THE FEDERAL UNIVERSITY OF TECHNOLOGY, AKURE

Department of Forestry and Wood Technology

FWT 204 - Introduction to Use of Computers in Natural Resources

COURSE PARTICULARS

Course Code: FWT 316
Course Title: Wood Seasoning and Preservation
No. of Units: 2
Course Duration: One hour of theory and three hours of practicals per week for 15 weeks.
Status: Compulsory
Course Email Address: fwt204@gmail.com
Course Webpage: http://www.fwt.futa.edu.ng/courseschedule.php?coursecode=FWT%20204
Prerequisite: NIL

COURSE INSTRUCTORS

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COURSE DESCRIPTION

This course will examine the concept of wood as hygroscopic material, essentials of wood drying and preservation in post-conversion process before use. Various methods of drying will be discussed; behaviour of wood in service due to moisture loss and defects will also be examined

This course is an exploratory, first course in computer usage designed primarily for students in forestry and allied disciplines. However, it also meets the need of students in other fields, as a course that provides hands-on training in the use of computers for word processing, descriptive data analysis and preparation of slides for presentation. As a practical course, the focus is to impart useful skills on the students in order to enhance their computer literacy level and prepare them for other specialised applications to be encountered at higher levels. Topics to be covered include computer hardware components and their functions; operating systems with emphasis on Windows Operating System; file and disk management; Microsoft Office (Word, Excel and PowerPoint) and use of the Internet.

COURSE OBJECTIVES

The main objective of the course is to equip students with the basic knowledge of wood drying and protection.

Specific objectives are to:

- Study biodeteriorating agents and their effects on wood and structures
- Examine other various way by which wood deterioration take place on wood in service (e. g. photo-degradation, mechanical abrasion, fire and chemical agents)
- Understand the concept of wood/water relationship
- Know different methods of wood drying and be able to determined moisture content and volumetric shrinkage
- Understand drying defects and what to do to prevent them.
- Study the properties of wood preservative chemicals in relation to their application and uses.
- Understand principles of wood preservation and various methods of preserving wood (e.g. none-pressure, vacuum and vacuum pressure)

COURSE LEARNING OUTCOMES / COMPETENCIES

Upon successful completion of this course the students will be able to

1. Describe wood/water relationships and how water is hold in wood
2. Dry wood using air drying and kiln methods adopting the right schedule
3. Know factors responsible for drying defects
4. Identify various biodeteriorating agents and how to prevent their attack on wood and wood structure.
5. Would be able to adopt the appropriate preservative chemicals and the right method of application.

GRADING SYSTEM FOR THE COURSE

This course will be graded as follows:

Class Attendance	10%
Assignments	20%
Test(s)	10%
Final Examination	60%
TOTAL	**100%**

GENERAL INSTRUCTIONS

Attendance: It is expected that every student will be in class for lectures and also participate in all practical exercises. Attendance records will be kept and used to determine each person's qualification to sit for the final examination. In case of illness or other unavoidable cause of absence, the student must communicate as soon as possible with any of the instructors, indicating the reason for the absence.

Academic Integrity: Violations of academic integrity, including dishonesty in assignments, examinations, or other academic performances are prohibited. You are not allowed to make copies of another person's work and submit it as your own; that is plagiarism. All cases of academic dishonesty will be reported to the University Management for appropriate sanctions in accordance with the guidelines for handling students' misconduct as spelt out in the Students' Handbook.

Assignments and Group Work: Students are expected to submit assignments as scheduled. Failure to submit an assignment as at when due will earn you zero for that assignment. Only under extenuating circumstances, for which a student has notified any of the instructors in advance, will late submission of assignments be permitted.

Code of Conduct in Lecture Rooms and Laboratories: Students should turn off their cell phones during lectures. Students are prohibited from engaging in other activities (such as texting, watching videos, *etc*.) during lectures. Food and drinks are not permitted in the laboratories.

READING LIST

Burge M.N (1988)[I] : Fungi in Biological Control System. Manchester University press Manchester ISBN: 0-7190-1979-6

Dinwoodie J.M (1981)[I]: Timber, its Structure, properties and Utililization. 6th Edition. Macmillian Education LTD Houndmills, Hong Kong. ISBN: 0-333-25751-0

Handbook on Wood Preservation (1891)[3,4]: Cornell University Library TA 424. A511. ISBN: 319924004629303

Karl, F. Wenger (1984)[I]: Forest Handbook 2nd Edition. A willey international publication, New York. ISBN 0-471-06227-8.

Kollmann, F.F.P., E Kuenzi, A.J Staamm (1975)[3]: Principles of Wood Science and Technology: Volume 2: Wood Based Materials, Manufacture and Properties springer-Verlag ISBN: 3540064672

Kollman F.F.P. (1984)[3]: Principles of Wood Science and Technology: Sold Wood: Springer-Nigeria Code of Practice 2 (NCP) (1973)[3]

Sadiku N.A (2004)[3]: Course note on wood seasoning and preservation

Location of reference materials

1- Available in the University Library
2- Available in Departmental/School Libraries
3- Available on the Internet.
4- Available as Personal Collection
5- Available in local bookshops.

COURSE OUTLINE

Week	Topic	Remarks
1	Introduction to the course: Wood Seasoning and Preservation	During this first class, the expectation of the students from the course will also be documented.
2	• Deterioration of Wood and Wood product, • Conditions under which deterioration develops and preventive measures to be taken • Biological agents that are major causes of wood deterioration	Student will be thought how deterioration takes place and different types of bio-deteriorating agents that are involved.
3 & 4	Study of biology of Fungi and different type of fungi that causes wood deterioration.	Student should be able to identify and differentiate deferent type of fungi involved in wood deterioration, Also conditions required for decay to take place and how to prevent wood decay.
5	Exploring other bio-deteriorating agent: Insects • Termite • Insect causing powder post type of damage (powder post beetle and pin hole borers • Marine borers • Carpenter ants • Carpenter bees • Horntails	During practical exercise Students will be expected to sample Wood Insects from wood industries and processed for preservation in Museum.
6	Wood Weathering – Characteristics of lignin • Factors affecting wood weathering/ photo-degradation of wood and how to prevent weathering of wood. • Wood and Fire:- Factors affecting the	

	combustibility of wood and how the rate of combustion of wood can be reduce	
7 & 9	Wood preservation • Factors that determine the efficiency of treatment –Factors that influenced the impregnation • Effect of structure on treatment • Wood Preservation processes e.g. -Non-pressure -Diffusion -Sap replacement or Pressure and Vacuum impregnation -Major Types of Preservatives	MID-SEMESTER TEST
10	Wood drying definition /reasons for drying wood water relationship and methods of moisture content determination	During the first class, the importance of drying in wood processing will be emphasised
11	Concepts of FSP, EMC, wood in service, shrinkage and swelling. Mechanisms of moisture movement	Students will be introduce to methods of measuring wood/moisture content determination
12 & 13	Influence of temperature, RH and air circulation. Classification of timbers for drying. Methods of drying: Air drying schedules	Students will visit the wood drying experimental field and learn the workings of moisture meter and hygroscopic meter
14	Drying defects	Practical on moisture content deformation, void volume and volumetric shrinkage will be conducted.
15	Revision	