

Course guide

370014 - PROCEDCLIN - Clinical Procedures in Optometry

Last modified: 11/06/2025

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). (Compulsory subject).

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

LECTURER

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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.

CG12. (ENG) The ability to understand the general structure of optometry and its connection to other specific disciplines and other complementary ones.

CG14. Demonstrate knowledge, skills and abilities in patient healthcare.

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

The methodologies used are:

MD1 - Participatory lecture class of theoretical and practical content

MD3 - Practical class of resolution, with the participation of the students, of practical cases and / or exercises related to the contents of the subject

MD4 - Laboratory practices

MD6 - Carrying out problems, exercises, assignments and resolution of doubts through the Atenea virtual campus

MD7- Tutorials

The subject consists of 1 hour per week of classroom lectures (large group) and 18 two-hour sessions in small groups in the laboratory (practical).

- The theory classes are kind of explanation combined with cooperative learning activities.

- The practices will be in couples in the optometry 1 lab.

- The independent learning include: the study by the student, open lab sessions, collect data from patients and complement clinical training.

To take advantage of the course, follow the directions and terms described in Atenea

LEARNING OBJECTIVES OF THE SUBJECT

At the end of the course of clinical procedures in optometry, the student has to have achieved the following objectives:

1. Competition in communication, the registry of dates and the elaboration of clinical histories.
2. Competition in the realization of the instrumental proves for the evaluation of the visual and ocular health functions.

STUDY LOAD

Type	Hours	Percentage
Hours medium group	15,0	10.00
Hours small group	45,0	30.00
Self study	90,0	60.00

Total learning time: 150 h

CONTENTS

1.- Introduction to Optometry

Description:

1. 1. History of Optometry
1. 2. Visual examination scheme
1. 3. Preliminary exam
1. 3. 1. interpupillary distance
- 1.4.- Visual acuity
- 1.4.1.- Measurement and notations of the VA
- 1.4.2.- AV optotypes
- 1.4.3.- Clinical application of the pinhole
- 1.4.4.- Factors that affect VA

Related activities:

Laboratory practices:

Practice. - The optometric cabinet, interpupillary distance, visual acuity.

Related competencies :

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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.

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.

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

Full-or-part-time: 3h

Self study : 3h

2. Refractive Exams

Description:

2.3. retinoscopy

2. 3. 1. Clinical usefulness of retinoscopy

2. 3. 2. Characteristics of reflection retinoscópico

2. 3. 3. Method of neutralizing ametropia

2. 4. Subjective examination of refraction in VL

2. 4. 1. Review monocular

2. 4. 2. Biocular and binocular balance

Related activities:

Retinoscopy laboratory practices in artificial eye and human eye, subjective examination in test glasses and phoropter.

Related competencies :

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.

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CG12. (ENG) The ability to understand the general structure of optometry and its connection to other specific disciplines and other complementary ones.

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.

Full-or-part-time: 41h

Theory classes: 6h

Self study : 35h

3. Binocular vision and accommodation tests

Description:

- 3. 1. Sensory aspects of binocular vision
- 3. 2. sensory examination
 - 3. 2. 1. Simultaneous assessment of Perception
 - 3. 2. 2. Assessment of Fusion
 - 3. 2. 3. Assessment of stereopsis
- 3. 3. Motor aspects of binocular vision
 - 3. 3. 1. Components of the convergence
 - 3. 3. 2. Latent and manifest deviations
- 3. 4. Motor examination. Description, normal values "and interpretation of results:
 - 3. 4. 1. Lateral phoria and reservations
 - 3. 4. 2. Vertical phoria and reservations
 - 3. 4. 3. Graphing
 - 3. 4. 4. Near point of convergence
 - 3. 4. 5. Flexibility of convergence
- 3. 5. Components of accommodation and proximal triad
- 3. 6. Tests accommodative. Description, normal values "and interpretation of results:
 - 3. 6. 1. Amplitude of accommodation
 - 3. 6. 2. Relative amplitudes: RNA and ARP
 - 3. 6. 3. accommodative lag
 - 3. 6. 4. Flexible accommodation

Related activities:

Laboratory practices of phoria exams, reserves, PPC, flexibility of vergences and quantitative and qualitative tests of accommodation

Related competencies :

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.

