Revised Aug '86

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: FOREST BIOLOGY

Code No.: BIO 111-3

Program: PULP & PAPER

Semester: I

Date: NOVEMBER, 1983

Author: A. SUGDEN

New: _____ Revision: X

APPROVED: _____ Nov 18/83
Chairperson Date

PULP & PAPER
BIO 111-3
FOREST BIOLOGY

FOREST BIOLOGY	BIO 111-3
Course Name	Course Number

OBJECTIVES:

On completing this course the student will be able to:

- Understand the position of the forest in the overall ecological system.
- Use a microscope and prepare wet mounts of cellular material for for study and identification.
- Differentiate between cells, organs and tissues in various biota.
- Understand the origin of wood and the growth, and development of woody plants.
- List the Forest Regions of Canada and their characteristic tree species.
- Describe the cellular components of coniferous and deciduous wood.
- Describe, in general terms, the chemical components of wood.
- Understand and discuss the relationship between wood properties and those of pulp and paper.
- Understand and discuss the relationships between pulping and other industrial processes and the forest ecosystem.

NATURE OF PRESENTATION:

The course is presented in one three-hour meeting each week. A portion of many meetings will be used for laboratory work with the remainder used for lectures and discussions. Five laboratory assignments will be carried out during the semester.

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COURSE TOPICS

WEEK	SUBJECT MATTER
1	INTRODUCTION TO FOREST BIOLOGY - Course outline, grading & evaluation - Laboratory procedures, safety - Relationship of Forest Biology to Pulp & Paper Engineering Technology - Origins of wood - Plant classification
2-3	FOREST BIOLOGY AND ECOLOGICAL SYSTEMS - Organization of matter - Components of communities and ecosystems - Food chains and webs - Nutrient cycles (carbon, nitrogen, phosphorous) - Pyramids of energy - Aquatic ecosystems
4	A LOCAL FOREST ECOSYSTEM - Field trip
5	MICROTECHNIQUE - The microscope - Wet mounts - Microscopic measurements
6-8	PLANT CELLS, ORGANS AND TISSUES - Examination of cells and function - Parenchyma - Collenchyma - Sclerenchyma
8-9	GROWTH & DEVELOPMENT OF WOOD PLANTS - Stems - Roots - Branches and foilage - Functions of the above

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WEEK	SUBJECT MATTER
10	FOREST REGIONS OF CANADA - Eight Forest Regions - Characteristic species - Influence on pulp and paper
11	PULPWOODS AND THEIR CELLULAR COMPONENTS - Coniferous trees - Deciduous trees
12	THE WOODY PLANT CELL - Chemical composition - Physical composition - Bark
13-14	RELATIONSHIP OF WOOD PROPERTIES TO PAPER PROPERTIES - Quantity - Quality - Uses
15-16	RELATIONSHIP OF PULPING AND OTHER INDUSTRIAL PROCESSES ON FOREST BIOLOGY - Water quality and aquatic life forms - Air quality and terrestrial life forms - Indicator species

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GRADING & EVALUATION:

The student's performance in the course will be based on their performan on 5 laboratory assignments each worth 8% of the total mark and on 3 tests ea worth 20% of the final mark. Completion of all lab assignments is a r