

ECTS

Course information in English

General course information:

Course title:	PHYSICS II	Course code:	CE2_U02
Credits:	6	Work load (hours):	180
Course level:	Undergraduate <input checked="" type="checkbox"/>	Graduate <input type="checkbox"/>	
Course type:	Mandatory <input checked="" type="checkbox"/>	Selective <input type="checkbox"/>	
Course category:	Basic <input checked="" type="checkbox"/>	Orientation <input type="checkbox"/>	
Semester:	2	Hours per week:	4
Course objectives (capabilities pursued and learning results):			
<p>This course aims to a systematic presentation of principles in the domain of Electromagnetism and Optics along with a brief introduction to Atomic and Nuclear Physics. At the end of the semester the students can solve problems of electricity, electromagnetism, optics atomic and nuclear physics. They are also able to explain physical phenomena and technological applications related with the above mentioned notions. They are also capable to perform simple laboratory exercises and produce the corresponding technical reports.</p>			
Prerequisites:			
<ul style="list-style-type: none">• Knowledge of basic physic concepts.• Basic Knowledge of Differential and Integral Calculus			

Instructor's data:

Name:	Theodoros Karakasidis
Level:	Associate Professor
Office:	Building of the Department of Civil Engineering, 1 st floor
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Other tutors:	

Specific course information:

Week No.	Course contents	Hours	
		Course attendance	Preparation
1	Electrostatics. Electric charge. Coulomb's Law. Electric field.	4	5
2	Gauss' Law for electric field.	4	5
3	Magnetic forces on moving charges and electric currents	4	6
4	Magnetic fields produced by moving charges and electric currents.	4	6
5	Electromagnetic fields in matter.	4	6
6	Ampere's Law.	4	5
7	Faraday's Law.	4	5
8	Electromagnetic waves.	4	6
9	Direct electric current. Alternating current.	4	6
10	Geometrical optics. Reflection – Refraction. Polarization.	4	5
11	Interference	4	6
12	Diffraction.	4	6
13	Lasers. Molecular spectroscopy. Elements of molecular physics.	4	6
14	Elements of nuclear physics. Radioactivity.	4	6

Additional hours for:			
Class project	Examinations	Preparation for examinations	Educational visit
17	3	25	

Suggested literature:

- D. C. Giancoli, Physics for Scientists & Engineers with Modern Physics, Addison-Wesley, 4th Edition, 2008.
- D. Halliday, R. Resnick, J. Walker «Fundamentals of Physics», John Wiley & Sons; 5th edition, 1997.
- K. W.Ford, “Classical and Modern Physics», John Wiley & Sons, 1974.
- Paul G. Hewitt, J. Suchocki, L. A. Hewitt «Conceptual Physical Science”, Longman; 2nd edition (January 1999)
- M. Alonso, E. J. Finn Physics, Addison-Wesley Publishing; 1992.
- D. Young, R. A. Freedman, T. R. Sandin, A. Lewis Ford, Sears and Zemansky's University Physics (10th Edition) Addison-Wesley Pub Co; 10th edition, 1999

Teaching method (*select and describe if necessary - weight*):

Teaching	<input checked="" type="checkbox"/>	70%
Seminars	<input type="checkbox"/>%
Demonstrations	<input type="checkbox"/>%
Laboratory	<input checked="" type="checkbox"/>	10%
Exercises	<input checked="" type="checkbox"/>	20.%
Visits at facilities	<input type="checkbox"/>%
Other (<i>describe</i>):	<input type="checkbox"/>%
Total		100%

Evaluation method (*select*)- **weight**:

	<u>written</u>	<u>%</u>	<u>Oral</u>	<u>%</u>
Homework	<input checked="" type="checkbox"/>	15	<input type="checkbox"/>	
Class project	<input type="checkbox"/>		<input type="checkbox"/>	
Interim examination	<input type="checkbox"/>		<input type="checkbox"/>	
Final examinations	<input checked="" type="checkbox"/>	85	<input type="checkbox"/>	

Other (<i>describe</i>):	<input type="checkbox"/>		<input type="checkbox"/>	
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