

## LESSON DESCRIPTION

### 1. ΓΕΝΙΚΑ

<b>Found.</b>	Univ. of Thessaly		
<b>FACULTY</b>	TECHNOLOGY		
<b>DEPT.</b>	FORESTRY, WOOD SCIENCE AND DESIGN		
<b>STUDY LEVEL</b>	Undergraduate		
<b>Lesson Code</b>	KM431	<b>Semester</b>	4th
<b>LESSON TITLE</b>	Forest Products Harvesting & Biomass Management		
<b>ACTIVITIES</b>	<b>WEEKLY HRS</b>	<b>ECTS</b>	
Theoretical	3	5	
<i>Σύνολο</i>	<b>3</b>	<b>5</b>	
<b>TYPE OF COURSE</b>	Generic knowledge and Skills Development		
<b>PREREQUISITES:</b>	None		
<b>LANGUAGE TEACHING AND EXAMINATION:</b>	Greek or English		
<b>THE COURSE IS OFFERED TO ERASMUS STUDENTS</b>	Yes/		
<b>WEBPAGES COURSE (URL)</b>	<a href="https://eclass.uth.gr/courses/FWSD_U_124/">https://eclass.uth.gr/courses/FWSD_U_124/</a>		

### 2. LEARNING OUTCOMES

<b>Learning Outcomes</b>
<p>Aim of the class is to achieve the essential knowledge concerning forest products harvesting, especially timber. To meet and understand traditional and modern methods of tree falling and harvesting, applying best method each time. To be informed about laboring conditions, safety rules, forest workers protection. To apply proper methods for estimating quantities and choose the best ways for transportation. To have a good exploitation of forest biomass, keeping simultaneously forest in good condition</p> <p>Upon successful completion of the course the student will have the necessary background on knowing all harvesting methods and system, so they can:</p> <ul style="list-style-type: none"> <li>• Evaluate all ecological and technical restrictions, in order to propose the best harvest solution, applying forest management plans</li> <li>• Evaluate and promote the human factor in the harvest work, possessing objects, such as: Forester equipment, forester cooperatives, forester insurance, forester nutrition.</li> <li>• Draw up a logging plan, to set space-time constraints. To know the logging techniques.</li> <li>• To know the hand tools and the petrol-powered logging systems, as well as the safety rules.</li> <li>• To know and evaluate the works of cutting, branching, debarking logs. Timber shifting systems, winches, tracks and suggest / supervise their transfer/moving, in an economical / ecological way.</li> <li>• To determine and control the transport of timber from the forest.</li> <li>• To supervise the harvest of small timber for energy etc. aims. To indicate the best</li> </ul>
<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>• Respect to natural environment</li> </ul>

- Adaptation to new situations
- Adaptation from the general to the special/specific framework
- Decision making
- Autonomous work
- Teamwork
- Work in an interdisciplinary environment
- Demonstration of social, professional and moral responsibility and sensitivity to gender issues

### 3. COURSE CONTENT

In theoretical part students learn about the following:

- Harvest works (in general). Ecological and technical restrictions.
- Forest harvesting regulations in public and private forests.
- Harvest plan, season restrictions.
- Tree falling, applied techniques.
- Hand tools (axes, wedges, etc.)
- Fuel powered equipment, chainsaws. Technical characteristics, safety rules, ergonomics rules. Noise, vibration, common accidents
- Modern equipment for tree falling/ chipping/ debarking.
- Branching works, debarking, cutting, quality classification of logs.
- Wood transporting, tractor roads, regulations.
- Moving logs and fuel wood with animals, mechanical transportation, winches, latches, etc. Advantages – disadvantages.
- Quantity evaluation, wood stacking on forest roads, log labeling.
- Harvest of small diameter logs for energy purposes. Biomass management. .
- The forest worker: Institutional framework, forest workers' cooperatives, forest workers' insurance, rights and obligations.
- Forest workers' equipment. Energy consumption and nutrition of forest workers. Accommodation for forest workers

Class exercise is not obligatory. However, from the 1st week, the teacher suggests assignment topics with key words and urges the students to deal (optionally) with their preparation. The assignments are presented from the 4th week onwards in the classroom, with a duration of 10-12 min. They are graded up to 30% of the final grade, as an incentive for their preparation.

A laboratory part of the course is not planned during the semester. However, during the Internship the student will observe harvesting, stacking and quantity estimation operations.

### 4. TEACHING AND LEARNING METHODS-EVALUATION

<b>DELIVERY METHOD</b>	<p>Combined application of educational methods and techniques in order to enhance the active participation of students in the course and attain the greatest possible effectiveness in "face to face" teaching:</p> <p>Presentations (in the amphitheater) enriched with real examples (case studies presented in the lectures or through videos), questions - answers and discussion.</p>
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<b>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</b>	<ul style="list-style-type: none"> <li>• Use of a course website on the e-class platform for posting (a) lecture material, (b) notes and internet links, (c) announcements and search tools.</li> </ul>	
<b>MANAGEMENT OF TEACHING</b>	<b>Δραστηριότητα</b>	<b>Φόρτος Εργασίας Εξαμήνου</b>
	Lectures	29
	Workshops	10
	Participation in summer course	20
	Individual and work study	66
<b>STUDENT EVALUATION</b>	<p>I. Student assessment takes place at the end of the semester by means of written examination which include questions requiring:</p> <ul style="list-style-type: none"> <li>- Short answers that affair all topics of the class, multiple choice answers.</li> <li>- To solve different logging plans, depending on different equipment, variaton of forest land, different products etc.</li> </ul> <p>II. Students' assignments contribute up to 30% of final evaluation</p>	
<b>Course Total</b>	<b>125</b>	

## 5. RECOMMENDED BIBLIOGRAPHY

Books offered to students through the *Eudoxus* platform:

- Βουλγαρίδης Η. 2015. Ποιότητα και χρήσεις του Ξύλου. ΣΕΑΒ, ISBN: 978-960-603-251-6.
- Ευθυμίου Π. 2011. Σημειώσεις Συγκομιδής Δασικών Προϊόντων. Εργαστήριο Συγκομιδής, Σχολή Δασολογίας & ΦΠ, ΑΠΘ.
- FPL. 2010. Wood handbook. Wood as an Engineering Material. USDA, FPL-GTR-190.
- Κακαράς Ι. 2009. Τεχνολογία ξύλου (Πρίση, ξήρανση, εμποτισμός, καμπύλωση, καπλαμάς).
- Τσουμής Γ. 1991. Επιστήμη και τεχνολογία του ξύλου. ΑΠΘ.

-Papers from scientific journals, as:

- Holz als Roh- und Werkstoff
- Journal of Wood Science
- Wood Research