

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

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NOV 17 1994

COURSE OUTLINE

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PHYSICAL TESTING OF PULP

COURSE TITLE:

PPE 120-4

CODE NO.

II

SEMESTER:

PULP & PAPER ENGINEERING TECHNOLOGY

PROGRAM:

JACK BETHUNE

AUTHOR:

NOVEMBER 1994

SEPTEMBER 1990

DATE:

PREVIOUS OUTLINED DATED:

APPROVED:

DEAN



H-K-of
DATE

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TOTAL CREDIT HOURS: 64**PREREQUISITE(S):** None**I. PHILOSOPHY/GOALS:**

This is a laboratory course which introduces the student to a variety of physical tests that are commonly made on wood chips, pulp and paper. The student learns to master common pulp testing apparatus, manipulate numbers and prepare lab reports on the work he or she has completed. This course is specifically designed to give the student a technical edge when going on the first Co-op work term after Semester 2. In support of these tests, the student will learn about the theory behind each test and what the results mean.

II. STUDENT PERFORMANCE OBJECTIVES:

Upon successful completion of this course the student will:

1. Be able to accurately carry out each of the 10 standard tests studied in this course.
2. Be able to explain the significance of the results of each test performed.
3. Be able to prepare a standard lab report as studied in class.
4. Be able to explain the theory behind each test performed.
5. Be able to demonstrate an understanding of the importance of lab safety.

III. TOPICS TO BE COVERED:

1. Introduction to Course.
2. Fundamental Testing.
3. Wood as a Raw Material.
4. Freeness.
5. Drainage.
6. Fibre Classification.
7. Preparation of Handsheets.
8. Light Microscopy of Pulps.

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IV. LEARNING ACTIVITIES:

REQUIRED RESOURCES

- | | |
|--|--|
| 1.0 <u>Introduction</u> | Text "Laboratory Manual for PPE120"
Pgs. 1-14. |
| 1.1 Introduction to course. | |
| 1.2 Introduction to labora-
tory. | |
| 2.0 <u>Fundamental Testing</u> | Text "Laboratory Manual for PPE120"
pgs. 15 & 16.
Text "Pulp & Paper Testing Methods"
PPET TM01 |
| 2.1 Solids or oven dry
content of pulp. | |
| 2.2 Consistency of Pulp
Suspensions. | PPET TM03 |
| 2.3 Equilibrium moisture
content of pulp & paper. | PPET TM02 |
| 2.4 Basis weight of Paper | PPET TM04 |
| 3.0 <u>Wood as Raw Material</u> | Text "Laboratory Manual for PPE120"
pgs. 17 & 18.
Text "Pulp & Paper Testing Methods"
PPET TM01 |
| 3.1 Solids or oven-dry
content of chips. | |
| 3.2 Bulk Density. | PPET TM06 |
| 3.3 Basic Density. | PPET TM07 |
| 3.4 Contaminants content. | PPET TM08 |
| 4.0 Freeness | Text "Laboratory Manual for PPE120"
pgs. 19 & 20. |
| 4.1 Using a Canadian
Standard Freeness Tester
to determine freeness. | Text "Pulp & Paper Testing Methods"
PPET TM03
PPET TM09 |

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IV. LEARNING ACTIVITIES: (cont'd)**REQUIRED RESOURCES**

5.0 <u>Drainage</u>	Text "Laboratory Manual for PPE120" pgs. 21 & 23.
5.1 Determine the drainage time of a pulp suspension.	Text "Pulp & Paper Testing Methods" PPET TM03 PPET TM10
6.0 <u>Fibre Classification</u>	Text "Laboratory Manual for PPE120" pgs. 24 & 26.
6.1 Use Bauer McKnett classifier to classify a pulp sample.	Text "Pulp & Paper Testing Methods" PPET TM01 PPET TM03 PPET TM11
7.0 <u>Preparation of Handsheets & Testing</u>	Text "Laboratory Manual for PPE120" pgs. 27 & 28.
7.1 Preparation of Handsheets using British Sheet Machine.	Text "Pulp & Paper Testing Methods" PPET TM01 PPET TM04 PPET TM14
7.2 Handsheet Testing	PPET TM15 PPET TM19
8.0 <u>Light Microscopy of Pulps</u>	Text "Laboratory Manual for PPE120" pgs. 29 & 30.
8.1 Prepare Slides.	Text "Pulp & Paper Testing Methods" PPET TM22
8.2 Determine average length of fibre.	PPET TM23
8.3 Determine kraft: ground- wood percentage.	PPET TM23

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V. EVALUATION METHODS:

Students will be assigned grades based on 7 lab exercises and two tests as follows:

Lab Reports 70%
Test Results 30%

The grading system will be as follows:

A+ = 80-100% A = 80-89% B = 70-79% C = 60-69% R = less than 60%

Students who have completed all labs and receive a final mark between 55-59% will be allowed to write a supplemental test covering all aspects of the course.

VI. REQUIRED STUDENT RESOURCES:

Pulp and Paper Testing Methods for PPE120 and PPE241.

WB.I. ADDITIONAL RESOURCE MATERIALS AVAILABLE IN THE COLLEGE LIBRARY:

Periodical Section -

Pulp and Paper Journal
Tappi

VIII. SPECIAL NOTES

Due to limited lab facilities, all students will not complete the labs in the order listed.

Students with special needs (e.g. physical limitations, visual impairments, hearing impairments, learning disabilities) are encouraged to discuss required accommodations confidentially with the instructor.

Your instructor reserves the right to modify the course as he/she deems necessary to meet the needs of students.