

## ■ CE66 - Astronomy I

### GENERAL

<b>SCHOOL</b>	EXACT SCIENCES		
<b>DEPARTMENT</b>	MATHEMATICS		
<b>LEVEL OF STUDIES</b>	UNDERGRADUATE		
<b>COURSE CODE</b>	CE66	<b>SEMESTER</b>	F
<b>COURSE TITLE</b>	ASTRONOMY I		
<b>INDEPENDENT TEACHING ACTIVITIES</b>	<b>WEEKLY TEACHING HOURS</b>	<b>ECTS</b>	
Lectures	4	5	
<b>COURSE TYPE</b>	General Knowledge		
<b>PREREQUISITE COURSES</b>	-		
<b>LANGUAGE OF TEACHING AND EXAMINATIONS</b>	Greek/English		
<b>THE COURSE IS OFFERED TO ERASMUS STUDENTS</b>	YES		
<b>COURSE WEBSITE (URL)</b>	<a href="http://eclass.uowm.gr/">http://eclass.uowm.gr/</a>		

### LEARNING OUTCOMES

<b>Learning Outcomes</b>
<p>With the successful completion of the course the students will be able to:</p> <ul style="list-style-type: none"> <li>• know the basic tools, physical quantities as well as standard magnitude classes of astronomy,</li> <li>• know the radiation mechanism of celestial bodies,</li> <li>• understand the basic physics of the Sun,</li> <li>• know the stellar structure, evolution and fate of stars,</li> <li>• know basic concepts of astronomy such as the movements of the Earth, spherical trigonometry, time, calendars, etc.</li> </ul>

- study problems of Celestial Mechanics such as: Newtonian force fields, problem of two, three and N bodies,
- know how the Lagrange-Hamilton theory is applied to the problems of Celestial Mechanics.

### General Competencies

- Search for, analysis and synthesis of data and information, with the use of the necessary technology.
- Decision making.
- Production of free, creative and inductive thinking.

### CONTENT OF THE COURSE

Basic concepts of Astronomy. Movements of the Earth-planets. Astronomical coordinate systems, Stellar magnitudes and distances. Elements of Spherical Trigonometry. Time (counting and calendars). Solar system. Kepler's Laws, N-body Problems in Dynamical Astronomy and especially in Celestial Mechanics. Problems of Dynamical Astronomy. Final stages: white dwarfs, neutron stars and black holes. Overview of the Sun. Solar system. Variable and idiosyncratic stars. Star groups and clusters. Interstellar matter. Our galaxy. The other galaxies. Cosmology.

### TEACHING AND LEARNING METHODS - EVALUATION

<b>TEACHING METHOD</b>	In the classroom.	
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b>	e-Lectures. Use of e-class. Communication through face-to-face discussions and e-mails.	
<b>TEACHING ORGANIZATION</b>	<b>Activity</b>	<b>Semester Workload</b>
	Lectures	52 hours
	Projects	42 hours
	Individual Study	31 hours
	Course Total (25 hours per ECTS)	125 hours
<b>STUDENT EVALUATION</b>	Projects 10%. Progress-exam 20%. Written final examination 70%.	

## **RECOMMENDED BIBLIOGRAPHY**

1. The universe that I loved, S. Theodosiou, Em. Danezis, Diavlos Publications. (Greek)
2. Introduction to modern astronomy, Ch. Varvoglis, I. Seiradakis, Agis-Savvas Gartaganis Publications. (Greek)
3. Astrophysics, Volumes I and II, F. Shu, Foundation for Technology and Research University Press of Crete. (Greek)