COURSE OUTLINE

1. GENERAL

INSTITUTION	University of Thessaly		
SCHOOL	School of Technology		
DEPARTMENT	Dept. of Forestry, Wood Sciences and Design		
LEVEL	*Undergraduate*		
CODE	ΞΣΕ851	**STUDENT SEMESTER**	8th
COURSE TITLE	**Metallic, Polymeric & Composite Materials**		

ACTIVITIES	**WEEKLY HRS**	**ECTS**
Lectures	3	5

TYPE OF COURSE	Elective course (direction: *Wood sciences & design*)
PREREQUISITES:	None
LANGUAGE TEACHING AND EXAMINATION:	Greek
THE COURSE OFFERED TO STUDENTS ERASMUS	Not offered
WEBPAGES COURSE (URL)	Not available

2. LEARNING OUTCOMES

Learning Outcomes

The aim of the course is the students, who are in the direction of *Wood sciences & design*, to learn more about the metallic and polymeric materials which typically used in furniture products and in mixed or wooden structures. Additional scope is to get educated on the effects of these materials upon the final usages and the influence on the final costs.

General Skills

Upon successful completion of this course, the students will be able to develop and cultivate basic professional and social skills:

- Search, analysis and synthesis of data and information
- Adaptation to new knowledge
- Autonomous work
- Professional responsibility
- Exercise criticism and self-criticism
- Promoting free and creative thinking
- Understanding technological developments and their implications

3. COURSE CONTENT

The course focuses on issues related to:

- Typical machinery applied in furniture-producing enterprises
- Properties of metallic materials (alloys, ferrous- and non-ferrous materials)
- Non-metallic materials used in the production
- Manufacturing techniques, both by cold- and hot- techniques
- Ways of connectors typically used in metallic items
- Metallic materials & their properties (cast iron, steel, aluminum, titanium, copper, etc.)
- Electrostatic manufacturing techniques
- Thermoplastics and elastic polymeric materials

- Mold-type techniques (casting, moulding, extrusion, thermocasting, etc.)
- Polymeric materials used (PE, PP, PVC, nylon, PS, PE, epoxies, PUR etc.)
- Composite materials with mixture with lignocellulosic fibres
- Nanomaterials

Course lectures are supported by videos shown to the students several polymeric materials.

4. TEACHING AND LEARNING METHODS - EVALUATION

DELIVERY METHOD	Face to face The course is organized in one main stream: -- Lectures, which analyze the concepts and methodologies that form the core of the course materials.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Use of a course website on the e-Class platform for posting internet links, 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	55
Term assignment presentation	--
Course Total	***125***

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 (80%) • the outcomes of the assigned projects (20%)

5. RECOMMENDED BIBLIOGRAPHY

- William CALLISTER, David Rethwisch, Επιστήμη & τεχνολογία των Υλικών
- Καραγιαννίδης Γ., Σιδερίδου Ε., Αχίλιας Δ. Μπικιάρης Δ., Τεχνολογία Πολυμερών Εκδόσεις Ζήτη.
- Wolfang, Nutsch, Μετάφραση Ηλιόπουλος. Τεχνολογία ξυλουργικών υλικών.
- Καλκάνης Χατήρης Τεχνολογία Υλικών Εκδόσεις ΙΩΝ 2009.
- Ritsartson & Lokensgard. Μετάφραση Χατήρης.
- ManfredH. Etal 1999. Τεχνολογία μηχανολογικών κατασκευών, Ευρωπαϊκές Τεχνολογικές Εκδόσεις, ISBN 960-331-234-7.
- Παπαργύρης Α. 2004 Μεταλλογνωσία – Εργαστηριακές ασκήσεις, Εκδόσεις Ζήτη.
- BrehmeD. 1999, Εγαστήριο εργαλειομηχανών CNC, ETE, 960-331-207-X.
- Cormier D. 2005, McGraw-Hill Machining and metalworking handbook, McGraw-Hill Professional 978-0071457873.