Full-or-part-time: 44h

Theory classes: 7h

Self study : 37h

4. Eye Health Exams

Description:

- 4. 1. Ophthalmoscopy
 - 4. 1. 1. Techniques for observing the fundus
 - 4. 1. 2. Exploration of the fundus
- 4. 2. Pupillary function
 - 4. 2. 1. Examination of pupillary function
 - 4. 2. 2. Disorders of pupillary function
- 4.3. Tonometry
 - 4. 3. 1. Factors that alter the intraocular pressure
 - 4. 3. 2. Measurement techniques
- 4.4.- Biomicroscopy
 - 4.4.1.- Introduction to the biomicroscopy technique
 - 4.4.2.- Diffuse lighting
 - 4.4.3.- Direct lighting (parallelipiped)

Related activities:

Ophthalmoscopy, Tonometry and evaluation of pupillary reflexes

Related competencies :

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.

CG14. Demonstrate knowledge, skills and abilities in patient healthcare.

Full-or-part-time: 16h

Theory classes: 1h

Self study : 15h

ACTIVITIES

1. PRACTICES OF REFRACTIVE EXAM

Description:

Practices are made in the laboratory in sessions of two hours.

They used artificial eyes and then the students will make the eye exams among themselves in pairs.

The student must come to the lab with the corresponding contents of similar theory. The laboratory will have to carry out the experimental recording the results of the optometric tab.

Will be performed the VA measurement, the retinoscopy technique in the artificial eye and later in human eye and the subjective examination technique.

Specific objectives:

At the end of the block of refractive practice exam the student must be able to:

- Get the objective and subjective refraction of a patient.

Material:

Optotypes, occluders, retinoscopes, artificial eyes, trial lens box and phoropter.

Delivery:

Review of the records recorded in the session

Related competencies :

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.

CG12. (ENG) The ability to understand the general structure of optometry and its connection to other specific disciplines and other complementary ones.

Full-or-part-time: 27h

Laboratory classes: 27h

2. BINOCULAR VISION AND ACCOMMODATION PRACTICE

Description:

Practices are made in the laboratory, in sessions of two hours.

Students will make visual examinations among themselves in pairs.

The student must come to the lab with the corresponding contents of similar theory. The laboratory will have to carry out the experimental recording the results of the optometric tab.

Forias, Reserves, PPC, Vergence Flexibility, Accommodation Amplitude, Negative and positive Relative Amplitude, Accommodation Flexibility and Accommodative Delay will be measured.

Specific objectives:

At the end of the block practice of binocular vision and accommodation, students must be able to:

- Measure and interpret anomalies accommodative and binocular vision.

Material:

Prisms, Prism Bars, Occluders, Filters, Flippers, Retinoscopes and Phoropter

There are demonstration videos of each technique in Atenea

Delivery:

The records of the session are reviewed

Related competencies :

CE20. Measure, interpret and treat refractive errors. Describe the sensory and oculomotor mechanisms of binocular vision.

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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.

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Full-or-part-time: 15h

Laboratory classes: 15h

3. EYE HEALTH PRACTICES

Description:

The practice is done in the laboratory, in sessions of two hours

Students will take eye health exams in pairs, among themselves.

The student body has to come to the laboratory with the corresponding assimilated theory content. In the laboratory, the experimental part will have to be carried out noting the results obtained on the eye chart.

The techniques of Ophthalmoscopy, Pupil exploration, Tonometry and Biomicroscopy are performed.

Specific objectives:

At the end of the pad eye care practices the student must be able to:

- Perform and interpret the exhibits for the evaluation of visual function and eye health.

Material:

Ophthalmoscope, Spot Light, Tonometer and Biomicroscopy

Delivery:

The records made in each practice are reviewed

Related competencies :

CE20. Measure, interpret and treat refractive errors. Describe the sensory and oculomotor mechanisms of binocular vision.

