Course guide
370015 - LENTS - Ophthalmic Lenses

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: 2022  ECTS Credits: 6.0  Languages: Catalan, Spanish

LECTURER

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Lupon Bas, Marta https://futur.upc.edu/MartaLuponBas
Ordiñaga Monreal, Enrique https://futur.upc.edu/EnriquePascualOrdinagaMonreal

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

CE04. (ENG) The ability to understand the process of image formation and the properties of optical systems. The ability to understand aberrations in optical systems. The ability to understand radiometric and photometric fundamentals and laws.
CE06. (ENG) The ability to recognise the eye as an optical system. The ability to understand the basic models of vision. The ability to understand ocular models and parameters.
CE07. (ENG) The ability to understand and manage basic laboratory materials and techniques.
CE08. (ENG) The ability to understand light propagation in isotropic media, light-matter interactions, light interference, diffraction phenomena, the properties of single- and multi-layer surfaces and the principles and applications of lasers.
CE09. (ENG) The ability to understand the principles, descriptions and characteristics of basic optical instruments and the instruments used in optometric and ophthalmic practice.
CE10. (ENG) The ability to understand and calculate the most relevant geometric, optical and physical parameters that characterise the different kinds of ophthalmic lenses used in optometric prescriptions and to associate them with the properties involved in the fitting process. The ability to understand the processes of selecting, manufacturing and designing lenses. The ability to calculate the geometric parameters of particular visual compensation systems: vision loss, intraocular lenses, contact lenses and ophthalmic lenses.

General:

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.
CG5. Give opinions and produce reports and expert reports when necessary.
CG6. Assess and incorporate the technological improvements necessary to properly carry out professional activities.

CG14. Demonstrate knowledge, skills and abilities in patient healthcare.
CG16. Participate effectively in both single-discipline and multidisciplinary work groups on projects related to optometry.
Transversal:
CT4. (ENG) Teamwork. The ability to work as a member of an interdisciplinary team, as just another member or in a leadership role, who can contribute to developing projects pragmatically and with a sense of responsibility and make commitments that take into account the resources that are available.
CT5. Efficient use of informacion resources. To manage data and technical and scientific information acquisition, organization, analysis and visualization and to provide a critical appraisal of the results of this management.

TEACHING METHODOLOGY

LEARNING OBJECTIVES OF THE SUBJECT

1. Geometrically and optically characterize all types of ophthalmic lens, and know the design and manufacturing processes.
2. Understand the functions that glasses can have: compensation for ametropia, vergences or postural deficiencies, eye protection, or low vision aids.
3. Interpret the results of refractive tests to determine the prescription for glasses.
4. Individualize the prescription for the treatment with glasses and assess aspects such as the psycho-aesthetic, psychosocial or economic impact for the user.
5. Determine if the glasses comply with the UNE regulations for ophthalmic optics and eye protection.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Hours medium group</td>
<td>30,0</td>
<td>20.00</td>
</tr>
<tr>
<td>Self study</td>
<td>90,0</td>
<td>60.00</td>
</tr>
<tr>
<td>Hours small group</td>
<td>30,0</td>
<td>20.00</td>
</tr>
</tbody>
</table>

Total learning time: 150 h
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**Related competencies**:
- CG6. Assess and incorporate the technological improvements necessary to properly carry out professional activities.
- CG5. Give opinions and produce reports and expert reports when necessary.
- CG16. Participate effectively in both single-discipline and multidisciplinary work groups on projects related to optometry.

- CE09. (ENG) The ability to understand the principles, descriptions and characteristics of basic optical instruments and the instruments used in optometric and ophthalmic practice.
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- CT5. Efficient use of information resources. To manage data and technical and scientific information acquisition, organization, analysis and visualization and to provide a critical appraisal of the results of this management.

**Full-or-part-time**: 6h 16m
- Practical classes: 0h 52m
- Laboratory classes: 1h 52m
- Self study: 3h 32m
title english

Description:
content english

Related competencies:
CG14. Demonstrate knowledge, skills and abilities in patient healthcare.
CG6. Assess and incorporate the technological improvements necessary to properly carry out professional activities.
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Full-or-part-time: 26h 06m
Practical classes: 5h 15m
Laboratory classes: 4h 41m
Self study: 16h 10m
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**Full-or-part-time: 28h 30m**

Practical classes: 5h 14m
Laboratory classes: 5h 37m
Self study: 17h 39m
**Related competencies:**

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

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**Full-or-part-time:** 28h 52m

Practical classes: 4h 40m
Laboratory classes: 6h 33m
Self study: 17h 39m
Related competencies:
CG14. Demonstrate knowledge, skills and abilities in patient healthcare.
CG6. Assess and incorporate the technological improvements necessary to properly carry out professional activities.
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Full-or-part-time: 8h 02m
Practical classes: 1h 45m
Laboratory classes: 1h 52m
Self study: 4h 25m
**Title**: English

**Description**: content English

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**Full-or-part-time**: 8h 55m
- Practical classes: 1h 45m
- Laboratory classes: 1h 52m
- Self study: 5h 18m
Related competencies:
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CG6. Assess and incorporate the technological improvements necessary to properly carry out professional activities.
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Full-or-part-time: 17h 31m
Practical classes: 4h 57m
Laboratory classes: 3h 45m
Self study: 8h 49m
Related competencies:

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CG6. Assess and incorporate the technological improvements necessary to properly carry out professional activities.

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**Full-or-part-time:** 9h 30m

Practical classes: 1h 45m
Laboratory classes: 1h 52m
Self study: 5h 53m
### ACTIVITIES

<table>
<thead>
<tr>
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<tbody>
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<td><strong>CE09. (ENG)</strong> The ability to understand the principles, descriptions and characteristics of basic optical instruments and the instruments used in optometric and ophthalmic practice.</td>
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**Full-or-part-time:** 1h 55m  
Laboratory classes: 0h 55m  
Self study: 1h

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<td><strong>CG6.</strong> Assess and incorporate the technological improvements necessary to properly carry out professional activities.</td>
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**Full-or-part-time:** 2h  
Laboratory classes: 1h  
Self study: 1h
Related competencies:

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CE06. (ENG) The ability to recognise the eye as an optical system. The ability to understand the basic models of vision. The ability to understand ocular models and parameters.

Full-or-part-time: 3h 34m
Practical classes: 1h 54m
Self study: 1h 40m

Related competencies:

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Full-or-part-time: 5h 14m
Practical classes: 1h 54m
Self study: 3h 20m
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Full-or-part-time: 1h
Self study: 1h

name english
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Full-or-part-time: 2h 35m
Self study: 2h 35m

GRADING SYSTEM
BIBLIOGRAPHY

Basic:

Complementary: