

revised
June, 1984

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SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: PULP TECHNOLOGY I

Code No.: PPE 230-4

Program: PULP AND PAPER ENGINEERING TECHNOLOGY

Semester: II

Date: FEBRUARY, 1985

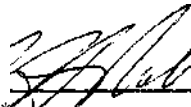
Author: J. KORREY

New:

Revision:

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Date

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# CALENDAR, DESCRIPTION

PULP TECHNOLOGY 1

PPE 230-4

Course Name

Course Number

PHILOSOPHY/GOALS: Pulp Technology I is an introductory course on the theory of the Kraft pulping process. This includes a study of pulping terms, digestion, heat and chemical recovery, equipment, balances, bleaching and control tests.

METHOD OF ASSESSMENT (GRADING METHOD): Evaluation will be made on the basis of four tests and a seminar topic to be researched and presented to other members of the class.

Four tests x 15 marks = 60 marks

Assignments = 10 marks

seminar Report = 20 marks

Seminar Presentation = 10 marks

100 marks

TEXT(S):

The Pulping of Wood ^ Pulp and Paper Manufacture Series,  
McGraw-Hill, Volume 1, 1969.

REFERENCES:

Britt, Kenneth W., "Handbook of Pulp and Paper Technology",  
Reinhold Publishing Co., N.Y. 1964.

Rydholm, Sven A., "Pulping Processes", Intersciences Publishers,  
division of John Wiley and Sons, Toronto, 1965.

Casey, James P., "Pulp and Paper Chemistry and Chemical  
Technology", 3rd edition, Wiley Interscience, Toronto, 1981.

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## I THE CHEMICAL COMPOSITION OF WOOD

### 1. INTRODUCTION

### 2. POLYSACCHARIDES

- a) cellulose
- b) hemicellulose
- c) summary

### 3. LIGNIN

### 4. EXTRACTIVES

### 5. INORGANICS

## INTRODUCTION TO PULPING (General Principles of Pulping)

### 1. PULPING PROCESSES

- a) mechanical - groundwood  
- T.M.P.
- b) chemi-thermomechanical
- c) semi-chemical
- d) sulphite

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## III ALKALINE PULPING - KRAFT

### 1. HISTORICAL BACKGROUND

### 2. DESCRIPTION OF THE PROCESS

### 3. THE CHEMISTRY OF KRAFT PULPING

- a) the composition of pulping liquor

### 4. VARIABLES IN ALKALINE PULPING

- a) wood, species and conditions
- b) alkali charge
- c) composition of cooking liquor
- d) temperature of digestion
- e) time of digestion
- f) balances - heat, material

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PPE 230-4

5. CONTINUOUS COOKING

6. CONTROL METHODS

TEST #2

**IV ALKALINE RECOVERY AND BY-PRODUCTS**

1. INTRODUCTION AND IMPORTANCE

2. EVAPORATION OF BLACK LIQUOR

3. RECOVERY FURNACE

4. PREPARATION OF COOKING LIQUOR

5. TALL OIL RECOVERY

6. BALANCES

a) material - cooking and washing  
- causticizing  
- lime kiln

b) heat - recovery furnace  
- lime kiln

c) water

**TEST #3**

**BLEACHING**

1. PURPOSE

2. BRIGHTNESS

3. MULTI-STAGE BLEACHING

4. PREPARATION OF BLEACHING CHEMICALS

**EST #4**