Course guide
370028 - CONAPLIC - Applied Contact Lens

Last modified: 03/07/2025

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

Coordinating lecturer: Gonzalez Lopez, Enrique: (https://futur.upc.edu/EnriqueGonzalezLopez)

Others: Clavé Cerezo, Laura
Garcia Espinosa, Mireia
Martínez Serrano, Miquel
Solà Parés, Ramon

REQUIREMENTS

Having enrolled in Basic Contactology

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
CE11. Describe the physical and chemical properties of the materials used in the field of optics and optometry.

CE23. Describe the properties of the types of contact lenses and ocular prostheses. Describe the geometry and physical-chemical properties of contact lenses and associate them with specific ocular and refractive characteristics. Identify and use clinical and instrumental protocols associated with fitting contact lenses. Identify the solutions used for maintenance, diagnosis and treatment and associate them with lenticular and ocular characteristics. Apply the clinical procedures associated with contact lens fitting to various refractive and ocular dysfunctions. Apply the controlled modification techniques of corneal topography with the use of contact lenses. Detect, assess and resolve abnormalities associated with the use of contact lenses. Adapt contact lenses and ocular prostheses to improve vision and the outer appearance of the eye.

Generical:
CG1. Demonstrate knowledge of, design and apply prevention and maintenance programmes relating to the population’s visual health.
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.
CG4. Critically reflect on the clinical, scientific, ethical and social issues involved in the professional practice of optometry, understand the scientific foundations of optics and optometry and critically evaluate terminology, clinical trials and research methods related to optics and optometry.
CG8. Plan and carry out research projects that contribute to the production of knowledge in the field of optometry and disseminate this scientific knowledge via the typical communication channels.
CG13. Demonstrate and interpret methods for critical analysis and theory development and apply them to the field of optometry.

Transversal:
CT3. Teamwork. To be able to work as a member of a multidisciplinary team, either as a base member or undertaking managerial decisions aiming at developing projects from a practical and responsible standpoint, adopting commitments given the available resources
CT7. Foreign language. Demonstrate knowledge of a foreign language, preferably English, at an oral and written level that is consistent with graduates' future needs.

TEACHING METHODOLOGY

MD1 - Participatory expository class of theoretical and practical content.
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 didactic material, texts and articles related to the contents of the subject
MD6 - Realization of problems, exercises, assignments and resolution of doubts through the Atenea virtual campus
MD7- Tutorials

For a good follow-up of the subject, you need to look at ATENEA often.

LEARNING OBJECTIVES OF THE SUBJECT

1. Basic competence to apply contact lens fitting protocols in cases with regular astigmatism
2. Basic competence to apply contact lens adaptation protocols in cases of presbyopic patients
3. Basic competence to apply contact lens adaptation protocols in special cases: corneal irregularities due to ectasia or post-corneal refractive surgery.
4. Competence to select the possible users of nocturnal orthokeratology.
5. Competence to select solutions with the adaptation of contact lenses for the control of myopic progression.
6. Basic competence to apply therapeutic, prosthetic and cosmetic contact lens adaptation protocols.
7. Competence to detect and solve complications or cases of intolerance in contact lens users.

STUDY LOAD

Type	Hours	Percentage
Self study	60,0	50.00
Hours medium group	30,0	25.00
Hours small group	30,0	25.00

Total learning time: 120 h

CONTENTS

Adaptation of the astigmatic patient with contact lenses (CL)

Description:
The different options for compensating astigmatic refractive defects with contact lenses, advantages and disadvantages, and the adaptation protocols for each of the options are reviewed.

Specific objectives:
1. Learn how to select the right type of lens for each astigmatic patient.
2. Learn to compensate for refractive astigmatism with a spherical or peritoric RPG lens.
3. Learn to compensate for refractive astigmatism with a toric RPG lens (front, back or bitoric).
4. Learn to compensate for refractive astigmatism with a soft toric lens.

Related competencies :
CE11. Describe the physical and chemical properties of the materials used in the field of optics and optometry.

