-part-time: 3h 30m
Laboratory classes: 3h 30m

GRADING SYSTEM

Lab reports: 30%
Work: 20%
Written exam: 50%

The attendance to practical sessions is mandatory

EXAMINATION RULES.

Re-evaluation: The re-evaluation will be carried out following the Regulations approved by the Permanent Commission. The reassessment will be a single exam that will include the entire subject, including the practice sessions.
https://foot.upc.edu/ca/curs-actual/tramits-administratius/REAVALUACIALGRAUpla2020CPFEB211.pdf

Minimum marks required to re-evaluation: 3.5.

BIBLIOGRAPHY

Basic:

- Azar, D.T.; Gatinel, D.; Ghanem, R.C. Cirugía refractiva. 3r ed. Barcelona: Elsevier, 2020. ISBN 9788491137269.
- Rapuano, C. J. Cirugía refractiva. Barcelona: Elsevier, cop. 2009. ISBN 9788480863629.
- García Montero, María. Cirugía refractiva: protocolo de exploración de visión binocular y acomodación. Barcelona: Elsevier, 2021. ISBN 9788491138327.