Course guide

370024 - OINFANTIL - Paediatric Optometry and Strabismus

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: English

LECTURER

Coordinating lecturer: Mireia Pacheco Cutillas

Others:

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.
CE24. Identify and apply vision screening techniques to various populations.

General:
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.
CG3. Advise and guide patients and relatives during the entire treatment.
CG5. Give opinions and produce reports and expert reports when necessary.
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.
CG9. Expand and update one's professional abilities through continuing education.
CG11. Locate new information and interpret it in context.
CG13. Demonstrate and interpret methods for critical analysis and theory development and apply them to the field of optometry.
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:
CT7. Foreign language. Demonstrate knowledge of a foreign language, preferably English, at an oral and written level that is consistent with graduates' future needs.

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.
TEACHING METHODOLOGY

In this course expository-collaborative lectures will be combined with informal interactive learning activities with a clinical approach, using audiovisual media. In this sense, apart from the EXPOSITORY CLASS, there will be SEMINARS and clinical cases exercises, through which, an interactive debate and the critical spirit of the students will be encouraged. In the case of PRACTICALS, it is proposed to work always in small groups. The results of the examination techniques and tests obtained in each case examined will be recorded in a dossier, for further analysis and evaluation and as evidence of the work done. It will also be necessary to solve practical exercises about methodology on tests and techniques, which will also be included in the dossier.

PERSONAL WORK: Students will be provided with the resources (textbooks and / or papers, as well as appropriate self-assessment exercises) together with the guidance needed to achieve the learning objectives of the course. This learning process will be guided through the moodle intranet “Atenea”, which will not only be a way of communication with the student, but also a tool for presenting and sharing study material, and through which the tutorials to guide and resolve questions will be encouraged.

LEARNING OBJECTIVES OF THE SUBJECT

Knowledge
- To understand the maturation process of the visual system and the normal sensory and motor development of vision in the infant and child
- To know the expected normality values with age: VA, refraction error, binocular state
- To know the developmental anomalies and the most prevalent congenital eye conditions that lead to visual impairment in infants, their clinical characteristics and epidemiology
- To know the appropriate clinical techniques and tests to assess vision development of children at various ages
- To know the definition, prevalence, classification and mechanisms of amblyopia
- To know the examinations and clinical tests for the evaluation and management of the child with strabismus (diagnosis, treatment and management of the most frequent clinical forms of esotropia and non-paralytic exotropia: it does not include vertical, cyclotorsional or paretic strabismus).
- To know the different treatment options for amblyopia according to scientific evidence (EBP)
- To know the goal and characteristics of vision screening in children as a health prevention program: adequate protocols, cut-off criteria, sensitivity and specificity
- To know the role of the optometrist in the detection, assessment, management and referral of children who deviate from normal patterns of visual development to identify and manage situations that require referral / interprofessional collaboration

Practical skills
- To develop adequate communication skills with paediatric patients
- To demonstrate an understanding of infant vision screening techniques
- To acquire clinical skills to assess vision in preschool children: VA, refraction, binocular state (binocular alignment, motility / comitance, accommodation, vergence), colour vision and ocular health
- To acquire clinical skills to perform visual examination in amblyopic patients
- To acquire clinical skills to perform a visual examination in patients with strabismus, including incomitant deviations
- To know how to interpret the results of the tests carried out
- To develop the ability to examine binocular vision (accommodation, sensory and motor fusion and motility) in children
- To develop the ability to manage preschool children at risk of developing or presenting an abnormality of binocular vision.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Guided activities</td>
<td>3,0</td>
<td>1.96</td>
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<tr>
<td>Self study</td>
<td>90,0</td>
<td>58.82</td>
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<td>Hours medium group</td>
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<td>Hours small group</td>
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<td>19.61</td>
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**Total learning time:** 153 h
## CONTENTS

<table>
<thead>
<tr>
<th>Title English</th>
<th>Description</th>
<th>Full-or-part-time</th>
<th>Practical classes</th>
<th>Self study</th>
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<td>8h</td>
<td>2h</td>
<td>6h</td>
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<td></td>
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<td>12h</td>
<td>4h</td>
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<td><strong>Full-or-part-time:</strong> 35h</td>
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<td>Laboratory classes: 14h</td>
<td>Self study : 16h</td>
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<td>content english</td>
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<tr>
<td><strong>Full-or-part-time:</strong> 8h</td>
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<tr>
<td>Laboratory classes: 2h</td>
<td>Self study : 4h</td>
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**Strabismus**

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<tbody>
<tr>
<td>Diagnosis, treatment and management of non-paralytic strabismus.</td>
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<tr>
<td>Clinical cases seminar on management of strabismus associated to BV anomalies and refractive errors.</td>
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<tr>
<td>Acquired strabismus and associated diplopia. Treatment strategies for diplopia.</td>
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**Full-or-part-time:** 20h

| Practical classes: 10h | Self study : 10h |

**ACTIVITIES**

**Practical sessions**

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<td>Practical sessions of clinical examination in children and specific tests for the evaluation of strabismus</td>
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**Full-or-part-time:** 30h

| Laboratory classes: 30h |

**Dossier practical exercises**

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<td>Solving of exercises on concepts and results from the examination techniques in strabismus.</td>
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**Full-or-part-time:** 10h

| Self study: 10h |
Clinical Cases Seminars

Description:
- criteria for refractive error prescription in preschool children
- strabismus associated with refractive errors and binocular vision anomalies
- design, preparation and discussion of a protocol for visual screening in children

