

## COURSE OUTCOME

### ΔΠΕ751 – FOREST ROAD CONSTRUCTION

#### 1. GENERAL

<b>INSTITUTION</b>	University of Thessaly		
<b>SCHOOL</b>	School of Technology		
<b>DEPARTMENT</b>	Department of Forestry, Wood Sciences and Design		
<b>LEVEL</b>	Undergraduate		
<b>COURSE CODE</b>	ΔΠΕ751	<b>STUDENT SEMESTER</b>	7th
<b>COURSE TITLE</b>	Forest Road Construction		
<b>ACTIVITIES</b>		<b>WEEKLY HRS</b>	<b>ECTS</b>
	Lectures and Workshops	2	
	Laboratory	1	
	<b>TOTAL</b>	3	6
<b>TYPE OF COURSE</b>	Selective		
<b>PREREQUISITES:</b>	none		
<b>LANGUAGE TEACHING AND EXAMINATION:</b>	Greek		
<b>THE COURSE OFFERED TO STUDENTS ERASMUS</b>	No		
<b>WEBPAGES COURSE (URL)</b>			

#### 2. LEARNING OUTCOMES

<b>Learning Outcomes</b>
<p><b>Knowledge:</b> To provide the graduate of the Department with the necessary knowledge about the need, design and completion of forest road engineering projects taking into account the balance and sustainable development of the natural environment.</p> <p><b>Skills:</b> and at the same time to give the bases to the student for the more complete understanding of the calculative and construction details of the forest road engineering.</p> <p><b>Capacities:</b> In this way it will be able to study and construct forest roads, taking into account the ecological characteristics and structure of natural terrestrial ecosystems and especially their most important elements (species, plant communities), as well as economic and social characteristics and needs. of interconnection areas.</p>
<b>General Skills</b>
<ul style="list-style-type: none"><li>• Search, analysis and synthesis of data and information, using the necessary technologies</li><li>• Work in an interdisciplinary environment</li><li>• Adaptation to new situations</li><li>• Production of new research ideas</li><li>• Respect for the natural environment</li><li>• Project design and management</li></ul>

#### 3. COURSE CONTENT

Introduction, classification and density of forest roads. Horizontal design: Horizontal curves, study vehicle, minimum radius of curvature ( $R_{min}$ ). Widening: calculation of widening, change of widening and area of widening. Reverse and adjoining curves. Determination of radius of curvature in an existing road. Recovery maneuvers. Forest road axis zoning. Applications. Longitudinal study: Maximum and minimum longitudinal slope. Vertical curves of red line. Engraving the optimal red line. Visibility on forest roads. The cross section and the slope of the forest roads. Laying the forest road directly on the ground. Determination of isoclinic, polygonal and determination of the axis of the forest road in the topographic diagram: Determination of a study vehicle. Selection of the radius of curvature in the curved sections of the forest road and delineation of the curved sections of the forest road. Thickening - leveling of road axis. Longitudinal section and width of forest road sections. Calculation of forest road occupation zone. Calculation of widening areas and average width of the road deck. Calculation of ditches, embankment volumes and embankments by the method of average surfaces and applicable lengths.

The exercises of the course are done one (1) hour per week. Attendance by students is mandatory by at least 50%. From the 1st lesson, the teacher points out the importance of this monitoring, but also of the theory, while incentives are given for the continuous participation of the students in it.

Essentially, the exercises of the course are a continuation of the theory, where road engineering exercises that have practical application to the object are solved. The aim of the exercises is for the student to maximize the knowledge acquired from the theoretical part, with practical practice and development of constructive dialogue, solving questions and concerns, as well as the acquisition of conscious knowledge and application of basic principles of the course in practice.

Relevant directions, and rich material and instructions are posted in the e-class.

#### 4. TEACHING AND LEARNING METHODS - EVALUATION

<b>DELIVERY METHOD</b>	<p>The J.F. HERBART teaching method is applied. The method includes the following steps:</p> <ol style="list-style-type: none"> <li>1. Preparing students to accept the new knowledge, mainly by recalling relevant knowledge</li> <li>2. Presentation and explanation of the teaching unit</li> <li>3. Connection with the previous ones</li> <li>4. Generalization and conclusions</li> <li>5. Application: new knowledge is tested in practice.</li> </ol> <p>The course includes two parts of teaching: Theoretical, Laboratory / Exercise.</p> <p>The Theoretical includes the active participation of students in classes within the classroom using interactive media. Students are encouraged to take part in research activities.</p> <p>The Exercise / Laboratory includes the obligatory engagement of students with specific activities that they choose from a list of activities of each didactic unit of the theory textbook. In addition, students are informed about the achievements of research in specific areas of the science of the course.</p> <p>Finally, educational excursions are conducted within the course of each semester. Participation in educational trips is mandatory.</p>		
<b>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</b>	<p>Use, flexibly and alternatively, of supervisory tools that utilize ICT: PC (multimedia PC), video data projector, internet (internet), asynchronous distance learning platform (e-class) .</p>		
<b>MANAGEMENT OF TEACHING</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;"><i>Activity</i></td> <td style="width: 50%; text-align: center;"><i>Semester Workload</i></td> </tr> </table>	<i>Activity</i>	<i>Semester Workload</i>
<i>Activity</i>	<i>Semester Workload</i>		

	Lectures	26
	Laboratory exercise	13
	Homeworks	41
	Individual and work study for term assignment	70
	<b>Course Total</b>	<b>150</b>
<b>STUDENT EVALUATION</b>	<p>A. The evaluation of the theoretical course is done at the end of the semester with written exams. The process of the final exams is the standard that is followed in all the courses of the Department.</p> <p>In agreement with the students who wish, the evaluation of the theoretical course can be done with progress exams that will be conducted on an agreed date within the semester, according to the program of the Department.</p> <p>Students who have participated in all educational trips during the semester have the right to participate in the evaluation of the theoretical course.</p> <p>The theoretical part participates in 65% of the final grade of the course.</p> <p>B. The evaluation of the Exercise / Laboratory is done at the end of the semester with written examinations. The process of the final exams is the standard that is followed in all the courses of the Department.</p> <p>Eligible to participate in the evaluation of the Exercise / Laboratory are students who have (a) completed the required number of attendances (50% of the courses taught) and (b) participate in all educational trips during the semester.</p> <p>The evaluation of the Exercise / Laboratory participates in 35% of the final grade of the course.</p>	

## 5. RECOMMENDED BIBLIOGRAPHY

### BOOKS IN EUDOXOS (in Greek):

- Δούκας Α.-Κ. και Β. Δρόσος, 2017. Δασική Οδοποιία και Φυσικό Περιβάλλον. Θεσσαλονίκη: Α. Τζιόλα & Υιοί Α.Ε. (Code in Eudoxos: 77109213)
- Εσκίογλου Π. 2010. Δασική Οδοποιία. Θεσσαλονίκη: Σταύρος Αντ. Σαρτίνας (Code in Eudoxos: 49863)
- Νίκου Ν. 2004. Εφαρμοσμένη Δασική Οδοποιία. Θεσσαλονίκη: Σ. Γιαχούδης & ΣΙΑ Ο.Ε. (Code in Eudoxos: 68401544)

### BOOKS EXCEPT EUDOXOS (in Greek):

- Νικολαΐδης Α.Φ. 2019. Οδοποιία: Οδοστρώματα – Υλικά – Έλεγχος Ποιότητας. Θεσσαλονίκη: ΙΚΑΝΙΚ Ι.Κ.Ε.