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SAOLT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: PAPER QUALITY AND TESTING

Code No.: PPE 165-4

Program: PULP AND PAPERMAKING OPERATIONS

Semester: SEMESTER II

Date: MARCH 1989

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New: X Revision:

APPROVED: s^ //j?/^ ChaTrpelrVoii ^^^J//ff Date

CALENDAR DESCRIPTION

PAPER QUALITY & TESTING — **PPE 165-4**

COURSE NAME — **COURSE NUMBER**

PHILOSOPHY/GOALS;

The purpose of this course is to introduce the student to those important paper qualities needed to satisfy customer and consumer demand. The student will become familiar with selected qualities through laboratory exercises which will concentrate on the actual measurement of paper quality.

Typical industry-wide tests such as basis weight, burst, tensile and tearing strengths, smoothness, stiffness, brightness, opacity and colour measurements will be included in the laboratory exercises. Care of test equipment, calculation of results, preparation of simple reports and the application of statistical process control (SPC) will round out the course materials.

METHOD OF ASSESSMENT;

Students will be graded on the basis of their performance on four laboratory exercises, each worth 15% and two tests (given at appropriate intervals during the semester) and worth 20% each. Students must successfully pass both parts of the course to receive credit.

Letter grades will be assigned according to the standard Sault College system. Students having a final overall cumulative percentage between 50 and 59% may be permitted to write a supplemental examination that will cover the theory material from the entire course. There will be no opportunity to rewrite the laboratory portion of the course.

TEXTBOOK(S):

A prepared laboratory manual must be obtained from the College Bookstore for a modest fee. This manual is:

Lab Manual for PPE 025 - Paper Quality and Testing

The general reference book used on other courses in this program will be useful for this course.

Smook, G. Handbook for Pulp & Paper Technologists. Joint Textbook Committee of the Paper Industry, CPPA, Montreal, 1982.

OBJECTIVES;

The overall educational objective of the course is that the student will be able to demonstrate knowledge of paper properties used to monitor paper quality, how to perform these tests and how to care for test equipment. More specific objectives to be met by the course are as follows:

1. Demonstrate knowledge of the value of paper properties as a means of predicting paper end-use performance.

2. Demonstrate ability to determine basis weight of paper and paperboard.

3. Demonstrate ability to perform burst, tensile and tearing resistance tests on paper and paperboard.

4. Demonstrate ability to perform smoothness and stiffness tests on paper and paperboard.

5. Demonstrate ability to perform brightness, opacity and colour measurement tests on paper and paperboard.

6. Demonstrate knowledge of the correct use and care of test equipment.

7. Demonstrate ability to calculate required results from crude test data.

8. Demonstrate ability to prepare brief test reports based on actual test data.

9. Demonstrate knowledge of the application of statistical process control, using test data, to control a process.

NATORE OF PRESENTATION;

The course will be given for 3 hours each week using one triple period based in the Paper Testing Lab. The first hour of each period may be used for the presentation of lecture material in an adjoining classroom.

The students will complete four assigned laboratory exercises during the course. These exercises will involve testing samples of commercial papers and paperboards, calculating test results and preparing finished test reports. A component of each report will consist of basic interpretation of the test results.

TOPICS COVERED:

WEEK	TOPIC
1.	- Introduction to course and topics - Introduction to lab equipment - Equipment operating rules
2.	- Reasons for testing paper and paperboard - Preview of the tests to be learned
3.	- LAB 1. DETERMINATION OF BASIS WEIGHT AND DENSITY
4.	- Preparation of reports - Strength tests of paper and paperboard
5.	- LAB 2. DETERMINATION OF BURST, TENSILE AND TEAR STRENGTHS OF PAPER AND PAPERBOARD
6.	- Test 1 - LAB 2. Continued
7.	- Interpretation of test results - Surface properties of paper and paperboard
8.	- LAB 3. DETERMINATION OF SMOOTHNESS AND STIFFNESS OF PAPER AND PAPERBOARD
9.	- Optical tests on paper and paperboard - Statistical process control
10.	- LAB 4. DETERMINATION OF BRIGHTNESS, OPACITY AND COLOUR OF PAPER AND PAPERBOARD
11.	- LAB 4. Continued
12.	- Statistical process control (continued)
13.	- Care of test equipment - Checking your data, calibration steps - Review of tests performed
14.	- Test 2