CE23. Describe the properties of the types of contact lenses and ocular prostheses. Describe the geometry and physical-chemical properties of contact lenses and associate them with specific ocular and refractive characteristics. Identify and use clinical and instrumental protocols associated with fitting contact lenses. Identify the solutions used for maintenance, diagnosis and treatment and associate them with lenticular and ocular characteristics. Apply the clinical procedures associated with contact lens fitting to various refractive and ocular dysfunctions. Apply the controlled modification techniques of corneal topography with the use of contact lenses. Detect, assess and resolve abnormalities associated with the use of contact lenses. Adapt contact lenses and ocular prostheses to improve vision and the outer appearance of the eye.

Full-or-part-time: 40h
Theory classes: 8h
Laboratory classes: 8h
Self study : 24h

Adaptation of the presbyopic patient with contact lenses.

Description:
Learn to compensate for presbyopia with the different contact lens options: monovision, standard or modified, or multifocal, alternating or simultaneous vision contact lenses.

Specific objectives:
1. Learn to compensate for presbyopia using alternating vision contact lenses.
2. Learn to compensate for presbyopia using simultaneous vision contact lenses.
3. Learn to compensate for presbyopia using monovision or modified monovision.
4. Learn how to select the best option for each patient to compensate for presbyopia using contact lenses.

Related competencies :
CE11. Describe the physical and chemical properties of the materials used in the field of optics and optometry.

CE23. Describe the properties of the types of contact lenses and ocular prostheses. Describe the geometry and physical-chemical properties of contact lenses and associate them with specific ocular and refractive characteristics. Identify and use clinical and instrumental protocols associated with fitting contact lenses. Identify the solutions used for maintenance, diagnosis and treatment and associate them with lenticular and ocular characteristics. Apply the clinical procedures associated with contact lens fitting to various refractive and ocular dysfunctions. Apply the controlled modification techniques of corneal topography with the use of contact lenses. Detect, assess and resolve abnormalities associated with the use of contact lenses. Adapt contact lenses and ocular prostheses to improve vision and the outer appearance of the eye.
CT3. Teamwork. To be able to work as a member of a multidisciplinary team, either as a base member or undertaking managerial decisions aiming at developing projects from a practical and responsible standpoint, adopting commitments given the available resources

Full-or-part-time: 30h
Theory classes: 6h
Laboratory classes: 6h
Self study : 18h

Adaptation of the patient with irregular cornea to contact lenses (LC): corneal ectasia and post-refractive surgery

Description:
Studying how to adapt contact lens patients with different types of corneal ectasias and patients undergoing refractive surgery

Specific objectives:
1. Compensation of keratoconus with soft contact lenses.
2. Keratoconus compensation with corneal RPG contact lenses.
3. Keratoconus compensation with supracorneal RPG contact lenses.
4. Compensation of keratoconus with hybrid contact lenses.
5. Choice of the most suitable type of contact lenses for each patient with corneal ectasia.

Related competencies :
CE11. Describe the physical and chemical properties of the materials used in the field of optics and optometry.

CE23. Describe the properties of the types of contact lenses and ocular prostheses. Describe the geometry and physical-chemical properties of contact lenses and associate them with specific ocular and refractive characteristics. Identify and use clinical and instrumental protocols associated with fitting contact lenses. Identify the solutions used for maintenance, diagnosis and treatment and associate them with lenticular and ocular characteristics. Apply the clinical procedures associated with contact lens fitting to various refractive and ocular dysfunctions. Apply the controlled modification techniques of corneal topography with the use of contact lenses. Detect, assess and resolve abnormalities associated with the use of contact lenses. Adapt contact lenses and ocular prostheses to improve vision and the outer appearance of the eye.

