

FOREST PRODUCTS QUALITY CONTROL & CERTIFICATION

1. GENERAL

SCHOOL	School of Technology		
DEPARTMENT	Department of Forestry, Wood science and Design		
LEVEL	<i>Undergraduate</i>		
CODE	KM631	STUDENT SEMESTER	6 th
COURSE TITLE	Forest Products Quality Control & Certification		
ACTIVITIES		WEEKLY HRS	ECTS
	Lectures and Workshops	2+1	5
TYPE OF COURSE	Scientific area		
PREREQUISITES:	none		
LANGUAGE TEACHING AND EXAMINATION:	Greek or English		
THE COURSE OFFERED TO STUDENTS ERASMUS	Yes		
WEBPAGES COURSE (URL)			

2. LEARNING OUTCOMES

Learning Outcomes
<p>Aim of the course is to grow technological and scientific background of students in the significance of quality control of raw materials and characteristic values that are expected through these controls. Simultaneously will become the teaching of various quality systems like ISO 9000, 14000, ERP etc. and certification of forests. Simultaneously they will be familiarized with the laboratory and the appliances that are essential for the testing.</p> <p>With the completion of the academic semester, the Student owes to know:</p> <ul style="list-style-type: none"> • What is a specification and how can search and use them . Simultaneously it will knows the institutions that find behind the specifications but also the significances of quality and how can assure them. • The use of equipment that it is essential for the conduct of experiments that will be taught at the duration of course in order that their handling becomes with safety but also precision. • The implementation of controls for the determination: density of timber, particleboard and fibreboards, contained humidity of timber and composite products of wood, swelling and inflation of solid wood, resistance in bending of solid wood of , ash, solubility of wood in various solvents, lignin in wood, mechanical and hygroscopical properties of particleboards and fibreboards of contained formaldehyde in glued products of timber, classification in age-group of quality with the use of sound waves and finally determination of resistance in sunlight and in exterior conditions. • The systems of quality ISO 9000, 14000 ERP etc. • The systems of certification of forests FSC and PEFC. • Ways of certification of green furnitures and ECO LABEL.
General Skills
<ul style="list-style-type: none"> • Search, analysis and composition of data and information with regard to the attributes that are examined . • Growth of criticism thoughts for the discovery and resolution of problems of quality. • Familiarization with the use of also essential modern appliances • Decision-making

- Autonomous Work
- Promotion free, creative and inductive thought

3. COURSE CONTENT

In the theoretical part of course the student is taught and learns for:

- the significance of quality and that these are applied in the sector of wood as well as the institutions that exist with regard to the quality in various states and in the European Union. Afterwards are taught the ways that become the measurements and the significance the systematic and formal faults and that can no one avoid him. The way of synaxis protocols as well as the way of imprinting of measurements. In the theoretical courses becomes analysis of ways of determination of density of timber, particleboards and fibreboards
- Afterwards are taught the determination of humidity of wood and glued products of timber, the determination swelling and inflation of compact timber, the determination of resistance in bending of compact timber, the determination of ash, the determination of the solubility of timber in water (hot and cold), the determination of the solubility of timber in mix of ethanol-toluene, the way of production of timber of free extracts, the determination of lignin in timber for his likely use for the production of paper, , the determination of resistance in export of screw in woodboards, Determination of contained formaldehyde in glued products of timber. Determination quality of structural timber and classification in age-group of quality with use of sound. Determination of resistance in report in sunlight and exterior conditions with the use of laboratorial equipment.
- Determination of attributes of surface coverings or with the form of varnish or with the form of melamine.
- Determination of attributes of paper and packing.
- Analysis becomes also for CE marking in the structural timber but also in other systems of guarantee of quality as ISO 900, 14000, ERP etc.
- Besides is given accent also in the application of systems of certification of forests and forestal products.

