

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

COURSE OUTLINE


Course Title: PAPER FINISHING

Code No.: PPE 162-4 Semesters II

Program: PULP AND PAPERMAKING OPERATIONS

Author: KEVIN PEVATO

Date: NOVEMBER 1991 Previous Outline Dated: MARCH 19 89

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Date

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TOTAL CREDIT HOURS: 64

I. PHILOSOPHY/GOALS:

This course introduces the student to a variety of off-machine processes used as the final stages of papermaking. The operation of calenders, supercalenders and their effect on paper will be studied. Aspects of rewinding, wrapping, roll handling, sheeting, cut size operations, and paper storage will be dealt with.

In addition, on and off-machine coating, coating formulations and their effect on paper properties will be investigated.

NATURE OF PRESENTATION:

The course will be given for 3 hours per week in three single periods. The course material will be mainly presented in the form of lectures which will be supplemented by exercises and assignments.

II. STUDENT PERFORMANCE OBJECTIVES:

The overall educational objective of this course is that the student will be able to demonstrate adequate knowledge of the many and varied paper finishing theories and operations. More specific objectives to be met by the course are as follows:

1. Demonstrate knowledge of theory, function and operation of calenders and supercalenders.
2. Demonstrate knowledge of how calendering affects paper quality.
3. Demonstrate knowledge of process flow through finishing operations.
4. Demonstrate knowledge of rewinding, roll wrapping and roll handling operations and equipment.
5. Demonstrate knowledge of cut size (sheeting) equipment and operations.
6. Demonstrate knowledge of paper storage, shipment and inventory control systems.
7. Demonstrate knowledge of off-machine coating systems and the formulations used for coating. ^fe
8. Demonstrate knowledge of the effects coating has on paper properties and end-use.

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III. TOPICS TO BE COVERED:

WEEK	TOPIC	SMOOK BOOK
	Introduction - Review Course Outline	
	- Review of paper manufacturing from headbox to dryer exit	
	- Reasons for finishing paper	
	Calendering	17.2 Calendering p. 254-256
	- Calender configurations and equipment	
	Calender variables	What happens during calendering p. 256-258
	- Calender control systems	
	- Calender defects	
	- Calender team	
	Supercalendering	18.3 Super Calendering p. 272-273
	- The theory of supercalendering	
	- Super calender configurations and equipment	
	- Supercalender variables	
	- Supercalender controls	
	- Supercalender defects	
	- Supercalendering team	
	Winding	17.5 Winding p.260
	- The theory of winding	
	- Winder configurations and equipment	
	- Winder Variables	

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III. TOPICS TO BE COVERED: (cont'd)

WEEK	TOPIC	SMOOK BOOK
	<ul style="list-style-type: none">- Winder controls- Winder defects- Winder team	
	TEST (weeks 1-7)	
8	Sheeting and Trimming	23.1 Sheet Finishing Methods p.317-320
9	Sorting, Inspecting, and Packaging	17.6 Roll Finishing p. 260
10	Coating <ul style="list-style-type: none">- Overview- Grades of Coated Paper- The Theory of Coating	18.2 Coating p.264
11	<ul style="list-style-type: none">- Coating Formulations- Coating Additives	Preparation of Coating p.265-266
12	Coating Machines <ul style="list-style-type: none">- On-machine Coating- Off-machine Coating	p. 266 p. 268
13	Drying Systems <ul style="list-style-type: none">- Coating Problems	Factors affecting coated sheet properties p. 270-271
14	Hazards and safety in finishing area. <ul style="list-style-type: none">- Economics of paper finishing	
15	TEST (weeks 8-14)	

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IV. EVALUATION METHODS:

Students will be graded on the basis of their performance on two tests to be given at appropriate intervals during the semester.

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 material from the entire course.

V. REQUIRED STUDENT RESOURCES:

Sugden, A., Paper Finishing (PPE162) Lab Manual, Sault College.*

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

* currently being developed and may not be prepared by January 1992.

VI. ADDITIONAL RESOURCE MATERIALS AVAILABLE IN THE COLLEGE LIBRARY BOOK SECTION:

Winding, Kenneth G. Frye, TAPPI Press, TS1117 F79 (1990).

Coating, Converting, and Specialty Processes, Editor Michael Kouris, Joint Textbook Committee of the Paper Industry, TS1105.P87 (1990).

Manual of Supercalender Operations, Francis E. Schiller, Miller Freeman Publications, TS1117.S34 (1976).

1980 Finishing and Converting Conference, Technical Association of Pulp and Paper Industry, TS1117.P33 (1980).

1979 Finishing and Converting Conference, Technical Association of Pulp and Paper Industry, TS1117.P33 (1979).

1980 Coating Conference, Proceedings of the Technical Association of the Pulp and Paper Industry, TAPPI Press, Atlanta, TS1109.T26 (1980).

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VII. SPECIAL NOTES:

Students with special needs (e.g. physical limitations, visual impairments hearing impairments, learning disabilities) are encouraged to discuss required accommodations confidentially with the instructor.

Your instructor reserves the right to modify the course as he/she deems necessary to meet the needs of students.