

### 315. Surveying and forest measurements

Instructor: Stergios Tampekis

#### 1. GENERAL

FACULTY		PLANT SCIENCES		
DEPARTMENT		FORESTRY AND NATURAL ENVIRONMENT MANAGEMENT		
LEVEL OF STUDY		Undergraduate		
COURSE CODE		315	SEMESTER OF STUDY 3 <sup>rd</sup>	
COURSE TITLE		Surveying and forest measurements		
INDEPENDENT TEACHING ACTIVITIES			TEACHING WEEKS	CREDITS
Lectures			2	5
Laboratory exercises			2	
Total Course			4	
COURSE TYPE		Special Background or Core Course		
PREREQUISITE COURSES:		No		
LANGUAGE OF INSTRUCTION AND EXAMINATIONS:		Greek		
THE COURSE IS OFFERED TO ERASMUS STUDENTS		No		
COURSE WEBSITE (URL)		<a href="https://oeclass.aua.gr/eclass/courses/710/">https://oeclass.aua.gr/eclass/courses/710/</a>		

#### 2. LEARNING OUTCOMES

<b>Learning Outcomes</b>
<p><b>The subject of the course is:</b></p> <p>The object of the course is to introduce the students to the study of the science of Topography.</p> <p>The aim of the course is a) the management of environmental information of the geographical space by creating a geometric framework and the creation of the knowledge background using various topographical methods and b) the presentation of this information in thematic maps with the corresponding creation of geospatial databases and their use of maps as background/foreground for environmental applications.</p> <p><b>Aim of the course</b></p> <p><b>Theory</b></p> <p>The theoretical courses provide the background for applying the knowledge in practice and solving the problems thus supporting the laboratory courses. In theoretical courses, students are also faced with solving exercises to practice and deepen the theory.</p>

### Labs

Attendance is mandatory in laboratory courses.

As part of the course, it is expected that students will:

- understand the basic concepts of surveying: lines, angles, inclined and horizontal distances, elevation differences, longitudinal sections, coordinates, area calculations
- become familiar with the use of surveying instruments and the basic methods of field measurements
- become competent in relief analysis, and its representation using geospatial data and geoinformatics.
- understand the use of topographic and geospatial data in areas of developmental, environmental and spatial interest.
- use data processing methodologies to write studies related to the design and reproduction of a thematic and topographical map
- collaborate with his fellow students to create and present a study plan - framework which in the future in the course of his work as a Forester will be part of a study-plan to deal with the modern challenges in the management of forest ecosystems.

### General skills

- Search, analyze and synthesize data and information, using the necessary technologies.
- Problem solving skills
- Decision-making
- Autonomous work
- Teamwork
- Working in an interdisciplinary environment
- Respect for the natural environment
- Promoting free, creative and inductive thinking
- Utilization of new technologies in decision making.

## 3. SYLLABUS

The material per week of the course - in theory and corresponding laboratory exercises - reads as follows:

### Theory:

#### **N/A      NOT      CONTENT OF THE TEACHING UNIT (DE)**

- Definitions
- Units of measurement of angles, lengths - Scales
- Fundamental Topographical Problems
- Topographical map
- Rectangular and Geographical Coordinates
- Determination of topographic relief
- Topographical Instruments (Total Station, GPS) and methods of measuring and calculating distances, angles and altitude differences
- Geometric Spatial Leveling for calculation of heights – Surface Spatial Leveling – Drawing contour lines
- Area measurements (Simple geometric shapes, rectangular and polar coordinates)
- Basic drawings (straight lines, vertical lines)

**Workshop:****N/A NOT CONTENTS OF THE TEACHING UNIT (DE)**

- Definitions
- Measurements and Units
- Fundamental Topographical Problems
- Topographical map
- Forest Measurements
- Forest Surveying
- Determination of topographic relief
- Topographical Instruments (Total Station, GPS) and methods of measuring and calculating distances, angles and altitude differences
- Geometric Spatial Leveling for calculation of heights – Surface Spatial Leveling – Drawing contour lines
- Area measurements (Simple geometric shapes, rectangular and polar coordinates)
- Basic drawings (straight lines, vertical lines)

**4. TEACHING AND LEARNING METHODS – ASSESSMENT**

<b>DELIVERY METHOD</b>	In the hall, in the Laboratory and adjacent to the facilities of the Department forests and woodlands.													
<b>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</b>	Use PowerPoint slides, use physical maps, communicate with students via video conferences, Open eClass, email, and telephone. Meetings with students per person to answer questions and prepare laboratory exercises.													
<b>TEACHING ORGANIZATION</b>	<table><tr><th><i>Activity</i></th><th><i>Semester Workload</i></th></tr><tr><td>Lectures</td><td>39</td></tr><tr><td>Laboratory Exercises</td><td>26</td></tr><tr><td>Work</td><td>12</td></tr><tr><td>Study personal</td><td>28</td></tr><tr><td>Total course</td><td>125</td></tr></table>		<i>Activity</i>	<i>Semester Workload</i>	Lectures	39	Laboratory Exercises	26	Work	12	Study personal	28	Total course	125
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<b>STUDENT EVALUATION</b>	I. Written final exam in the theory of the course. II. Answering multiple-choice questions II. Written or oral examination in the laboratory part of the course. III. The exam includes the development of equally graded development questions, or the resolution of exercises announced to students at the beginning of the course. The examination criteria are explicitly mentioned, especially in the laboratory part. The relevant information can be found in the University's eClass													

**5. RECOMMENDED-BIBLIOGRAPHY****Suggested Bibliography:**

Georgopoulos G. 2007. Topography Courses. Publications A. Giola and Sons S.A  
 Fotis G. 2008, Topography - Cartography. Govosti Publications, Thessaloniki

**Related scientific journals:**

-International Journal of Applied Earth Observation and Geoinformation

-Remote Sensing of Environment