The laboratorial part of course becomes one (1) hour weekly and the student:

- At the duration will make him the students qualitative controls grouped in products from the trade so that they comprehend more the process but also they see the values of various attributes in the products that circulate in the trade. The results will be analyzed statistically and will be communicated.
- are taught laboratorial practices of determination of qualitative characteristics that it watches in the theoretical part. Concretely are carried out exercises with regard to the following objects: Determination of density of timber, particleboards and fibreboards
- Determination of contained humidity of timber and glued products of wood, Determination of swelling and inflation of solid wood, Determination of resistance in bending of solid wood , Production of dust of timber – Determination of ash, Determination of solubility of timber in water (hot and cold), Determination of solubility of wood in mix of ethanol-toluene, Production of timber of free extracts, Determination of lignin in wood, Determination of contained formaldehyde in glued products of timber. Determination quality of structural timber and classification in age-group of quality with use of sound. Determination of resistance in sunlight and exterior conditions with the use of laboratorial equipment.. Control of adhesive substances etc

Also is provided in the student practical knowledge with regard to the statistical treatment of measurements and the equitable use of laboratorial equipment

The follow-up of laboratories from the students is obligatory at 80% at least. By the 1st course is pointed out from teaching the importance of this follow-up, but also theory, while are given also motives for the attendance of students in this.

Substantially, the exercises of course are the continuation of the theory, where are solved exercises that have practical application in the object, while are presented all the materials but also the way of quality control for their qualitative classification. Objective of exercises is maximizes the student the knowledge that acquired from the theoretical part, with practical exercise and growth of constructive dialogue, resolution of queries and reflections, as well as the gain of conscious knowledge and application of her basic beginnings of object of qualitative control into practice.

By the 1st week of courses is given by teaching, or list of likely subjects relative with the matter of course and it is asked by the students to select subject of development of their work. The subjects can extend itself also in the quality in the working places.

The final work of course includes peran her writing and oral presentation front in the remainder individuals of department in the end of courses. The grades of work added in percentage 20% in the final grades of course. The remainder percentage concerns the final written examination of theory of course.

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 (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	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Use of PC , transparencies ppt, projector <ul style="list-style-type: none"> • Interactive board • Laboratorial equipment with the all essential instruments but also samples of composite products. 	
MANAGEMENT OF TEACHING	Activity	Semester Workload
	Lectures	26
	Individual work on issues of quality but also her application in various phases of production.	13
	Educational excursion / Small individual work exaskisis	15
	Individual and work study for term assignment	15
	Course Total	125
STUDENT EVALUATION		

	<p>Written final examination (80%) that it includes:</p> <ul style="list-style-type: none"> - Questions of short answer from the all matter of book <p>II Home work presentation (20%)</p>
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5. RECOMMENDED-BIBLIOGRAPHY

-Προτεινόμενη Βιβλιογραφία :

- *ASTM 1996. Annual book of ASTM Standards. Section 4. Construction. Volume 04.10.Wood. American society for testing materials.*
- *Βασιλείου,Β. 2000. Μελέτη σχεδιασμού και οργάνωσης θεωρητικού και εργαστηριακού μέρους του μαθήματος: « Ποιοτικός έλεγχος επίπλων και ξυλοκατασκευών»*
- *Δερβιτσιώτης.Κ.Ν. 1983. Διοίκηση ολικής ποιότητας. Αθήνα*
- *DIN – Taschenbuch 60, 1999. Holzfaserplatten, Spanplatten, Sperrholz. Normen, Richtlinien.Beuth Verlag GmbH, Berlin – Wien – Zürich*
- *DIN Taschenbuch 66, 1999. Mφbel. Normen (Mφbel 1). Beuth Verlag GmbH, Berlin – Wien– Zürich.*
- *DIN Taschenbuch 31, 2000. Normen ober Holz. Normen, Richtlinien. Beuth Verlag GmbH,Berlin – Wien – Zürich.*
- *Γρηγορίου, Α. 2001. Ποιοτικός έλεγχος πρώτων υλών επιπλοποιίας και επίπλων. Μελέτη για το Τμήμα Σχεδιασμού και Τεχνολογίας Ξύλου και Επίπλου.*
- *Τσιότρας.Γ. 1995. Βελτίωση Ποιότητας .Εκδ 1η Εκδόσεις Μπένου.*

-Συναφή επιστημονικά περιοδικά:

- *The Quality Assurance Journal*
- *International Wood Products Journal*
- <https://www.astm.org/Standards/wood-standards.html>