

ECTS

Course information in English

General course information:

Course title:	PHYSICS I	Course code:	CE01_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:	1	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 Classical Mechanics (motion and dynamics of a particle and body), Vibrations and Waves as well as Thermodynamics. At the end of the semester the students can solve problems of motion and dynamics of point particle and a solid body as well as basic subjects of thermodynamics, energy balances and phase transitions. 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
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Other tutors:	

Specific course information:

Week No.	Course contents	Hours	
		Course attendance	Preparation
1	Kinematics. Relative Motion. Galilean Transformation.	4	5
2	Forces. Newton's Laws. Torques, Dynamics of rigid bodies.	4	5
3	Work – Power – Energy.	4	6
4	Potential and kinetic energy.	4	6
5	Momentum – angular momentum.	4	6
6	Mechanical properties of matter.	4	5
7	Solids, liquids, gases.	4	5
8	Hydrostatic pressure. Hydrodynamics/aerodynamics. Motion of fluids.	4	6
9	Harmonic motion. Waves. Superposition of waves. Acoustics.	4	6
10	Temperature and molecular energy.	4	5
11	Ideal and real gases.	4	6
12	Heat. Heat transfer. Thermodynamics.	4	6
13	Reversible and irreversible processes.	4	6
14	Laws of Thermodynamics. Entropy.	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 (describe):	<input type="checkbox"/>%
Total		100%

Evaluation method (select) - weight:

	<u>written</u>	<u>%</u>	<u>Oral</u>	<u>%</u>
Homework	<input checked="" type="checkbox"/>	85	<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"/>	15	<input type="checkbox"/>	
Other (describe):	<input type="checkbox"/>		<input type="checkbox"/>	

