COURSE OUTLINE

1. GENERAL

SCHOOL	OF SCIENCES		
DEPARTMENT	OF PHYSICS		
LEVEL OF STUDIES	Level 6		
COURSE CODE	SSE801	**SEMESTER**	8º
COURSE TITLE	Nanoelectronics		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
LECTURES	3	6
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	Scientific Area
PREREQUISITES:	-
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	NO
COURSE URL:	https://eclass.emt.duth.gr/courses/PHYSICS234/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Aim of this course of the course is to introduce nanoelectronics (materials and devices) to Physics department students.
Upon successful completion of the course, the student will have acquired:

- Knowledge of nanoelectronic devices operation.
- Ability to design nanomaterials and nanodevices
- Ability to apply this knowledge to solve related complex problems.
- Ability to think critically so that they can evaluate, analyze and correlate this knowledge.
- Ability to interpret phenomena of everyday life.
- Ability to develop cooperation with other students to solve problems related to this course

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

Production of new research ideas
• *Search for, analysis and synthesis of data and information, with the use of the necessary technology* • *Decision-making* • *Working independently* • *Working in an international environment* • *Production of new research ideas*

3. COURSE CONTENT

Fundamental concepts of nanoscopic physics,
Description of necessary physical principles for understanding nanoelectronic devices.
Description of nanoelectronic devices,
Nanosolids,
Semiconductor quantum dots,
Nanoscopic electrodes,
Nanoparticles,
Nanostructures,
Nanostructured materials,
Carbon nanowires,
Nanowire FETs.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	Face to Face
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	Use of ICT in Teaching Use of ICT in Communication with students
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report,Clinical*	**Student Assessment Languages** Greek **Methods (Formative or Concluding)** Concluding **Student Assessment Methods** — **Percentage** Written Exam with Problem Solving — 50 *Essay / Report, Presentation in audience* — *50*

Activity	*Workload/semester*
Lectures	39
Self study	85
Project	26
Course total (25 hours / ECTS)	**150**

examination of a patient,Artistic interpretation, Other/Others *Please indicate all relevant information about the course assessment and how students are informed*	

5. SUGGESTED BIBLIOGRAPHY

- Suggested bibliography:
- Related academic journals:

- Αρχές νανοηλεκτρονικής, Hanson George W., Εκδόσεις Τζιόλα