

COURSE OUTLINE

1. GENERAL

INSTITUTION	University of Thessaly		
SCHOOL	School of Technology		
DEPARTMENT	Dept. of Forestry, Wood Sciences and Design		
LEVEL	<i>Undergraduate</i>		
CODE	KM221	STUDENT SEMESTER	2 nd
COURSE TITLE	Wood Structure		
ACTIVITIES		WEEKLY HRS	ECTS
	Lecture and Laboratory	2 + 1	6
TYPE OF COURSE	Scientific area		
PREREQUISITES:	None		
LANGUAGE TEACHING AND EXAMINATION:	Greek		
THE COURSE OFFERED TO STUDENTS ERASMUS	Not offered		
WEBPAGES COURSE (URL)	http://mantanis.users.uth.gr/Wood-structure.pdf		

2. LEARNING OUTCOMES

Learning Outcomes
<p>The aim of the course is the students to receive basic and fundamental knowledge relating to wood as a biological material. Also, to get to know basic information upon the structure of wood, with emphasis on the macroscopic, physical and microscopic features of wood materials.</p> <p>Additional educational scope is to understand important features for the identification of the most important Greek wood species (approx. 20) used in the present market, and to get familiarized with such features in the laboratory courses, paying special attention to the macroscopic and microscopic characteristics, as well as to the natural defects of the several wood species.</p>
General Skills
<p>Upon successful completion of this course, the students will be able to develop and cultivate basic professional and social skills:</p> <ul style="list-style-type: none"> • Search, analysis and synthesis of data and information • Adaptation to new situations • Decision making • Autonomous work • Teamwork • Respect for the natural environment • Exercise criticism and self-criticism • Promoting free, creative and inductive thinking • Understanding technological developments and their implications • Development of professional mentality

3. COURSE CONTENT

<p>The course focuses on issues related to:</p> <ul style="list-style-type: none"> • General introduction on wood (photosynthesis, etc.)

- Macroscopic features of wood
- Physical characteristics of wood (density, colour, odour, texture etc.)
- Microscopic features of wood (wood cells, types, etc.)
- Ultramicroscopic characteristics of wood
- Chemical composition of wood (cellulose, hemicelluloses, lignin)
- Extractives of wood and inorganic substances
- Cambium and its functions
- Defects of wood (structural defects, knots, etc.)
- Defects of wood (types of discolouration; blue-stain etc.)

During the course, in addition to lectures:

- Case studies are used which are the subject of discussion during the lectures
- Several laboratory exercises are carried out for self-criticism
- Homework is assigned every single week (free-hand drawing exercises on wood cells and other microscopic features, etc.)

Course lectures are supported by laboratory works, where each lab student-team (typically 15 students) is discussing their work and learning new microscopic and macroscopic features with laboratory exercises and work under the microscope.

4. TEACHING AND LEARNING METHODS - EVALUATION

DELIVERY METHOD	Face to face The course is organized in two parallel streams: 1. Lectures, which analyze the concepts and methodologies that form the core of the course material 2. Workshops (laboratory), where students get acquainted with methods and tools of the basic wood-science material	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Use of course websites both on UTH and also on the e-Class platform for posting (a) notes, (b) internet links, (c) announcements, search tools and other materials.	
MANAGEMENT OF TEACHING	Activity	Semester Workload
	Lectures	40
	Individual homework	15
	Laboratory workshops	15
	Individual and work study for term assignment	80
	Term assignment presentation	--
	Course Total	150
STUDENT EVALUATION	Student assessment is largely based on the group work done by students, while the final grade takes into account: • the written final examination • the outcomes of the assigned homework • participation in laboratory courses	

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| | • participation in course activities (lectures etc.) |
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5. RECOMMENDED BIBLIOGRAPHY

- ✚ Website: <http://mantanis.users.uth.gr/Wood-structure.pdf> (in Greek)
- ✚ Basic book: <http://mantanis.users.uth.gr/Domi-Xylou.pdf> (by George I. Mantanis)
- ✚ Tsoumis, G. (2009). Science of Wood. A) Structure and properties. Gartagannis Publications, Thessaloniki, Greece.
- ✚ Wiedenhoef, A. (2005). Structure and Function of Wood. In: Handbook of Wood Chemistry and Wood Composites
http://www.fpl.fs.fed.us/documnts/pdf2005/fpl_2005_wiedenhoef001.pdf
- ✚ Miller, R. B. (1999). Wood as an Engineering Material. Chapter 2: Structure of wood.
<http://www.fpl.fs.fed.us/documnts/fplgtr/fplgtr113/ch02.pdf>
- ✚ Website: www.wood-database.com
- ✚ H. G. Richter and M. J. Dallwitz (2009). Commercial timbers: descriptions, illustrations, identification, and information retrieval
<http://www.biologie.uni-hamburg.de/b-online/wood/english/index.htm>
- ✚ Carlquist, S (2001). Comparative Wood Anatomy. Springer
Microscopic Wood Anatomy of European species (2009)
<http://www.wsl.ch/land/products/dendro/>