COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF SCIENCES		
DEPARTMENT	DEPARTMENT OF CHEMISTRY		
LEVEL OF STUDIES	ISCED level 6 – Bachelor's or equivalent level		
COURSE CODE	YN205	**SEMESTER**	2nd Semester
COURSE TITLE	Physics II		

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**
	4	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*	General Background
PREREQUISITES:	
TEACHING & EXAMINATION LANGUAGE:	Greek
COURSE OFFERED TO ERASMUS STUDENTS:	NO
COURSE URL:	https://eclass2.emt.duth.gr/courses/CHEM-N2105/

(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.

The course covers at a basic level the concepts of electricity, circuits, magnetism and electromagnetism, generators and motors, alternating currents and transformers.

The course aims to enable students to:

- describe an electrical circuit,
- recognize its behaviour,
- select the appropriate transformer,
- select / connect the appropriate DC or AC machine.

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
Production of new research ideas
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

Search, analysis and synthesis of data and information, using the necessary technologies. Personal assignments.

(3) COURSE CONTENT

Week 1. The nature of electricity - electrical standards and conventions

Week 2. Ohm's law and power

Week 3. Direct-Current series circuits, batteries

Week 4. Kirchhoff's laws - determinant solutions for dc networks

Week 5. Network calculations

Week 6. Magnetism and electromagnetism

Week 7. Direct-Current generators and motors

Week 8. Principles of alternating current

Week 9. Inductance, inductive reactance, and inductive circuits

Week 10. Capacitance, capacitive reactance, and capacitive circuits

Week 11. Transformers

Week 12. Three-phase systems

Week 13. Waveforms and time constants – electrical measurements

(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.*	

Activity	Workload/semester
Lectures	26
Bibliographic research & analysis	32
Unguided study	40
Exams	2
Total	100

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*	**Student evaluation languages** Greek **Method (Formative or Concluding)** Summative **Student evaluation methods** Written Exams with Problem Solving

Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others *Please indicate all relevant information about the course assessment and how students are informed*	**Rate** **100**

(5) SUGGESTED BIBLIOGRAPHY

- Basic Electricity: Milton Gussow (Senior Engineer, The Johns Hopkins University) ISBN: 978-0-07-170250-8
- Ηλεκτρισμός, Συγγραφείς: Παπαδημητράκη - Χλίχλια Ελένη, Τσουκαλάς Ιωάννης Α

Related scientific journals:

- IEEE Journals for electrical engineers
- IEEE Transactions on consumer electronics