Course guide
370017 - DISFUNVB - Binocular Vision Dysfunctions

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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). (Compulsory subject).

Academic year: 2025 **ECTS Credits:** 6.0 **Languages:** Catalan

LECTURER

Coordinating lecturer: Vila Vidal, Núria https://futur.upc.edu/NuriaVilaVidal

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REQUIREMENTS

Enrolled in Clinical Procedures in Optometry

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
CE20. Measure, interpret and treat refractive errors. Describe the sensory and oculomotor mechanisms of binocular vision. Identify the principles of and measure, interpret and treat accommodative and binocular vision anomalies. Demonstrate skills in communication, recording data and writing clinical histories. Demonstrate skills in the interpretation and clinical judgement of results of vision tests, to establish the most suitable diagnosis and treatment. Demonstrate skills in instrumental assessment tests of visual function and eye health. Carry out a complete medical history. Identify, apply and interpret instrumental tests relating to visual health problems. Demonstrate the clinical skills required for the examination and treatment of patients. Examine, diagnose and treat visual anomalies with an emphasis on differential diagnosis. Describe the nature and organisation of types of clinical care. Describe the protocols that are applied to patients.

Generical:
CG2. Carry out each stage of visual examinations effectively: medical history, selection and implementation of diagnostic tests, establishment of a prognosis, selection and execution of treatment and, if necessary, preparation of referral reports that establish levels of collaboration with other professionals, to ensure the best possible care for the patient.
CG3. Advise and guide patients and relatives during the entire treatment.
CG10. Communicate treatment indications of visual health and their conclusions to the patient, relatives and other professionals involved in the patient’s care, adapting to the sociocultural characteristics of each person.
CG12. (ENG) The ability to understand the general structure of optometry and its connection to other specific disciplines and other complementary ones.

CG15. (ENG) Demostrar capacitat per actuar com a agent d'atenció primària visual.

Transversal:
CT6. Independent learning. Identify and overcome gaps in one's knowledge by thinking critically and choosing the best approach to extending one's knowledge.

TEACHING METHODOLOGY

MD3 - Practical class for solving, with student participation, practical cases and/or exercises related to the course content.
MD4 - Laboratory practice.
MD5 - Reading educational material, texts, and articles related to the course content.

LEARNING OBJECTIVES OF THE SUBJECT

1. Competence in communication, data recording, and the creation of clinical histories.
3. Competence in the diagnosis and treatment of refractive errors.
4. Knowledge of the principles and competence to diagnose and recommend treatment for accommodative anomalies, binocular vision, and ocular motility disorders.
12. Competence to identify and manage situations that require referral/interprofessional collaboration.

STUDY LOAD

Type	Hours	Percentage
Hours medium group	30,0	20.00
Hours small group	30,0	20.00
Self study	90,0	60.00

Total learning time: 150 h

CONTENTS

Refractive errors

Description:
Ametropias are studied: hyperopia, myopia, astigmatism, presbyopia, and anisometropia. For each of these refractive errors, the following sections are covered:
1- Etiology
2- Semiology
3- Classification
4- Prescription criteria
5- Clinical cases

Full-or-part-time: 30h
Practical classes: 10h
Self study : 20h

Binocular vision and accommodation dysfunctions

Description:
1- Prescription criteria.
1.1 Criteria based on formulas (Sheard, Percival).
1.2 Fixation disparity criterion.
2- Vergence dysfunctions.
2.1 Exodeviations.
2.2 Endodeviations.
2.3 Fusional vergence dysfunction.
3- Accommodation dysfunctions.
3.1 Accommodative insufficiency.
3.2 Accommodative fatigue.
3.3 Accommodative inflexibility.
3.4 Accommodative excess.
4- Vertical deviations.
4.1 Generalities.
4.2 Classification.
4.3 Diagnosis and treatment.
5- Clinical cases.

Full-or-part-time: 46h
Practical classes: 14h
Self study : 32h

ACTIVITIES

Laboratory practices

Description:
All laboratory practices will be conducted in small groups and in 2-hour sessions. Students are required to come to the session having prepared the practice. Visual examinations among peers, students from previous courses, or external individuals brought by students themselves will be conducted during practical sessions.

Material:
All the necessary materials for conducting the practical sessions are in the laboratory.

Delivery:
Each student will bring an A5 notebook where a strict record of activities carried out in practical sessions, open-door sessions, and other required evidence will be kept.

Full-or-part-time: 26h
Laboratory classes: 26h

Open doors to the laboratory

Description:
Bi-weekly laboratory sessions, mandatory, where students reinforce clinical techniques learned in practical sessions.

