Course guide
370016 - ADAPT - (Ang) Adaptació d'Ulleres

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

Coordinating lecturer: MARTA FRANSOY BEL (http://futur.upc.edu/MartaFransoyBel)
Others: ANA ISABEL MEGINO QUESADA
        ENRIQUE PASCUAL ORDIÑAGA MONREAL
        (https://futur.upc.edu/EnriquePascualOrdinagaMonreal)

Cada inici de curs es concretarà el professorat al Campus Virtual ATENEA, a la secció
PRESENTACIÓ DE L'ASSIGNATURA.

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
CE07. (ENG) The ability to understand and manage basic laboratory materials and techniques.
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.

CE12. Understand and make use of techniques for analysing, measuring, correcting and monitoring the effects of compensatory
optical systems on the visual system in order to optimise their design and fit. Make use of the techniques of centring, fitting,
mounting and adjusting on all kinds of optometrically prescribed lenses, visual aids and protective eyewear. Prescribe, monitor and
follow up with optical corrections. Identify and analyse environmental and workplace risk factors that could lead to visual issues.

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.
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.
CG5. Give opinions and produce reports and expert reports when necessary.
CG9. Expand and update one's professional abilities through continuing education.
CG14. Demonstrate knowledge, skills and abilities in patient healthcare.
CG15. (ENG) Demostrar capacitat per actuar com a agent d'atenció primària visual.
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.
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 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.
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

LEARNING OBJECTIVES OF THE SUBJECT

1. Understand functions that glasses can have: compensation for ametropia, convergence or postural deficiencies, eye protection, or low vision aids.
2. Interpret the results of refractive tests to determine glasses' prescription.
3. Individualize the prescription of treatment with glasses and assess aspects such as the user's psycho-aesthetic, psychosocial or economic impact.
4. Determine if glasses comply with the UNE regulations for ophthalmic optics and eye protection.
5. Evaluate, assess the causes, and solve cases of glasses' maladjustment.
6. Make use of the procedures, machinery, instruments and tools necessary for the adaptation, adjustment, and assembly of glasses, and their quality control.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours medium group</td>
<td>30,0</td>
<td>19.57</td>
</tr>
<tr>
<td>Guided activities</td>
<td>3,3</td>
<td>2.15</td>
</tr>
<tr>
<td>Hours small group</td>
<td>30,0</td>
<td>19.57</td>
</tr>
<tr>
<td>Self study</td>
<td>90,0</td>
<td>58.71</td>
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</tbody>
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Total learning time: 153.3 h

CONTENTS

1. GLASSES' FITTING PROTOCOL

Description:
The topic deals with the systematic method of choosing, adjusting, focusing, assembling and adapting glasses to a suar with guarantees of success and of control and monitoring of maladaptations.

Full-or-part-time: 12h
Theory classes: 2h
Practical classes: 2h
Self study: 8h
### 2. FRAME SELECTION AND FITTING

**Description:**
This topic explains:
- the materials used for the manufacture of plastic, metal and mixed frames, and the manufacturing process according to the material. The avant-garde materials.
- the criteria of selection of the ideal frame for each user, based on facial criteria, prescription and use.
- the criteria for aligning and adjusting the anatomical frames and the management of maladaptations.

**Full-or-part-time:** 20h
- Theory classes: 4h
- Practical classes: 6h
- Self study: 10h

### 3. BEST LENS SELECTION

**Description:**
This topic includes:
- The minimum blank size, and different ways to calculate it.
- The implications of refraction of the patient in the choice of material and geometry of the lens.
- The conditions of use of glasses and convenience of surface treatments on the lenses.
- Calculation and analysis of the distribution of thicknesses beveled lenses.

**Full-or-part-time:** 16h
- Theory classes: 4h
- Practical classes: 2h
- Self study: 10h
4. MONOFOCAL GLASSES

Description:
In this topic, three sections are developed:
- Monocular effects of monofocal lenses: visual field change, variation in image size, the effect of the vertex distance effect of pantoscopic and facial tilt on the power of lenses.
- Bincoulae effects of lenses: Magnification of lenses, induced aniseikonia, eiconic lenses design, induced binocular imbalances, centering lenses according to the main use relationship.
- The effects of high power prescriptions: implications of netting with glasses in aphakia conditions, high hyperopia and high myopia, differential criteria selection of frames and lenses, and control conditions.

Related activities:
PRACTICE 7: Change of frame. Manual lens retouching and induced prismatic imbalances
PRACTICE 8: Assembly of astigmatic lenses in cellulose acetate frame.
PRACTICE 9: Assembly of astigmatic lenses in metal frame.
PRACTICE 10: Assembly of astigmatic lenses in NYLOR frame.
PRACTICE 11: Level exam in glasses' assembly

AA03 - EVALUABLE ACTIVITY 3
- resolution of visual field calculation problems, variation in the size and inclination of the retinal image, repercussion of the vertex distance, effective power for inclination of the lenses, aniseiconia and prismatic imbalances.

Full-or-part-time: 36h
Theory classes: 6h
Practical classes: 10h
Self study: 20h

5. PRISMATIC LENS PRESCRIPTIONS

Description:
This topic is about:
- Requirements to produce a prismatic prescription i both, astigmatic and spherical lenses.
- The impact of prismatic centering errors.
- Induction of decentered prisms for special cases.
- User information of perceptual changes associated.
- The analysis and solution of the problems of maladjustment.
- The mounting, adjustment and adaptation of glasses with prismatic prescriptions.

Full-or-part-time: 18h
Theory classes: 4h
Practical classes: 4h
Self study: 10h
6. MULTIFOCAL GLASSES

Description:
This topic deals with:
- The need for multifocal prescription and presbyopia compensation systems available.
- Centering techniques and prismatic control for progressive and bifocal prescriptions.
- Information to the user for the proper use of prescription.
- The analysis and solution of the problems of maladjustment.

Full-or-part-time: 18h
Theory classes: 4h
Practical classes: 4h
Self study : 10h

7. OCCUPATIONAL GLASSES

Description:
This topic, about occupational glasses, deals with:
- The need for occupational prescription and optical systems available.
- Centering techniques and adaptation of occupational prescriptions.
- Information to the user the proper use of prescription.
- The fitting, adjustment and adaptation of glasses with occupational prescription.

Full-or-part-time: 18h
Theory classes: 4h
Practical classes: 2h
Self study : 12h

8. EYE PROTECTION GLASSES

Description:
Last topic of the course is about:
- The need for eye protection against radiation and other external agents.
- The areas of eye protection and current regulations.
- Protection systems available according to the main use and user need.
- Requirements, specifications and classification of protective eyewear.
- The performance of the optometrist in the selection and adaptation of the ey

Full-or-part-time: 12h
Theory classes: 2h
Practical classes: 2h
Self study : 8h

GRADING SYSTEM
BIBLIOGRAPHY

Basic:

Complementary: