Course guides
370010 - MATERIALS - Optical Materials

Unit in charge: Terrassa School of Optics and Optometry
Teaching unit: 713 - EQ - Department of Chemical Engineering.
Degree: BACHELOR’S DEGREE IN OPTICS AND OPTOMETRY (Syllabus 2020). (Compulsory subject).
Academic year: 2020  ECTS Credits: 6.0  Languages: Catalan, Spanish

LECTURER

Coordinating lecturer: Garriga Solé, Pere (http://futur.upc.edu/PereGarrigaSole)
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Morillo Cazorla, Margarita (http://futur.upc.edu/MargaritaMorilloCazorla)

PRIOR SKILLS


DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
CE05. (ENG) The ability to understand the structure of matter, the chemical processes of solutions and the structure, properties and reactivity of organic compounds. The ability to understand the composition and structure of the molecules that make up living beings. The ability to understand the transformation of certain biomolecules into others. The ability to study the molecular basis of the storage and expression of biological information. The ability to apply biochemical knowledge to the eye and the process of vision.

CE07. (ENG) The ability to understand and manage basic laboratory materials and techniques.
CE11. (ENG) The ability to understand the physical and chemical properties of the materials used in optics and optometry.

CE23. (ENG) The ability to understand the properties of the types of contact lenses and ocular prostheses. The ability to understand the geometry and physical-chemical properties of contact lenses and associate them with specific ocular and refractive characteristics. The ability to understand and employ clinical and instrumental protocols associated with fitting contact lenses. The ability to understand solutions for upkeep, diagnosis and treatment and to associate them with lenticular and ocular characteristics. The ability to apply the clinical procedures associated with contact lens fitting to various refractive and ocular dysfunctions. The ability to apply the controlled modification techniques of corneal topography with the use of contact lenses. The ability to detect, assess and resolve abnormalities associated with the use of contact lenses. The ability to adapt contact lenses and ocular prostheses to improve vision and the outer appearance of the eye.
Generical:
CG6. (ENG) The ability to assess and incorporate the technological improvements necessary to properly carry out professional activities.

CG11. (ENG) The ability to locate new information and interpret it in context.

CG12. (ENG) The ability to understand the general structure of optometry and its connection to other specific disciplines and other complementary ones.

CG16. (ENG) The ability to participate effectively in both single-discipline and multidisciplinary work groups on projects related to 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. (ENG) Foreign language. Knowledge of a foreign language, preferably English, at an oral and written level that is consistent with graduates’ future needs.

TEACHING METHODOLOGY

LEARNING OBJECTIVES OF THE SUBJECT

En acabar l'assignatura Materials Òptics, l'estudiant o estudianta ha de ser capaç de:

1. Utilitzar material i tècniques bàsiques de laboratori, i prendre, tractar, representar i interpretar dades experimentals.
2. Relacionar l'estructura amb les propietats dels compostos inorgànics, orgànics i biomolècules i les seves aplicacions com a materials òptics.
3. Conèixer les característiques dels materials emprats en la fabricació de lents oftàlmiques, lents de contacte i muntures per a ulleres.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours small group</td>
<td>15,0</td>
<td>10.00</td>
</tr>
<tr>
<td>Hours medium group</td>
<td>45,0</td>
<td>30.00</td>
</tr>
<tr>
<td>Self study</td>
<td>90,0</td>
<td>60.00</td>
</tr>
</tbody>
</table>

Total learning time: 150 h
## CONTENTS

### 1. INORGANIC MATERIALS

**Description:**
English contents

**Full-or-part-time:** 75h
- Practical classes: 22h 30m
- Laboratory classes: 7h 30m
- Self study: 45h

### 2. ORGANIC MATERIALS

**Description:**
content english

**Full-or-part-time:** 75h
- Practical classes: 22h 30m
- Laboratory classes: 7h 30m
- Self study: 45h

## ACTIVITIES

### 2. LABORATORY PRACTICE

**Full-or-part-time:** 12h
- Laboratory classes: 12h

### 2. APPLICATION EXERCICES

**Full-or-part-time:** 14h
- Practical classes: 14h

### 3. BIBLIOGRAPIC REPORT

**Full-or-part-time:** 2h
- Practical classes: 2h

### 4. PARTIAL EXAMS

**Full-or-part-time:** 4h
- Practical classes: 4h

### 5. FINAL EXAM

**Full-or-part-time:** 2h
- Practical classes: 2h
6. LABORATORY TEST

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

name english

GRADING SYSTEM

BIBLIOGRAPHY

Basic:

Complementary: