

Course guides

370520 - ADAPTACIO - Ophthalmic Optics, Workshop and Dispensing

Last modified: 27/05/2021

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 2009). (Compulsory subject).

Academic year: 2021 **ECTS Credits:** 9.0 **Languages:** Catalan

LECTURER

Coordinating lecturer: MARTA FRANSOY BEL (<http://futur.upc.edu/MartaFransoyBel>)

Others: Cada quadrimestre es publicarà el professorat al Campus Virtual ATENA, a la secció de PRESENTACIÓ DE L'ASSIGNATURA.

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

1. Acquire skills in patient care
2. Apply the techniques and develop the necessary skills to proceed to the assembly and repair of all types of glasses (prescription, protective, or optical aid), and their adaptation and adjustment to the user.
3. Evaluate, assess the causes and solve the cases of maladjustment of the user of glasses or optical aids
4. Understand the different functions that can have glasses: compensation of ametropias, eye protection to general and labour use, low vision aids.
6. Establish criteria of balance between the aesthetic and functional aspects of the compensating element (glasses and visual aids).
7. Do the control of quality of the glasses or optical aids made once the assembly.
8. Do the following-up of the treatment and value the satisfaction of the user
9. Making use of machinery, instruments and tools needed to make assembly, adjustments, repairs and quality control of finished product.
11. Individualize treatment planning.
12. Interpret refractive test results to determine the suitable optical prescription.
13. To interpret the results and determine if necessary a treatment.
14. Recognize the characteristics of different population groups according to the age, or demands or visual needs.
15. Recognize if the glasses meet the standards referred to in ophthalmic optics, optical aids and eye protection.
16. Select the appropriate optical aid according to the patient's visual limitations.
17. Being able to take, treat, represent and interpret experimental data. "Use basic laboratory equipment and techniques"
18. Transmit the user the necessary information for make a good use of the compensator system (prescription glasses, protective glasses or optical aids)
20. Value the effects (perceptual changes) caused by the glasses, optical aids and protection elements in the visual system.
21. To evaluate the prescription given the different population groups (age, activities ...), and set specific criteria for selecting frame and lens for each case.
22. Value the impact parameters psychoaesthetic, or psychosocial and economic impact to the user.

Generical:

- 23. Adaptation of all the fields of professional activity envers compatible aspects with the medium ambient (recycling, reuse of the materials,...)
- 24. Acquire communication techniques appropriate to ensure the success of teamwork
- 25. Capacity to assume different roles within the team, leadership, coordination with other members
- 26. Develop empathy with people
- 27. Judgments (ratings) reports and surveys
- 28. Flexibility to integrate into dynamic environments, multidisciplinary and multicultural.
- 29. Encourage methodical work, rigorous, consistent and innovative
- 30. Interpret and use non-verbal language
- 32. Locate new information and the interpretation of it in its context.

TEACHING METHODOLOGY

- Synchronous classes by teachers
- Participatory problem solving classes and real case seminars
- Laboratory practices
- Preparation of a portfolio of the subject
- Attendance and participation in the PRACTICUM 2 (Dispensing) sessions at the CUV.
- Cooperative learning in the classroom (and through Adobe connect and / or google meet) and in the laboratory
- Problem-based learning (PBL) for solving a real case of adaptation
- Use of office tools.

LEARNING OBJECTIVES OF THE SUBJECT

At the end of the course the student must be able to:

- Know the processes of design, manufacture and selection of ophthalmic lenses and glasses frames.
 - Use the techniques of analysis, measurement, correction and control of optical compensating systems on the visual system, in order to optimize their design and adaptation.
 - Evaluate the impact of the aberrations of ophthalmic lenses that compensate for ametropies in the vision of the user of glasses.
 - Evaluate the monocular and binocular effects of ophthalmic lenses.
 - Know the properties and differential characteristics of the eye protection glasses.
 - Calculate the most relevant geometrical, optical and physical parameters that characterize all types of ophthalmic lens used in optometric prescriptions and know how to relate them to the properties that intervene in the adaptation process.
 - Carry out the patient / user care protocol to the consultation / optometric clinic to adapt the glasses.
 - Prescribe, monitor and monitor the glasses as a treatment of ametropia compensation after the complete optometric examination.
 - Select the appropriate frames and lenses according to the specific needs and characteristics of each user.
 - Use the techniques of centering, adaptation, assembly and manipulation specific for all types of optometric prescription glasses and protection goggles.
 - Carry out the delivery of the glasses to the user, giving the precise instructions and doing the necessary anatomical adjustment operations
 - Become familiar with the commercialization of the products, their storage, conservation and the information that must be offered to the user.
 - Apply the knowledge acquired in the previous modules, in Optical, Clinics and Hospitals, Health Centers and Sector Companies.
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STUDY LOAD

Type	Hours	Percentage
Hours small group	40,0	18.69
Self study	126,0	58.88
Hours medium group	48,0	22.43

Total learning time: 214 h

CONTENTS

(ENG) 1.INTRODUCTION TO GLASSES' FITTING

Description:

In this first class, is presented:

- Fitting of glasses as the major treatment of vision defects, in the context of health sciences.
- The impact of the adaptation of glasses in the quality of vision, eye protection, visual performance and self-image users.