Full-or-part-time: 30h
Theory classes: 6h
Practical classes: 6h
Self study : 18h

Designs of contact lenses for the control of myopic progression

Description:
Different contact lens designs based on peripheral defocusing that aim to control axial length growth are studied

Specific objectives:
1. Know the results of the research and the techniques that show effectiveness in the control of myopia
2. Designs of hydrogel LCs for the control of myopia

Related competencies :
CE23. Describe the properties of the types of contact lenses and ocular prostheses. Describe the geometry and physical-chemical properties of contact lenses and associate them with specific ocular and refractive characteristics. Identify and use clinical and instrumental protocols associated with fitting contact lenses. Identify the solutions used for maintenance, diagnosis and treatment and associate them with lenticular and ocular characteristics. Apply the clinical procedures associated with contact lens fitting to various refractive and ocular dysfunctions. Apply the controlled modification techniques of corneal topography with the use of contact lenses. Detect, assess and resolve abnormalities associated with the use of contact lenses. Adapt contact lenses and ocular prostheses to improve vision and the outer appearance of the eye.

Full-or-part-time: 10h
Theory classes: 2h
Laboratory classes: 2h
Self study : 6h

Nocturnal orthokeratology and myopia control

Description:
Indications, designs and introduction to the compensation of refractive defects using nocturnal orthokeratology.

Specific objectives:
1. Know the designs of RPG lenses for nighttime orthokeratology.
2. Know the selection criteria for potential users.
3. Know the adaptation protocol for night orthokeratology lenses.

Related competencies :
CE11. Describe the physical and chemical properties of the materials used in the field of optics and optometry.

CG13. Demonstrate and interpret methods for critical analysis and theory development and apply them to the field of optometry.

Full-or-part-time: 15h
Theory classes: 3h
Practical classes: 3h
Self study : 9h

LC therapeutic, prosthetic, cosmetic or for sport

Description:
1. Adaptation of contact lenses for the treatment of pathologies of the ocular surface or occlusion
2. Adaptation of contact lenses for the replacement of the iris.
3. Adaptation of contact lenses for cosmetic purposes.
4. Contact lenses for sports.

Full-or-part-time: 10h
Theory classes: 2h
Laboratory classes: 2h
Self study : 6h

Complications in contact lens (CL) wearers

Description:
Learn to identify the signs and symptoms of the most common complications in contact lens wearers, as well as their prevalence, etiology and treatment.

Related competencies :
CE23. Describe the properties of the types of contact lenses and ocular prostheses. Describe the geometry and physical-chemical properties of contact lenses and associate them with specific ocular and refractive characteristics. Identify and use clinical and instrumental protocols associated with fitting contact lenses. Identify the solutions used for maintenance, diagnosis and treatment and associate them with lenticular and ocular characteristics. Apply the clinical procedures associated with contact lens fitting to various refractive and ocular dysfunctions. Apply the controlled modification techniques of corneal topography with the use of contact lenses. Detect, assess and resolve abnormalities associated with the use of contact lenses. Adapt contact lenses and ocular prostheses to improve vision and the outer appearance of the eye.

Full-or-part-time: 15h
Theory classes: 3h
Practical classes: 3h
Self study : 9h

ACTIVITIES

Oral presentation on product (Vademècum LC)

Description:
With groups defined by the teacher, students will prepare a presentation for their peers about the different options available in different laboratories to compensate for astigmatism, multifocal LCs and special LCs for irregular corneas. Each group will record a presentation video of the assigned product that will be shared with the whole class. Once the video has been shared, summary oral presentations will be made during the practice sessions where questions from classmates and the teacher will be answered. The activity will have 10% of the subject grade

Delivery:
The teacher will set the date for the delivery and public presentation of the work at least one month in advance

Full-or-part-time: 8h
Laboratory classes: 3h
Self study: 5h

Follow-up tests in Class.

Description:
During the semester, several, between 2 or 3, tests will be given to assess the follow-up of the subject. The tests will include questions on the topics covered at the time and 20% of the subject's assessment will depend on this test.

Full-or-part-time: 3h
Theory classes: 3h

Practical sessions

Description:
Practice of procedures related to the process of adapting contact lenses among group mates. Complete adaptation of a case of RPG CL

Specific objectives:
Practice and acquire competence for:
- Adaptation of hydrogel toric CLs
- Adaptation of RPG spherical and toric CLs

Related competencies :
CE23. Describe the properties of the types of contact lenses and ocular prostheses. Describe the geometry and physical-chemical properties of contact lenses and associate them with specific ocular and refractive characteristics. Identify and use clinical and instrumental protocols associated with fitting contact lenses. Identify the solutions used for maintenance, diagnosis and treatment and associate them with lenticular and ocular characteristics. Apply the clinical procedures associated with contact lens fitting to various refractive and ocular dysfunctions. Apply the controlled modification techniques of corneal topography with the use of contact lenses. Detect, assess and resolve abnormalities associated with the use of contact lenses. Adapt contact lenses and ocular prostheses to improve vision and the outer appearance of the eye.

