

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY
SAULT STE. MARIE, ONTARIO

COURSE OUTLINE


Course Title: PULP TECHNOLOGY II
Code No.: PPE 245-4
Program: PULP & PAPER TECHNOLOGY
Semester: III
Date: AUGUST 31, 1987
Author: E. A. N. SUGDEN

New:

Revision:

X

APPROVED:


Chairperson

Date

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CALENDAR DESCRIPTION

PULP TECHNOLOGY II

PPE 245-4

COURSE NAME

COURSE NUMBER

PHILOSOPHY/GOALS :

This is the second of three Pulp Technology courses. The first course covered chemical pulping processes (kraft and bisulphite) while the third course will deal with common post-pulping processes (cleaning, screening, washing, thickening, storage, bleaching, etc.)

This second Pulp Technology course provides the student with the underlying theory of mechanical, chemi-mechanical and semi-chemical pulping processes. The effects of raw material properties, process parameters and equipment design upon the end-product properties and economics are important points discussed.

The course is supported by earlier work in Forest Biology, Wood Handling & Preparation, Pulp Testing I and Pulp Technology I in addition to courses in Chemistry and Physics.

METHOD OF ASSESSMENT (GRADING METHOD);

Students will be graded on the basis of their performance in three tests to be given at appropriate intervals through the semester. Each test will be of equal value.

Mid-term and final grades will be assigned on the basis of aggregate marks accumulated. Letter grades will have the following percentage equivalents:

A+ = 90-100%

A = 80-89%

B = 70-79%

C » 60-69%

R = less than 60%

Students having completed all the work and who have a final mark of 55-59% will be permitted to write a comprehensive supplemental exam after the exam period and before the beginning of the next semester.

TEXTBOOK;

There is no textbook assigned for this course at the present time. However, the students are urged to consider a new reference book on the subject. This is listed at the end of this outline.

COURSE TOPICS:

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<u>WEEK</u>	<u>TOPICS COVERED</u>
1	<u>INTRODUCTION TO PULP TECHNOLOGY II</u> <ul style="list-style-type: none">- Reasons and objectives- Reviews of wood structure, wood chemistry and interfibre bonds- Review of chemical pulping
2-3	<u>MECHANICAL PULPING - AN OVERVIEW</u> <ul style="list-style-type: none">- Historical development- World industry- Canadian industry- Ontario industry- Raw materials- Nature of products, volume and value
4-5	<u>MECHANICAL PULPING PROCESSES - INTRODUCTION</u> <ul style="list-style-type: none">- Interfibre bonds and lignin- Glass transition temperature of lignin- Wood strength versus temperature- How temperature is applied in pulping<ul style="list-style-type: none">- frictional, vibrational, and rotational energy all give heat
6-8	<u>MECHANICAL PULPING PROCESSES - BASIC PROCESSES</u> <ul style="list-style-type: none">- Stone groundwood (SGW and PGW)- Refiner groundwood (RGW and TMP)- Examine these in light of stone and refiner parameters, e.g., grit size, sharpness, burr pattern, refiner plates, energy, wood, water, yield, quality.
9-12	<u>CHEMI-MECHANICAL PULPING PROCESSES</u> <ul style="list-style-type: none">- Chemi-stone groundwood (CSGW)- Chemi-refiner groundwood (CRGW)- Chemi-thermomechanical pulp (CTMP)- Examine in light of processes, additives, yields, economics, energy, quality, etc.
13-15	<u>SEMI-CHEMICAL PULPING PROCESSES</u> <ul style="list-style-type: none">- Neutral sulphite semi-chemical (NSSC)- Soda pulping- Non-sulphur pulping- Examine as above

REFERENCES;

The reference book cited below is to be recommended. One or more copies are in the library.

Leask, R.A. & Kocurek, M.J. Eds. Pulp and Paper Manufacture 3rd. Edition, Vol. 2: Mechanical Pulping. Joint Textbook Committee, CPPA, Montreal, 1987.

A list of other references will be provided.