Course guide
370805 - TECDIAG - (Ang) Tècniques Diagnòstiques en Salut Ocular

Last modified: 25/06/2025

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

Degree: MASTER'S DEGREE IN OPTOMETRY AND VISION SCIENCES (Syllabus 2022). (Compulsory subject).

Academic year: 2025 **ECTS Credits:** 3.5 **Languages:** Catalan, Spanish, English

LECTURER

Coordinating lecturer: Millán García-Varela, María Sagrario. https://futur.upc.edu/MariaSagrarioMillanGarciaVarela
Ondategui Parra, Juan Carlos. https://futur.upc.edu/JuanCarlosOndateguiParra

Others:

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
M-CE6. (ENG) Conocer los principios de funcionamiento de las distintas técnicas de examen en la práctica clínica: fotografía basada en la configuración Scheimpflug, topografía de discos de Plácido, Tomografía de Coherencia Óptica, aberrometría y pruebas electrofisiológicas, entre ellas. Interpretar los resultados de dichas técnicas para
detectar signos de posibles patologías, aplicar tratamientos ópticos, remitir al especialista y utilizar los conocimientos en trabajos de investigación.

Transversal:
M-CT4. (ENG) Uso solvente de los recursos de información. Gestionar la adquisición, la estructuración, el análisis y la visualización de datos e información en el ámbito de especialidad y valorar de forma crítica los resultados de dicha gestión.

Basic:
CB10. (ENG) Que los estudiantes posean las habilidades de aprendizaje que les permitan continuar estudiando de un modo que habrá de ser en gran medida autodirigido o autónomo.

TEACHING METHODOLOGY

Participatory expository class of theoretical and practical content.
1.- Active methodologies in the classroom (project-based learning (PBL), study of cases, cooperative learning).
2.- Practical resolution class, with the participation of the students, of practical cases and/or exercises related to the contents of the subject
3.- Reading of didactic material, texts and articles related to the contents of the subject.
4.- Realization of problems, exercises, works and resolution of doubts through the Atenea virtual campus.
5.- Tutorials.

LEARNING OBJECTIVES OF THE SUBJECT

1.- Know how to apply the knowledge of optics of intraocular lenses, photic effects and designs in clinical practice for the selection of the most appropriate lens according to each patient and know how to perform the examination and follow-up of the pseudophakic patient.
2.- Know and be able to apply to the professional practice of optics and optometry the operating principles of the different examination techniques in clinical practice: photography based on the Scheimpflug configuration, Placido disc topography, Optical Coherence Tomography, aberrometry and electrophysiological tests, among them.
3.- Interpret the results of the different examination techniques to detect possible signs of pathology, apply optical treatments, refer to a specialist or use the results in research work.

STUDY LOAD

Type	Hours	Percentage
Hours medium group	28,0	32.00
Self study	59,5	68.00

Total learning time: 87.5 h

CONTENTS

Ocular Biometry

Description:
1.- Calculation of Intraocular Lenses
2.- Management of Intraocular Lenses
2.1- Design of the latest generation intraocular lenses

Full-or-part-time: 10h
Practical classes: 4h
Self study : 6h

Optical Ocular Quality

Description:
1.- Eye aberrometry
2.- Eye diffraction
3.- Ocular scattering

Full-or-part-time: 12h
Practical classes: 6h
Self study : 6h

Visual Field

Description:
1.- White-white Visual Field
2.- Time reduction algorithms
3.- Progression of visual field alterations
4.- Techniques for early detection of alterations in the visual field

Full-or-part-time: 10h
Practical classes: 4h
Self study : 6h

Optical Coherence Tomography

Description:
1.- OCT of posterior segment
1.1.- OCT - Retina
1.2.- OCT - Macual
1.3.- OCT - Angio
2.- OCT of anterior segment

Full-or-part-time: 12h
Practical classes: 6h
Self study : 6h

ACTIVITIES

name english

Description:
Seminar on the interpretation of eye ultrasound records and calculation of intraocular lenses based on eye design and parameters.

Full-or-part-time: 11h
Self study: 9h
Practical classes: 2h

name english

Description:
Seminar on the interpretation of records of aberometries in different eye conditions.

Full-or-part-time: 10h 30m
Self study: 8h 30m
Practical classes: 2h

Visual Field Seminar

Description:
Seminar on the interpretation of visual field records in different ocular pathologies with visual field alterations.

Full-or-part-time: 11h
Self study: 9h
Practical classes: 2h

OCT Seminar

Description:
Seminar on the interpretation of OCT records and retinography in different eye conditions.

Full-or-part-time: 11h
Self study: 9h
Practical classes: 2h

GRADING SYSTEM

Continuous assessment, with the following evidence:
1. Biometrics Activity: 10%
2. Eye Optical Quality Activity: 10%
3. Visual Field Activity: 10%
4. OCT Activity: 10%
5. Activities performed in the classroom: 20%
6. Written test: 40%

The transversal competence is evaluated with the final note of the subject.

In the event of suspending the subject, you will have the option to recover it through a revaluation exam that will be carried out according to the general conditions established for each course by the UPC's Academic Regulations for Undergraduate and Master's Studies (NAGRAMA) and the particulars established by the FOOT with the following conditions:
1. You can only submit to the reevaluation if the overall grade obtained for the subject is equal to or higher than 3,5
2. Students with the grade Not Presented (NP) cannot take advantage of the reevaluation option.
3. The reevaluation will consist of a written exam (100%)
If the reevaluation exam is passed (with a score equal to or higher than 5) the final grade of the subject will always be 5. Otherwise, the highest grade between the previous evaluation and the reevaluation will be maintained.

The student will only be able to pass the course if he/she attends al least 80% of the classes.

EXAMINATION RULES.

In case of partial or total copying in any of the evaluations of the subject, the one provided by the General Academic Regulations of the UPC will apply:
"Irregular actions that may lead to a significant variation in the qualification of one or more students constitute a fraudulent performance of an assessment act. This action involves the descriptive qualification of suspension and a numerical 0 of the act of assessment and of the subject, without prejudice to the disciplinary process that is possible to derive as a consequence of the actes realitzats.
If the student considers the decision to be incorrect, they can file a complaint with a standing request from the director or the head of the teaching center and, if the answer is not satisfied, they can file a standing appeal with the rector.
The total or partial reproduction of the academic or research papers, or the seva utilització per a qualsevol altre fi, must have the explicit authorization of the authors or authors.
It corresponds to the director or director or the Dean of the teaching center to resolve the allegations on the aspects not included in the regulations."

BIBLIOGRAPHY

Basic:
- Anderson, Douglas R; Patella, Vincent Michael. Automated static perimetry. 2nd ed. St. Louis: Mosby, cop. 1999. ISBN 0815143842.
- Agarwal, Amar; Henderson, Bonnie An. Dr Agarwals' textbook on corneal topography: including Pentacam and anterior segment OCT [on line]. 3rd ed. New Delhi: The Health Sciences, 2015 [Consultation: 25/07/2024]. Available on: https://search-ebscohost-com.recursos.biblioteca.upc.edu/login.aspx?direct=true&AuthType=ip,uid&db=nlebk&AN=1234454&site=ehost-live&ebv=EB&ppid=pp_Cover. ISBN 9789386056474.
- Kanclerz, Piotr; Khoramnia, Ramin; Wang, Xiaogang. "Current developments in corneal topography and tomography". Diagnostics [on line]. 2021, vol. 11, núm. 8, p. 1466 [Consultation: 24/02/2023]. Available on: https://doi.org/10.3390/diagnostics11081466.