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

Practice exam

Description:
During the last practical sessions there will be an exam to evaluate the skills acquired.

Related competencies :
CE23. Describe the properties of the types of contact lenses and ocular prostheses. Describe the geometry and physical-chemical properties of contact lenses and associate them with specific ocular and refractive characteristics. Identify and use clinical and instrumental protocols associated with fitting contact lenses. Identify the solutions used for maintenance, diagnosis and treatment and associate them with lenticular and ocular characteristics. Apply the clinical procedures associated with contact lens fitting to various refractive and ocular dysfunctions. Apply the controlled modification techniques of corneal topography with the use of contact lenses. Detect, assess and resolve abnormalities associated with the use of contact lenses. Adapt contact lenses and ocular prostheses to improve vision and the outer appearance of the eye.

Full-or-part-time: 0h 20m
Theory classes: 0h 20m

Final exam

Description:
Written and face-to-face examination of the subject with the aim of determining the level of achievement of the different skills.

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

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

FOLLOW-UP CLASSROOM TESTS: 20%
PRODUCT PRESENTATION: 10%
PRACTICE EXAMINATION: 30%
FINAL EXAM: 40%
The CT3 competency will be assessed during laboratory practices that will include an oral presentation of student-prepared content
The CT7 competency will be assessed in the final exam through specific questions on content presented in the third language
RE-ASSESSMENT: It will consist of a single written test with questions relating to the total syllabus of the subject.
The re-evaluation of the subject will take place in accordance with the conditions established by the document approved by the permanent committee "Re-evaluation in the Degree in Optics and Optometry (plan 2020) or any future modifications that may be approved.

EXAMINATION RULES.

The dates of the follow-up tests in the classroom (20%) will be announced at least one week in advance so that the students can organize themselves. The justified absence will result in the percentage corresponding to the test being calculated in the final exam. Unexcused absence will result in a 0 on the test.

In case of partial or total copying in any of the evaluations of the subject, the General Academic Regulations of the UPC will apply:
"Irregular actions that can lead to a significant variation in the qualification of one or more students constitute a fraudulent performance of an evaluation act. This action entails the descriptive qualification of suspension and a numerical grade of 0 for the evaluation act and the subject, without prejudice to the disciplinary process that may arise as a result of the acts carried out.
If the student considers the decision to be incorrect, he or she can file a complaint with the director or the dean of the educational center and, if the answer does not satisfy him or her, he or she can file an appeal with 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 up to the director or the dean of the teaching center to resolve allegations about aspects not included in the regulations."

BIBLIOGRAPHY

Basic:
- Hom, Milton M; Bruce, Adrian S. Manual de prescripción y adaptación de lentes de contacto. 3a ed. Barcelona [etc.]: Elsevier Masson, cop. 2007. ISBN 9788445817605.
- Bennett, Edward S. Rigid gas-permeable contact lenses. New York: Professional Press : Fairchild, cop. 1986. ISBN 0878730575.
- Efron, Nathan. Contact lens complications [on line]. 4th ed. Philadelphia: Elsevier, 2018 [Consultation: 13/12/2024]. Available on: https://www-sciencedirect-com.recursos.biblioteca.upc.edu/book/9780702076114/contact-lens-complications. ISBN 9780702076114.
- González-Cavada, Javier. Atlas de lámpara de hendidura y lentes de contacto. 2ª ed. Madrid: Grupo ICM de Comunicación, 2015. ISBN 9788493965686.
- Martín Herranz, Raúl. Contactología aplicada : un manual práctico para la adaptación de lentes de contacto. Madrid: Imagen y Comunicación Multimedia, 2005. ISBN 8493356956.