

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

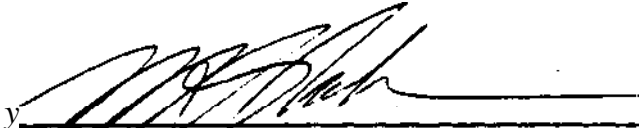
COURSE OUTLINE

Course Title: PULP TECHNOLOGY I
Code No.: PPE 230-4
Program: PULP AND PAPER ENGINEERING TECHNOLOGY
Semester: II
Date: JANUARY, 1987
Author: A. SUGDEN

New:

Revision:

APPROVED:


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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 the first of a series of three courses that deal with the technology of pulp manufacture. This course covers the science and technology of full chemical pulping and includes the sulphite, bisulphite and kraft processes. Topics covered include a study of pulping terms, digestion, heat and chemical recovery, equipment, material balances and applicable control tests.

The second course of the series deals with mechanical and semichemical pulping processes while the third course covers unit processes that are common to both chemical and mechanical pulping, e.g. washing, screening, cleaning and bleaching.

METHOD OF ASSESSMENT (GRADING METHOD):

Evaluation will be based on the results of three (3) tests, each one of equal value. Letter grades will be assigned as follows:

- A = 80% or more
- B = 70 - 79%
- C = 60 - 69%
- R = 59% or less

Students having a final mark of 50 - 59% may be permitted to write a supplementary test covering the ENTIRE course.

TEXTBOOK(S):

Smook, G.A. (1982), Handbook for Pulp & Paper Technologists.

Joint Textbook Committee of the Paper Industry, Atlanta.

REFERENCES:

As listed in course outline.

NATURE OP THE COURSE TOPICS

1. CHEMICAL COMPOSITION OP WOOD

Introduction
Polysaccharides
 Cellulose
 Hemicelluloses
Lignin
Extractives
Inorganics

2. SULPHITE AND BISULPHITE PULPING

Chemistry
Liquor manufacture
Digesters
Cooking processes
Pulping variables

3. SULPHITE AND BISULPHITE RECOVERY SYSTEMS

Chemistry
Evaporation
Chemical recovery
Heat recovery
Make-up chemicals required

4. KRAFT PULPING

Chemistry of the process
Liquor manufacture
Digesters
 Batch
 Continous
Cooking processes
Pulping variables

KRAFT RECOVERY OPERATION

Chemistry

Brown stock washing
Evaporation of black liquor
Recovery furnace
Recausticizing
Heat recovery
Make-up chemicals required

6. IMPORTANCE OF CHEMICAL PULPING IN CANADA

Pulp produced
Number of mills by type

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REFERENCES

There are many sources of reference materials available in the Library. Some of these are listed below:

1. Rydholm, S.A. (1965). Pulping Processes, Interscience, New York.
2. MacDonald, R.G. & Franklin, J.N. eds, (1969). Pulp and Paper Manufacture, Vol. 1. The Pulping' of Wood. McGraw-Hill, New York.
3. Ingruber, O., Kocurek, M.J. & Wong, A. Eds. (1985?) Pulp & Paper Manufacture, 3rd Edition, Vol. 4. Sulphite Science and Technology, Joint Textbook Committee of the Paper Industry, Atlanta.
4. Britt, K.W. (1964), Handbook of Pulp and Paper Technology, Reinhold, New York.
5. Casey, J.P. (1981), Pulp and Paper Chemistry and Chemical Technical Technology, 3rd. edition, Interscience, New York.
6. Sjostrom, E. (1981), Wood Chemistry: Fundamentals and Application, Academic Press, New York.
7. TAPPI Journal (1983 - present)
8. Pulp & Paper Canada (1983 - present)
9. Pulp & Paper (1983 - present)
10. Canadian Pulp & Paper Journal (1983 - present)
11. Hough, G. Ed. (1985), Chemical recovery in the Alkaline Pulping Process, TAPPI Press, Atlanta.