



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Fisica e Chimica - Emilio Segrè		
ACADEMIC YEAR	2021/2022		
FIRST CYCLE COURSE	OPTICS AND OPTOMETRY		
SUBJECT	HISTORY OF OPTICS AND MODERN PHYSICS		
TYPE OF EDUCATIONAL ACTIVITY	D		
AMBIT	10542-A scelta dello studente		
CODE	22000		
SCIENTIFIC SECTOR(S)	FIS/08		
HEAD PROFESSOR(S)	AGLIOLO GALLITTO	Professore Associato	Univ. di PALERMO
	AURELIO		
OTHER PROFESSOR(S)			
CREDITS	6		
INDIVIDUAL STUDY (Hrs)	94		
COURSE ACTIVITY (Hrs)	56		
PROPAEDEUTICAL SUBJECTS			
MUTUALIZATION			
YEAR	3		
TERM (SEMESTER)	1° semester		
ATTENDANCE	Mandatory		
EVALUATION	Out of 30		
TEACHER OFFICE HOURS	<p>AGLIOLO GALLITTO AURELIO</p> <p>Tuesday 14:00 16:00 Via Archirafi 36, studio del docente (per gli studenti di Scienze Fisiche). Viale delle Scienze, Ed.18 (per gli studenti di Ottica e Optometria e gli studenti di Scienze Biologiche). Modalità a distanza. Su appuntamento.</p> <p>Thursday 14:00 16:00 Via Archirafi 36, studio del docente (per gli studenti di Scienze Fisiche). Viale delle Scienze, Ed.18 (per gli studenti di Ottica e Optometria e gli studenti di Scienze Biologiche). Modalità a distanza. Su appuntamento.</p>		

DOCENTE: Prof. AURELIO AGLIOLO GALLITTO

PREREQUISITES	Knowledge of classical physics and in particular of geometrical and physics optics.
LEARNING OUTCOMES	<p>Knowledge and understanding Acquisition of methods for the determination of the criteria for identifying the historical period in which a certain scientific development has taken place concerning optics and modern physics.</p> <p>Applying knowledge and understanding The laboratory activity aims to bring the students to reach a level of autonomy sufficient to autonomously identify the historical period of the development of a scientific instrument/apparatus of optics or modern physics. The student must have the ability to draw up a laboratory report concerning a scientific instrument/apparatus of historical interest.</p> <p>Making judgements The student must be able to deal independently with scientific reasoning concerning the history of optics and modern physics. Be able to evaluate the historical period in which a certain scientific development took place.</p> <p>Communication skills The student must have the ability to face an interview concerning the historical development of optics and modern physics and to expose in a clear and correct way also in collaboration with the other elements of his own working group. It must have the capacity to draw up a group report on the laboratory activities carried out.</p> <p>Learning skills On the basis of the skills acquired during the teaching, the student must be able to organize, perform and evaluate a simple study of the historical development of a scientific instrument (apparatus of optics or modern physics).</p>
ASSESSMENT METHODS	<p>Final assessment consists of an oral examination and a discussion on the laboratory report.</p> <p>The oral exam consists of a discussion about the topics of teaching and a discussion on the laboratory report. This exam allows one to evaluate, in addition to the knowledge of the candidate, also possession of analytical skills and ability in describing phenomena and procedures.</p> <p>The final evaluation, suitably graduated, will be formulated on the basis of the following conditions:</p> <p>a) Basic knowledge of the history of optics and modern physics, sufficient ability in analyzing and sufficient ability of describing (18-21);</p> <p>b) Fair knowledge of the history of optics and modern physics, fair ability in analyzing and fair ability of describing (22-25);</p> <p>c) Deep knowledge of the history of optics and modern physics, good analytical skills and ability in describing (26-28);</p> <p>d) Thorough and widespread knowledge of the studied history of optics and modern physics, excellent analytical skills and excellent ability in presenting (29-30L).</p>
EDUCATIONAL OBJECTIVES	The main objective of the teaching of HISTORY OF OPTICS AND MODERN PHYSICS (6 CFU) is to acquire the basic notions of the historical development of optics and modern physics. In particular, through laboratory activities the student will develop specific skills that will allow him to identify the fundamental aspects in the historical development of scientific instrumentation for the study of optics and modern physics.
TEACHING METHODS	<p>The teaching is semestral and takes place in the first educational period of the III year of the bachelor degree course.</p> <p>The didactic activity is developed through lectures and laboratory practice concerning the study of instruments of the Historical Collection of Physics Instruments of the University of Palermo.</p> <p>The aim of the lectures is to give basic knowledge on meaning of the historical development of the optics and the modern physics.</p> <p>The laboratory activity concerns the study of optics and modern physics instruments and apparatuses of historical interest with the aim to give students</p>

	<p>the possibility to acquire competences regarding the historical development of the optics and the modern physics. For the laboratory activity, it is required the preparation of a report about the laboratory activity carried out.</p> <p>The laboratory activity is intended to test the ability to apply knowledge and is part of the exam.</p>
SUGGESTED BIBLIOGRAPHY	<p>Testo base/basic textbook: Olivier Darrigol, A History of Optics. From Greek Antiquity to the Nineteenth Century, Oxford 2012, ISBN: 978-0198766957</p> <p>Testo base/basic textbook: David Halliday Robert Resnick Jearl Walker, Fondamenti di Fisica. Fisica Moderna, Settima edizione Casa Editrice Ambrosiana 2015, ISBN: 978-8808187789</p> <p>Materiale didattico e dispense curate dal docente</p>

SYLLABUS

Hrs	Frontal teaching
4	The optics in the antiquity
4	The geometrical optics
4	Historical development of the geometrical optics instruments: mirrors and lens
4	The physics optics
4	Historical development of the physics optics instruments: interference and diffraction
6	The development of spectroscopy
6	Historical development of the modern physics: atomic and nuclear physics
Hrs	Workshops
24	Study of the historical development of scientific instruments of didactic interest regarding the optics or the modern physics, belonging to the Historical Collection of Physics Instruments of the Palermo University and the redaction of a report about the laboratory activities carried out.