

COURSE OUTLINE

(1) GENERAL

SCHOOL	HEALTH and CARE SCIENCES		
ACADEMIC UNIT	BIOMEDICAL SCIENCES		
DIVISION	OPTICS AND OPTOMETRY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	3062	SEMESTER	3o
COURSE TITLE	OPTICAL MATERIALS OF OPHTHALMIC LENSES & HISTORY OF GLASS		
INDEPENDENT TEACHING ACTIVITIES <i>if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i>		WEEKLY TEACHING HOURS	CREDITS
Lectures		4	5
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	<i>Special background,</i>		
PREREQUISITE COURSES:	None		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	NO		
COURSE WEBSITE (URL)	..		

(2) LEARNING OUTCOMES

<p>Learning outcomes <i>The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.</i> <i>Consult Appendix A</i></p> <ul style="list-style-type: none"> • <i>Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area</i> • <i>Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B</i> • <i>Guidelines for writing Learning Outcomes</i>
<p>Upon successful completion of the course the student will be able:</p> <ul style="list-style-type: none"> • to know the history of glass, types and use of lens materials • to understand the choice of optical materials, their properties and their advantages • to understand the basic principles and terms of Optics and the use of ophthalmic lenses. • to know ways to solve problems and to make use of scientific methods to deal with.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information,
with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas

Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking
.....
Others...
.....

Working independently
Team work.

(3) SYLLABUS

1. Glass in Prehistoric times - From the Egyptians to Murano. The Arabs and the development of Glass - From the "common" to the "Optical" Glass. - Basic Types of Optical Glass: CROWN Glass - FLINT Glass - High Refractive Glass - Organic [Plastic] Glass - Polymers in the Optical and Ophthalmic Industry
2. Optical Properties of Ophthalmic Material - Absorption and color - Radiation Protection - Polarizing and Photochromic Material - Design Optical Lens Improvements - Surface Improvements - Anti-reflective and anti-scratch coatings.
3. Optical Characteristics of Ophthalmic Lenses, Main foci-Main levels-Refractive and Diffusion Indices Thickness and specific gravity, Curvature and Strength. Neutralization and ways of measuring power.
4. Ophthalmic Lens Frame Materials - From Wood, Tartaruga and Metals - Plastic Materials - Resins and Acetate - Gold and Platinum - Metal Alloys , Nickel and modern materials.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Face-to-face	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	Use of Open E-Class in teaching	
TEACHING METHODS <i>The manner and methods of teaching are described in detail. Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non- directed study according to the principles of the ECTS</i>	Activity	Semester workload
	Lectures	60
	Study and analysis of bibliography, tutorials	80
	Course total	140
	STUDENT PERFORMANCE EVALUATION <i>Description of the evaluation procedure</i>	
	<p><i>Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other</i></p> <p><i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i></p>	
I. Written final exam (100%)		

(5) ATTACHED BIBLIOGRAPHY

<ul style="list-style-type: none"> - <i>Suggested bibliography:</i> - GREEK <ol style="list-style-type: none"> 1. History and Optics of the Glass - Dr. Aristides Chandrinos, ION Publications, 2011, ISBN 9789606970535 <ul style="list-style-type: none"> - ENGLISH <ol style="list-style-type: none"> 2. <i>A short history of glass - : H.N. Abrams in association with the Corning Museum of Glass, 1990</i> 3. <i>Glass and optical materials II - edited by Edward N. Boulos and Dennis R. Platts. - Westerville, Ohio : American Ceramic Society ; Amsterdam, The Netherlands : Elsevier Science, 1994, 1996</i>

*4 Introduction to glass science and technology - James E. Shelby. - Cambridge, England :
The Royal Society of Chemistry, 1997*