

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: PULP TESTING I

Code No.: PPE 120-4

Program: PULP & PAPER ENGINEERING TECHNOLOGY

Semester: III

Date: JANUARY 5, 1984

Author: E.A.N. SUGDEN

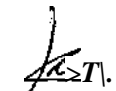
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Revision:

APPROVED:



 Chairperson

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 Date^S

CALENDAR DESCRIPTION

PULP TESTING I

PPE 120-4

Course Name

Course Number

PHILOSOPHY/GOALS :

Pulp Testing I is the first of two courses designed to provide the student with a theoretical and laboratory background in recognized tests and procedures used in the north American pulp industry to determine quantity and quality of raw materials, end-products, contaminants and wasted products. The courses will concentrate on physical and chemical aspects of pulp.

Pulp Testing I covers physical quantities and qualities of wood raw materials and the pulp produced up to and including preparing paper handsheets for strength testing.

METHOD OF ASSESSMENT (GRADING METHOD):

Performance in Pulp Testing I will be based on a combination of laboratory assignments and laboratory tests. The proportion of the total mark assigned to each of the two components is as shown below.

Laboratory assignments	81%
Laboratory tests	19%

Grading Levels will be as indicated:

A	= 80+%
B	= 70 - 79%
C	= 59 - 69%
R	= 59%

Students having an R standing with an average of at least 55% will be permitted to write a supplemental test.

NOTE: Completion of all lab assignments and tests is a course requirement

TEXTBOOK:

There is no appropriate textbook for this course. However, the Standard Methods of the Technical Section of the Canadian Pulp and Paper Association (C.P.P.A.) will be used for this and following courses. It is strongly suggested that ALL students obtain their own copy of these Methods.

A Laboratory Manual for this course is available from the Bookstore and is a required item for the course.

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PULP TESTING I

OBJECTIVES;

1. Upon completion of the course the student will be able to perform tests on wood and pulp in order to determine moisture content; solids content; basic and bulk density of wood chips; freeness and consistency of pulp suspensions; drainage rate of pulp; and fibre classification. In addition, the student will have learned the techniques of preparing handsheets for physical testing and will be able to prepare slides and identify and measure certain fibre parameters from them.
2. The student will become familiar with the nature, scope and use of Standard Methods issued by the Canadian Pulp and Paper Association. The opportunity to join the above Association and to obtain a personal copy of the Standards Methods will be given to all students.
3. The student, upon completion of the course, will have learned how to perform the above mentioned tests and other laboratory skills with precision and with due respect for the equipment and the safety of him(her)self and all others present.
4. On completion of the course, the student will be able to demonstrate relationships that exist between many of the properties of pulp that were evaluated during the course.
5. On completion of the course, the student will have demonstrated advanced skills in laboratory report Writing and will have learned some basic techniques in measurements of precision and reproducibility of replicated areas.

NATURE OF PRESENTATION:

Each meeting is designed to last 4 hours. In most cases, the first hour of each meeting will be used as a laboratory lecture to discuss the approach and significance of the lab topic. Since a Laboratory Manual will be available at the beginning of the course it is required that the students familiarize themselves with the day's topic prior to the lab period.

Since there is a limited amount of equipment available for the entire class the laboratory exercise, themselves, will not necessarily be done in a particular order. In order to accommodate this procedure reports will be

handed in for marking three times during the semester. The appropriate times for this activity and for lab tests will be noted early in the semester.

The remaining three hours of the lab period will be spent in carrying out the various laboratory exercises, collating data and preparing reports. Assistance from the teacher will be available throughout the lab period.

LABORATORY TOPICS;

The following topics will constitute the laboratory program. A more complete description of the laboratory exercises will be found in the Laboratory Manual and its summary section.

- Introduction to Pulp Testing I. Discussion of scope, reasons and objectives of the course.
- Laboratory procedures, hazards and care of equipment.
- Familiarization with C.P.P.A. Standard Methods and introduction to other sources of Standard methods, eg. TAPPI, SCAN, ASTM etc.
- Fundamental pulp testing skills. Factors affecting the measurement of moisture content and mass of dry fibre.
- Wood as a raw material. measurement of moisture, mass, density and classification.
- Freeness of pulp suspensions. Measurement of basic freeness and correcting this for temperature and consistency of pulp suspension.
- Drainage time and drainage rate of pulp suspensions. This will include an investigation of the effects of stock temperature and consistency on drainage time and rate.
- Fibre classification. The use of the Bauer-McNett Classifier to separate pulp fibres into different length classes.
- Field trip in pulp testing to the local mill of Abitibi-Price.
- Practical problems relating to test data use. A series of problems will be assigned that deal with the application of test data to mill situations.
- Preparation of paper handsheets for physical tests. Such handsheets will be evaluated for uniformity and one mechanical property will be tested.
- Light microscopy of various pulps. Slide preparation and examination and measurement of fibres will be carried out.

EVALUATION;

Students will be graded by their performance on laboratory exercises and on two laboratory tests. Laboratory exercises (a total of nine) will be worth 9% of the course grade. The remaining 19% of the course grade will be evenly split between the two lab tests.

Letter grades will be assigned in respect to the following percentage marks achieved at Mid-term and the end of the semester.

A = 80+%

B = 70-79%

C = 59-69%

R = -59%

Students having an "R" standing at the end of the semester and who have attained an average mark of ~~at~~: least 55% will be permitted to write a supplemental test.

Adam Sugden

1984-01-05