Full-or-part-time: 10h

Theory classes: 2h

Laboratory classes: 2h

Self study : 6h

2. GLASSES FITTING PROTOCOL

Description:

This topic deals with the systematic method of choosing, adjusting, focusing, assembling and adapting glasses to a suari with guarantees of success and of control and monitoring of maladaptations.

Full-or-part-time: 11h

Theory classes: 3h

Laboratory classes: 2h

Self study : 6h

3. FRAME SELECTION

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: 23h

Theory classes: 3h

Laboratory classes: 6h

Self study : 14h

(ENG) 3. LENS SELECTION

Description:

This topic includes:

- The minimum lens diameter, 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: 22h

Theory classes: 6h

Laboratory classes: 2h

Self study : 14h

(ENG) 5. MONOFOCAL LENS PRESCRIPTION

Description:

In this topic, several 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.
- Binocular 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.
- The fitting, adjustment and adaptation of single vision prescriptions glasses.

Full-or-part-time: 26h

Theory classes: 8h

Laboratory classes: 4h

Self study : 14h

(ENG) 6. PRISMATIC LENS PRESCRIPTION

Description:

This subject is developed in four sections:

- Requirements to produce a prismatic prescription in 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 installation, adjustment and adaptation of glasses with prismatic prescriptions.

Full-or-part-time: 23h

Theory classes: 6h

Laboratory classes: 3h

Self study : 14h

(ENG) 7. PRESCRIPTIONS WITH MULTIFOCAL LENSES

Description:

The content of this topic is divided in five sections:

- 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.
- The fitting, adjustment and adaptation of glasses with progressive and bifocal prescription.

Full-or-part-time: 33h

Theory classes: 10h

Laboratory classes: 9h

Self study : 14h

(ENG) 7. PRESCRIPTIONS WITH OCUPATIONAL LENSES

Description:

In this subject, three main sections are developed:

- 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.
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Full-or-part-time: 16h

Theory classes: 4h

Guided activities: 2h

Self study : 10h

(ENG) 9. OCULAR PROTECTION PRESCRIPTIONS

Description:

This topic is developed in several sections:

- 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 eye protector.
- The analysis and solution of special cases.

Full-or-part-time: 16h

Theory classes: 4h

Guided activities: 2h

Self study : 10h

GRADING SYSTEM

Overall qualification will be the result of written and individual tests at the end of each theme taught, the actual case of adaptation, the realization and reports of the practices, the preparation of the AIMU portfolio that will include the complementary activities that are proposed, with the following weighting:

EVALUATION WEIGHTING:

THEORY 65%, which includes the following concepts:

15% TESTS AT THE END OF EACH SUBJECT

25% REAL CASE OF ADAPTATION (written and oral presentation)

25% FINAL EXAMINATION

PRACTICES 30%, which include the following concepts:

5% FRONTOFOMETER LEVEL TEST

10% WEEKLY PRACTICE REPORTS

10% SUBJECT PORTFOLIO

10% FINAL EXAM

Information on possible changes in the different assessment activities will be detailed on the ATENEA DIGITAL CAMPUS.

EXAMINATION RULES.

All submissions must match the guidelines published on ATENEA Virtual Campus. On the contrary, it won't be assessed.

BIBLIOGRAPHY

Basic:

- Brooks, Clifford W. System for ophthalmic dispensing. 3rd ed. St. Louis: Butterworth Heinemann, 2006. ISBN 9780750674805.
- Horne, D. F. Spectacle lens technology. Bristol: Adam Hilger, 1978. ISBN 0852742789.
- Bohn, Heiner. Tecnología para ópticos, vol. 1. [s.n. : s.l.], 1989-1990. De núm. 25 (abril 1987) a núm. 35 (novembre 1988).
- Bohn, Heiner. Tecnología para ópticos, vol. 2. [s.n. : s.l.], 1989-1990. De núm. 37 (març 1989) a núm. 58.
- Schulz, Wolfgang. Técnica de centrado. [s.n. : s.l.], 1987-1988. De núm. 25 (abril 1987) a núm. 35 (novembre 1988).
- Salvadó J [et al.]. Tecnología óptica: lentes oftálmicas, diseño y adaptación [on line]. Barcelona: Edicions UPC, 2001 [Consultation: 20/04/2022]. Available on: <http://hdl.handle.net/2099.3/36343>. ISBN 8483014742.
- Fannin, T.; Grosvenor, T. Clinical optics. 2nd ed. Boston: Butterworth-Heinemann, 1996. ISBN 0750696702.
- Jalie, M. The principles of ophthalmic lenses. 4th ed. London: The Association of Dispensing Opticians, 1984. ISBN 0900099208.
- Jalie, Mo. Ophthalmic lenses & dispensing. 3rd ed. Oxford: Butterworth Heinemann, 2008. ISBN 9780750688949.

Complementary:

- Drew, Ralph. Professional ophthalmic dispensing. Chicago: The Professional Press, 1970.
- Salvadó, J. [et al.]. Lentes oftálmicas: problemas. 2a ed. Barcelona: Edicions UPC, 1994. ISBN 8476534299.
- Catàlegs comercials de lents oftàlmiques i muntures, i publicacions internes d'empreses del sector.