Full-or-part-time: 11h
Practical classes: 4h
Laboratory classes: 2h
Self study: 5h

written test on methods for clinical exam in children and strabismus

Full-or-part-time: 12h
Practical classes: 2h
Self study: 10h

Global and final exam on all course contents

Full-or-part-time: 12h
Practical classes: 2h
Self study: 10h

European Diploma competences

Description:
B7 Vision Development and Ageing.
(1) normal vision development in the child,
(5) normal changes in vision with ageing,
(2) normal motor development in the infant and child,
All of these competencies or skills are worked on the following subjects Vision development, Refractive development

(4) effects of early environmental restrictions,
(6) anomalies of child development,
(8) clinical characteristics of children who deviate from normal patterns of development, and epidemiology of developmental disorders,
All of these competencies or skills are worked on the following subjects: Clinical examination in children, Vision development, Refractive development, Developmental and congenital ocular anomalies and associated visual impairment, Amblyopia, Diagnosis, treatment and management of most common strabismus.

(7) clinical techniques and tests to assess the development of children at various ages,
(9) tests that diagnose vision problems which may be associated with deviations from normal patterns of development,
All of these competencies or skills are worked on the following subjects: Clinical examination in children, Vision development, Refractive development, Developmental and congenital ocular anomalies and associated visual impairment, Amblyopia, Clinical examination of strabismus

(10) tests used by optometrists to determine a child’s level of visual-perceptual development
This competency is not worked

(11) role of the optometrist and other disciplines in screening, evaluating, managing and referring children who deviate from normal patterns of development, including anomalies of binocular vision,
All of these competencies or skills are worked on the following subjects: Clinical examination in children, Refractive development, Developmental and congenital ocular anomalies and associated visual impairment, Amblyopia, Diagnosis, treatment and
management of most common strabismus and Vision screening in preschool children

(20) societal implications of colour vision anomalies,
This competency or skill is worked on the following subjects: Clinical examination in children

(21) assessment of the need for referral and consultation with other disciplines,
All of these competencies or skills are worked on the following subjects: Clinical examination in children, Refractive development, Developmental and congenital ocular anomalies and associated visual impairment, Amblyopia. Diagnosis, treatment and management of most common strabismus. Clinical examination of strabismus and Vision screening in preschool children

B 8: Refraction. Knowledge
(6) standard subjective refraction procedures, including astigmatic axis, crossed cylinders, stenopaic slit, fogging methods and equalisation (duo chrome) techniques,
(7) binocular subjective refraction procedures, including accommodation binocular balancing methods,
These competencies are not worked

(8) cycloplegic subjective and objective techniques,
This competencies or skills are worked on the following subjects: Clinical examination in children, Refractive development

B 10: Ocular Motility and Binocular Vision. Knowledge.
(3) examination of young children,
(5) evaluation and management of heterotropia (strabismus)
(6) examination and management of incomitant deviations and nystagmus.

All of these competencies or skills are worked on the following subjects: Clinical examination in children and Clinical examination of strabismus, but not nystagmus, nor incomitant or paretic deviations

B 10: Ocular Motility and Binocular Vision. Practical
The ability to assess binocular status (accommodation, vergence and motility/eye movement) using objective and subjective tests.
The ability to manage a patient presenting with an incomitant deviation (i.e. an anomaly of the extra-ocular muscles).
The ability to manage children at risk of developing an anomaly of binocular vision.
The ability to manage patients presenting with an anomaly of binocular vision.
All of these competencies or skills are worked on the labs / practical sessions

B 12B: Investigative Techniques. Knowledge
(1) paediatric communication skills,
(6) paediatric eye disorders,
All of these competencies or skills are worked on the following subjects: Clinical examination in children, Developmental and congenital ocular anomalies and associated visual impairment and Clinical examination of strabismus

B 12B: Investigative Techniques. Practical
Demonstrate an understanding of techniques for assessment of vision in infants.
All of these competencies or skills are worked on the labs / practical sessions

Full-or-part-time: 10h
Self study: 10h

GRADING SYSTEM

Written test 1: Clinical Exam: techniques for preschool children and for strabismus 30%
Written Test 2: Global and final exam on all course contents 35%
Assessment of clinical skills and methods for the examination of children, during practicals. Continuous assessment 10%
Assessment of clinical skills and methods for the examination of strabismus, during practicals. Continuous assessment 10%
Assessment of transversal competences:
CT5 by answering a questionnaire (Athena) on the search for information on a topic related to the contents of the subject
CT7 The subject is taught in English, the assessment tests will be in English, so this competence will be intrinsically assessed
Assessment of problem resolution on concepts and results from strabismus testing (dossier exercises) 15%
EXAMINATION RULES.

In the event of partial or total plagiarism in any of the assessments activities, the provisions of the General Academic Regulations of UPC will be applied: “Irregular actions that may lead to a significant variation in the qualification of one or more students constitute a fraudulent performance of an act of evaluation. This action involves the descriptive and numerical grade of 0 for the actual test and the total assessment act and the course, without prejudice to the disciplinary process that may arise as a result of fraudulent activity performed. If the student considers the decision to be wrong, he or she may file a complaint with the dean of the school and, if the answer is not satisfactory, he or she may lodge an appeal with the principal. The total or partial reproduction of the academic or research works, or their use for any other purpose, must have the explicit permission of the authors. It is the responsibility of the dean of the school to resolve the allegations on the aspects not included in the regulations”.

BIBLIOGRAPHY

Basic:
- Rosenbloom, A., Morgan, M. W.. Principles and Practice of Pediatric Optometry. 1990: Lippincott,

Complementary: