

## WOOD COMPOSITES

### 1. GENERAL

<b>SCHOOL</b>	School of Technology		
<b>DEPARTMENT</b>	Department of Forestry, Wood science and Design		
<b>LEVEL</b>	<i>Undergraduate</i>		
<b>CODE</b>	<b>KM531</b>	<b>STUDENT SEMESTER</b>	5 th
<b>COURSE TITLE</b>	WOOD COMPOSITES		
<b>ACTIVITIES</b>		<b>WEEKLY HRS</b>	<b>ECTS</b>
	Lectures and Workshops	2+1	5
<b>TYPE OF COURSE</b>	Scientific area		
<b>PREREQUISITES:</b>	none		
<b>LANGUAGE TEACHING AND EXAMINATION:</b>	Greek or English		
<b>THE COURSE OFFERED TO STUDENTS ERASMUS</b>	Yes		
<b>WEBPAGES COURSE (URL)</b>			

### 2. LEARNING OUTCOMES

<b>Learning Outcomes</b>
<p>Aim of the course is to acquire the Student's knowledge for the technology of production, the attributes, and the uses of products of timber that are used widely in furniture construction and various wood construction. More specifically it acquires knowledge for particleboards, fiberboards, plywood, LVL, OSB, Glulam timber, and lamination of wood boards.</p> <p>With the completion of the academic semester period, the Student owes to know:</p> <ul style="list-style-type: none"> <li>• Distinguish optically the various glued products of wood.</li> <li>• Know the technology for the production of composite products</li> <li>• Know the advantages and disadvantages as well as the attributes of these products of each type but also comparatively from each other.</li> <li>• Know the uses of glued products of wood.</li> <li>• Know the process of production of all the above products and raw materials that are required.</li> <li>• Know the adhesive substances that are used</li> <li>• Know the investments that are used for the lamination of wood boards and the technology of production of laminated products of wood.</li> </ul>
<b>General Skills</b>
<ul style="list-style-type: none"> <li>• Search, analysis and composition of data and information regarding the products and the ways of production and the application of these products that are examined.</li> <li>• Growth of critical thinking for the discovery and find the solution for the problems that they will probably present at the duration of production.</li> <li>• Familiarization with the use of also essential modern requirements</li> <li>• Decision-making</li> <li>• Autonomous Work</li> <li>• Promotion of free, creative, and inductive thought</li> </ul>

### 3. COURSE CONTENT

In the theoretical part of the course the student is taught and learns for:
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- The technology of production, the attributes and the applications of wood products that are used in the manufacture of furnitures and generally at wood constructions , and more specific: Glulam, particleboards, fiberboards, LVL, OSB, plywood and lamination of woodboards. It is taught also the coverings (except wood) that are laminate various woodboards.
- In the tutorial part the Student call to develop at the duration of the semester period a subject relative to the cognitive object of the course and which is proposed to him by the teaching staff. Each week is marked the progress of work, becomes corrections, and is given directives from teaching.
- In the tutorial part of the course the Student besides being taught it recognizes various products of timber that are mainly used in the manufacture of furniture and wood constructions. More specifically it is practiced in the recognition of particleboard (naked and veneered), fiberboard (naked or veneered ) plywood, LVL, OSB, and composites or glulam. Follows the teaching of raw material – except wood - that is required for the production of composite products of wood focused on the adhesive substances. Concretely, it is taught the essential calculations for the preparation of a solution of adhesive substance, qualitatively characteristically the adhesive substances (Viscosity , etc), additives of glue, catalysts and their importance in the technology of manufacture of wood composite products. Followingly it is taught recipes of production of particleboard – fibreboards and is practiced in the manufacture of laboratorial particleboard and plywood. Are realized laboratory exercises of determining natural and mechanical attributes of woodboards but also comparisons between products. Are realized laboratorial coverings of particleboards with veneers and other lamination products.

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

<b>DELIVERY METHOD</b>	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 (studios), where students: get acquainted with methods and tools of creative thinking and analysis, consultation, synthesis of ideas and plans are organized in groups - with emphasis on interdisciplinarity	
<b>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</b>	Use of PC , transparencies ppt, projector <ul style="list-style-type: none"> <li>• Interactive board</li> <li>• Laboratorial equipment with the all essential instruments but also samples of composite products.</li> </ul>	
<b>MANAGEMENT OF TEACHING</b>	<b>Activity</b>	<b>Semester Workload</b>
	Lectures	39
	Individual work on issues of quality but also her application in various phases of production.	15
	Educational excursion / Small individual work exaskisis	15
	Individual and work study for term assignment	56
	<b>Course Total</b>	<b>125</b>

**STUDENT EVALUATION**

Written final examination (100%) that it includes:

- Questions of short answer from the all matter of book

**5. RECOMMENDED-BIBLIOGRAPHY**

*-Προτεινόμενη Βιβλιογραφία :*

- Κακαράς Ι. (2000). Σημειώσεις Τεχνολογίας Ξύλου ΙΙ. Σημειώσεις Τμήματος Σχεδιασμού & Τεχνολογίας Ξύλου-Επίπλου, Καρδίτσα (Τ.Ε.Ι. Λάρισας).
- Τσουμής Γ. (1999). Επιστήμη του Ξύλου. Τόμος Β – Βιομηχανική Αξιοποίηση. Υπηρεσία Δημοσιευμάτων, Α.Π.Θ., Θεσσαλονίκη.
- Moslemi A. A. (1974). Particleboard. Volume 1: Materials. Southern Illinois University Press.
- Moslemi A. A. (1974). Particleboard. Volume 1: Technology. Southern Illinois University Press.
- Γρηγορίου Θ. (1992). Τεχνολογία συγκολλημένων προϊόντων ξύλου. Α.Π.Θ.
- Πασιαλής Κ, Γρηγορίου Α. Βουλγαρίδης Η. (1982). Προσδιορισμός ιδιοτήτων μοριοπλακών, ινοπλακών και αντικολλητών σύμφωνα με Αμερικανικές και Βρετανικές προδιαγραφές. Α.Π.Θ.
- Φιλίππου Ι. (1986). Χημεία και χημική τεχνολογία του ξύλου. Α. Π Θ.