



THE FEDERAL UNIVERSITY OF TECHNOLOGY, AKURE

Department of Forestry and Wood Technology

FWT 505 – Forest Engineering

COURSE PARTICULARS

Course Code: FWT 505

Course Title: Basic Forest Engineering

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: fwt505@gmail.com

Course Webpage: <http://www.fwt.futa.edu.ng/courseschedule.php?coursecode=FWT%20505>

Prerequisite: Knowledge of General Physics, Basic Properties of wood, Wood harvesting and Transportation will help understanding the course

COURSE INSTRUCTORS

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COURSE DESCRIPTION

Application of engineering principles to forestry operations including nursery, reforestation, harvesting, road layout, log transportation and milling. Design, construction, drainage and maintenance of forest roads, bridges, dams and buildings. Construction equipment. Principle of transportation engineering.

COURSE OBJECTIVES

The objectives of this course are to make the students gain the understanding of:

- Concept of forest engineering and its application forestry operations
- Factors affecting construction of forest roads. Types of forest road, alignment, construction, and maintenance of forest roads.
- Construction of forest bridges, culverts, drainage and other road structures
- Use of wood for low cost construction of forest bridges
- Concrete works with their applications
- Forest camp construction and organization

COURSE LEARNING OUTCOMES / COMPETENCIES

GRADING SYSTEM FOR THE COURSE

This course will be graded as follows:

Class Attendance	5%
Assignments	15%
Test(s)	20%
<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. 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

³Weaver, W.E., and Hagans, D.K. (1994). Handbook for Forest and Ranch Roads. 197pp.

³Ryan, T., Philips, H., Ramsey, J., and Demspey, J. (2004). Forest Road Manual: Guidelines for the design, construction and management of forest roads. 170pp.

³Ritter, M.A. (1990). Timber Bridges: Design, Construction, Inspection and Maintenance. 907pp.

³Technology in the Forests. *Eco-Link*, Volume 12, No. 2. Temperate Forest Foundation

Legend

- 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 (s)	Topic	Remarks
1	Introduction: concept of forest engineering and its application to forest operations	
2-4	Forest roads: types, alignment, construction and materials for road construction. Factors government selection of materials (aggregate rock or native soil surface), treatment of forest roads and maintenance of forest roads	
5-6	Components of forest roads: camber, carriageway, drainage, culverts construction and maintenance	
7-8	Forest bridges. Components of a bridge, Selecting the bridge site, material for forest bridge construction, and loading of forest bridges	MID-SEMESTER TEST
9 - 10	Concrete works. Types and advantages of concrete, components of concrete; aggregates and cement, proportioning a concrete mixture, and curing, properties and strength of concrete.	
11	Forest camp. Factors to be considered in siting a forest camp, camp construction and organization, low cost materials for forest camp construction	
12 - 13	Construction equipment; excavation, haulage, hoisting, conveying, and compaction equipment	
14	Revision	End of semester test
15		This is the week preceding the final examination. At this time, evaluation will be done to assess how far the students' expectations for the course have been met.