Material:
The specific schedule and laboratory for these sessions will be published on the intranet.

Full-or-part-time: 14h
Self study: 14h

Refractive errors test

Description:
Individual resolution of various questions related to the theoretical and practical contents of refractive errors.
The details of the activity will be described on the ATENEA intranet.

Full-or-part-time: 14h
Self study: 12h
Practical classes: 2h

Global test

Description:
Individual resolution of different cases and questions related to all the contents of the subject.
The details of the activity will be described on the ATENEA intranet.

Full-or-part-time: 14h
Practical classes: 2h
Self study: 12h

Practices exam

Description:
Students will be evaluated during the completion of a comprehensive visual examination, the diagnosis, and the treatment recommended.

Full-or-part-time: 2h
Laboratory classes: 2h

Case presentation

Description:
Each student must attend, as a patient, a practical session of another group, which is mandatory. In this session, the students acting as optometrists will collect clinical data and subsequently, in pairs, present the most interesting case out of the two observed.

Full-or-part-time: 2h
Practical classes: 2h

Practises Tests

Description:
Before some practical sessions, students will need to answer a test on the contents that will be worked on in the laboratory.

Full-or-part-time: 0h 30m
Laboratory classes: 0h 30m

Patient records for external patients

Description:
During the last four practical sessions, students must fill out the clinical data for three external patients and submit them at the end of the session.

Full-or-part-time: 1h 30m
Laboratory classes: 1h 30m

EUROPEAN DIPLOMA IN OPTOMETRY COMPETENCES

Description:
This module contributes to the European Diploma in Optometry competencies indicated in the following link:
https://drive.google.com/drive/folders/1bwmHBsvkrGnY63DfXAnWZB_i0I2pXa-I?usp=drive_link

GRADING SYSTEM

THEORY:
• Refractive errors test: 20%
• Global test: 40%
PRACTICALS:
• Practical test: 20%
• Case presentation: 5%
• Practical tests: 10%
• External patient records: 5%
The transversal competence is assessed with the final grade of the course.
Attendance at practical sessions is mandatory and if you are unable to attend a session, you must provide proof. The missed session will be made up through the open sessions.

REASSESSMENT: The reassessment consists of a single exam that counts for 100% of the course grade. A student cannot take this exam if their overall course grade is below 3.5 or if they have not attended (NP). Additionally, to be eligible for reassessment, the practical grade must be 5 or higher.

EXAMINATION RULES.

In case of partial or total copying in any of the assessments of the subject, the provisions of the Academic Regulations for undergraduate and master's studies at the UPC will apply:
"Irregular actions that may lead to a significant variation in the grade of one or more students constitute a fraudulent act of evaluation. This action results in a descriptive grade of fail and a numerical grade of 0 for the evaluation act and the subject, without prejudice to the disciplinary process that may arise as a consequence of the acts performed.
If the student considers the decision incorrect, they may file a complaint by submitting a request to the director or dean of the academic center and, if the response is not satisfactory, they may appeal to the rector.
The total or partial reproduction of academic or research works, or their use for any other purpose, must have the explicit authorization of the authors.
It is the responsibility of the director or dean of the academic center to resolve claims regarding aspects not included in the regulations."

BIBLIOGRAPHY

Basic:
- Borràs García, M. Rosa. Visión binocular: diagnóstico y tratamiento [on line]. Barcelona: Edicions UPC, 1996 [Consultation: 24/07/2024]. Available on: http://hdl.handle.net/2099.3/36218. ISBN 848301159X.
- Amos, John F. Diagnosis and management in vision care. Boston [etc.]: Butterworths, cop. 1987. ISBN 0409950823.
- Evans, Bruce J. W. Pickwell's binocular vision anomalies: investigation and treatment. 4th ed. Oxford [etc.]: Butterworth-Heinemann, 2002. ISBN 0750647140.
- Scheiman, Mitchell; Wick, Bruce. Clinical management of binocular vision: heterophoric, accommodative, and eye movement disorders [on line]. Fifth edition. Philadelphia, PA: Wolters Kluwer Health, [2020] [Consultation: 24/07/2024]. Available on: https://oce-ovid-com.recursos.biblioteca.upc.edu/book?SerialCode=02148837. ISBN 9781496399731.

Complementary:
- Werner, D. Leonard; Press, Leonard J. Clinical pearls in refractive care. Boston [etc.]: Butterworth Heinemann, cop. 2002. ISBN 0750699124.
- Steinman, Scott B.; Steinman, Barbara A.; Garzia, Ralph P. Foundations of binocular vision: a clinical perspective. New York: McGraw-Hill, cop. 2000. ISBN 0838526705.