



THE FEDERAL UNIVERSITY OF TECHNOLOGY, AKURE

Department of Forestry and Wood Technology

FWT 509 – Paper Making Technology

COURSE PARTICULARS

Course Code: FWT 509

Course Title: Paper Making Technology

No. of Units: 2

Course Duration: 2 hours of theory and 3 hours of practicals per week for 15 weeks.

Status: Compulsory

Course Webpage:

Prerequisite: NIL

COURSE INSTRUCTORS

Dr. J. S. Fabiyi

Room 02a, Postgraduate Research Phase I Building,

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COURSE DESCRIPTION

Introduction to paper manufacturing. Paper industry overview. Raw materials used for paper production. Fundamental steps in paper production. Stock preparation: beating/refining, consistency control, sizing and sizing agents. Effect of sizing agents on paper properties. Application of dyes – coloured pigments, soluble dyes, acid, basic and direct dyes. Paper formation: head box, Fourdrinier wire section, felting at pre-dryer section, dryer section, calendar stack. Quality control. Physical and mechanical properties of paper; grammage, cobb size, tearing, bursting, folding endurance, abrasion resistance, scuff resistance, rigidity, stiffness, tensile and opacity of paper. Paper products: industrial paper, writing/printing paper, paper board, corrugated container and box board.

COURSE OBJECTIVES

The objectives of this course are to:

- provide the student with the fundamental principles guiding paper production; and
- give the students an understanding of the important properties of paper required to meeting a specified standard.

COURSE LEARNING OUTCOMES / COMPETENCIES

Upon successful completion of this course, the student will be able to:

(Knowledge based)

- describe the paper manufacturing processes; and
- explain quality control parameters needed to meet customer's satisfaction

(Skills)

- produce hand felted paper

GRADING SYSTEM FOR THE COURSE

This course will be graded as follows:

Class Attendance	5%
Assignments	5%
Practicals	20%
Test(s)	10%
<u>Final Examination</u>	<u>60%</u>
<u>TOTAL</u>	<u>100%</u>

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. **No late assignments will be accepted without prior arrangement.** Missing assignments due to improper submission by the student will be given a grade of zero.

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. Cover shoe should be wear to the lab.

READING LIST

Fuwape, J.A., Fabiyi, J.S. and Adebayo, B.A. (2010). *Introduction to Pulp and Paper Technology in Nigeria*. Stebak Books and Publishers, Nigeria. 221p. [ISBN: 9789784919203].

*Available in Departmental/School Libraries and as Personal Collection

COURSE OUTLINE

Week	Lecture	Laboratory
1	Introduction	No Lab.
2	Beating /refining process	Lab. safety issues will be discussed.
3&4	Sizing agents	Pulping of waste papers
5	Dyeing	Pulping of waste papers
6	Fourdrinier wire	Hand papermaking
7	Review for the Mid Semester Test Fourdrinier wire	MID-SEMESTER TEST
8	MID-SEMESTER BREAK	MID-SEMESTER BREAK
9 & 10	Paper drying and calendaring	Organosolvs pulping
11&12	Physical and strength properties of paper	Hand papermaking
13&14	Types of paper and paper products	No Lab
15	REVISION	No Lab

Laboratory content:

- Production of pulp (waste paper recycling and organosolvs pulping)
- Hand papermaking
- Submission of the laboratory report on paper produced from recycled waste papers is due by week 9 while paper from organosolvs pulp is due by week 14