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Full-or-part-time: 3h

Laboratory classes: 3h

4.- Theoretical AV and Refraction test

Description:

Theory test on VA contents and objective and subjective refraction

The weight of the test represents 20% of the total of the subject

Full-or-part-time: 1h

Theory classes: 1h

5. GLOBAL THEORY TEST

Description:

Theoretical global exam of short questions based on the relationship of concepts.
The weight of the exam is 40%

Specific objectives:

The student must demonstrate that he has achieved the objectives of the course.

Related competencies :

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6. GLOBAL PRACTICE TEST

Description:

Practice Examination consisting of the execution of any of the methods of measuring the refraction binocular vision, accommodation or eye health of a patient
The weight of the exam is 25%

Specific objectives:

The student must demonstrate that it has achieved the objectives and implementing clinical studies that are part of the course.

Related competencies :

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.
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7.- PRACTICAL TEST OF RETINOSCOPY IN THE ARTIFICIAL EYE

Description:

Practical test consisting of determining the refraction of two artificial eyes with the retinoscopy technique
The weight of proof is 15%

Specific objectives:

Correctly perform the retinoscopy technique

Related competencies :

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.
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8. OPEN DOORS TO THE LABORATORY

Description:

Students have the option of attending complementary practices in the Clinical Procedures Laboratory.

Related competencies :

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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

The evaluation of the subject is obtained as follows:

- 1.- Theoretical test on refractive aspects, retinoscopy and subjective examination. Test type 20%
2. Global theoretical test 40%
- 3.- Practical examination of artificial eye retinoscopy 15%
- 4.- Practical exam on clinical procedures in the laboratory 25%

REEVALUATION: The reevaluation consists of a single exam that is worth 100% of the subject. In no case can a student who has less than a 3,5 or one not presented NP be accepted. To apply, you must have passed the practices of the subject with a grade of 5. Three unexcused absences from practice sessions can be grounds for penalties.

EXAMINATION RULES.

In case of partial or total copy in any of the evaluations of the subject will apply what prevents the General Academic Regulations of the UPC: "The irregular actions that can lead to a significant variation of the qualification of one or more students constitutes an accomplishment. This action entails the descriptive and numerical rating of 0 of the evaluation act and of the subject, without prejudice to the disciplinary process that may arise as a result of the acts performed.

- The grade of not presented, which means that the student has not been evaluated, is granted when he has not participated in any of the evaluation acts planned for the subject, except in the case that the teaching guide of the published subject specifies something different.

Attendance at the practical sessions is mandatory to pass the subject.

BIBLIOGRAPHY

Basic:

- Borràs, M. Rosa [et al.]. Optometría: manual de exámenes clínicos. 3a ed. Barcelona: Edicions UPC, 1999. ISBN 8483013096.
- Carlson, Nancy B. Procedimientos clínicos en el examen visual. Madrid: Ciagami, DL 1994. ISBN 8488985002.
- Llewellyn, Richard; Edwards, Keith (eds.). Optometria. Barcelona: Masson: Salvat, cop. 1993. ISBN 8445800574.
- Eskridge, J.B.; Amos, J.F.; Bartlett, J.D. Clinical procedures in optometry. Philadelphia: J.B. Lippincott Company, cop. 1991. ISBN 0397509847.
- Benjamin, William J.; Borish, Irvin M. Borish's clinical refraction [on line]. 2nd ed. St. Louis, Missouri: Butterworth Heinemann/Elsevier, cop. 2006 [Consultation: 11/06/2024]. Available on: <https://ebookcentral-proquest-com.recursos.biblioteca.upc.edu/lib/upcatalunya-ebooks/detail.action?pq-origsite=primo&docID=4635135>. ISBN 9780750675246.

Complementary:

- Antona Peñalba, B. Fiabilidad intraexaminador y concordancia de pruebas clínicas de evaluación de la visión binocular [on line]. Madrid: Universidad Complutense de Madrid, 2010 [Consultation: 31/10/2024]. Available on: <https://hdl.handle.net/20.500.14352/47177>. ISBN 9788469306574.