



# THE FEDERAL UNIVERSITY OF TECHNOLOGY, AKURE

## *Department of Forestry and Wood Technology*

### **FWT 401 – Forest Inventory**

#### **COURSE PARTICULARS**

**Course Code:** FWT 401

**Course Title:** Forest Inventory

**No. of Units:** 3

**Course Duration:** Two hours of theory and three hours of practicals per week for 15 weeks.

**Status:** Compulsory

**Course Email Address:** [fwt401@futa.edu.ng](mailto:fwt401@futa.edu.ng)

**Course Webpage:** <http://www.fwt.futa.edu.ng/courseschedule.php?coursecode=FWT%20401>

**Prerequisite:** FWT 308

#### **COURSE INSTRUCTORS**

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#### **COURSE DESCRIPTION**

This is the second course on forest measurements in the Department. It is a follow up to FWT 308 (Forest Mensuration) which is offered at 300 Level. Topics to be covered in FWT 401 include the basics of forest inventory; planning of forest inventory; inventory sampling design; sampling techniques in forestry inventory; field trip to conduct forest inventory of a selected forest area; camp set up and field crew organisation; forest measurement procedures; field data compilation; inventory data processing; and preparation of forest inventory reports.

## COURSE OBJECTIVES

The objectives of this course are to:

- introduce students to the procedure for planning and executing forest; and
- provide students with the required field experience for the successful implementation of forest inventories in natural forest and plantations.

## COURSE LEARNING OUTCOMES / COMPETENCIES

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

*(Knowledge based)*

- distinguish between different types of forest inventory;
- outline the steps involved in planning forest inventory;
- understand the difference between probability and non-probability sampling techniques;
- carry out efficient storage management, file maintenance and file organization;

*(Skills)*

- select the most appropriate sampling technique for taking stock in various forest types;
- use common forest measurement tools to carry out inventory of any forest type;
- perform forest inventory data processing with Microsoft Excel; and
- produce well-formatted forest inventory report with Microsoft Word.

## GRADING SYSTEM FOR THE COURSE

This course will be graded as follows:

|                          |                    |
|--------------------------|--------------------|
| Field Trip Participation | 20%                |
| Forest Inventory Report  | 40%                |
| Final Examination        | 40%                |
| <b><u>TOTAL</u></b>      | <b><u>100%</u></b> |

## 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:** 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.

## READING LIST

<sup>4</sup>Freese F. 1962. Elementary Forest Sampling. Agricultural Handbook No. 232. USDA Forest Service, Washington, D.C. USA. 91p.

<sup>4</sup>Husch, B., T. W. Beers and J. A. Kershaw Jr. 2003. *Forest Mensuration*, 4th Edition. John Wiley and Sons, Inc., New Jersey, USA, 443p.

<sup>4</sup>van Laar, A. and A. Akca. 1997. *Forest Mensuration*. Cuvillier Verlag, Gottingen, Germany. 418p.

### **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

| DATE           | TOPIC  | REMARKS  |
|----------------|--|--|
| Week 1         | <ol style="list-style-type: none"> <li>1. Introduction and Course Overview</li> <li>2. Definition and Purpose of Forest Inventory</li> <li>3. Complete Enumeration versus Sampling</li> </ol>  | During this first class, the expectation of the students from the course will be obtained.   |
| Week 2         | <ol style="list-style-type: none"> <li>4. Common Forest Inventory Concepts               <ol style="list-style-type: none"> <li>a. Population and Sampling Units</li> <li>b. Sample Plots Shapes and Sizes</li> <li>c. Randomisation</li> <li>d. Sample size and Sampling Intensity</li> <li>e. Sampling with and without replacement</li> <li>f. Finite Population Correction Factor</li> </ol> </li> </ol> |  |
| Weeks 3, 4 & 5 | <ol style="list-style-type: none"> <li>5. Sampling Techniques I – Probability Sampling Techniques               <ol style="list-style-type: none"> <li>a. Simple Random Sampling</li> <li>b. Stratified Random Sampling</li> <li>c. Multi-Stage Sampling</li> <li>d. Multi-Phase Sampling</li> <li>e. Cluster Sampling</li> </ol> </li> </ol>  | Procedure for analysing data from each sampling technique will also be taught.   |
| Week 6 & 7     | <ol style="list-style-type: none"> <li>6. Sampling Techniques II – Non-Probability Sampling Techniques               <ol style="list-style-type: none"> <li>a. Selective or Purposive Sampling</li> <li>b. Systematic Sampling</li> <li>c. Quota Sampling</li> </ol> </li> </ol>   | All topics up to this stage will be covered before the mid-semester break.   |
| Week 8         | 7. Common Sampling Techniques used in Nigeria  |  |
| Week 9         | 8. Forest Inventory Planning   | At this stage, the planning for our one-week field work will commence.   |
| Weeks 10 & 11  | <ol style="list-style-type: none"> <li>9. Forest Inventory Implementation               <ol style="list-style-type: none"> <li>a. Camp Set-Up</li> <li>b. Camp Rules and Etiquette</li> <li>c. Crew Organization and Responsibilities</li> <li>d. Field Enumeration Principles</li> </ol> </li> </ol>  | Students will be divided into groups and assigned responsibilities as part of the preparation for the field work.  |
| Week 12        | <ol style="list-style-type: none"> <li><b>10. FIELD WORK</b></li> <li>11. Field Data Collation and Cleaning Up</li> </ol>  | A one-week field trip will be embarked upon at this stage to carry out forest inventory in either the natural forest or plantation within a selected forest reserve. |
| Week 13        | 12. Inventory Data Processing  | The use of MS Excel for analysing forest inventory data will be taught. Data obtained from the field work will be analysed at this stage.                            |
| Weeks 14 & 15  | 13. Inventory Report Writing   | Each student is expected to prepare a forest inventory report and submit spiral-bound copy for grading.  |
| Week 16        | <b>REVISION WEEK</b>   |  |