SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

Sault College

COURSE OUTLINE

COURSE TITLE: SECONDARY FIBRES

CODE NO. : PPE 367-3 **SEMESTER:** 3

PROGRAM: Pulp and Paper Engineering Technician
Pulp and Paper Engineering Technology

AUTHOR: J. Bethune

DATE: MAY, 2000 **PREVIOUS OUTLINE DATED:** N/A

APPROVED:

_____ _____
DEAN **DATE**

TOTAL CREDITS: 3

PREREQUISITE(S): NONE

HOURS/WEEK: 4

I. COURSE DESCRIPTION:

This course deals with the growing trend of the Pulp and Paper industry to use higher percentages of secondary (recycled) fibres in its products. The course presents information on environmental pressures and consumer demands that impact on the use recycled fibres as well as the state of the industry in Canada. New technologies for collection, repulping, deinking, contaminant removal and paper and paperboard manufacture are examined.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the student will demonstrate the ability to:

1. Indicate a general knowledge of recycling and recycled products.

   Potential Elements of the Performance:

   -Explain what is meant by recycling.
   -List the advantages and disadvantages of using secondary fibre.
   -Explain why it is not feasible to separate mixed garbage and recover waste paper products.

2. Indicate a knowledge of the Canadian secondary fibre industry.

   Potential Elements of the Performance:

   -Indicate with factual data the size and concentration of the Canadian secondary fibre industry.
   -Demonstrate how the use of recycled fibre has increased over the past 20 years.
   -Define; recovery rate, pulp substitutes, news grades, mixed grades and box cuttings.
   -List the usual disposal routes for post consumer waste paper.
   -List the consumption of Canadian recovered paper by grades.
   -Differentiate between corrugated container generation, recovery and recoverability.
   -Discuss the utilization of old newspapers and of high grade deinking waste.
   -Know which sector of the paper industry uses the largest percentage of recycled fibre and why.

3. Indicate a knowledge of the contaminants found in waste paper recycling systems.

Potential Elements of the Performance:

-List the common contaminants found in waste paper recycling.
-Know the sources of common contaminants found in waste paper recycling.
-Indicate the in-mill processing problems caused by contaminants found in waste paper.
-List and discuss some of the approaches to solutions to the problems caused by contaminants found in waste paper.
-Demonstrate the economic impact of contaminants such as SRAC on waste papers.

4. Indicate a knowledge of the processes used in recycling.

Potential Elements of the Performance:

-Discuss in detail the equipment used to repulp bales of secondary fibre.
-List and discuss the variables affecting the degree of defibering.
-Describe and differentiate between the various types of deinking processes.
-Discuss the major benefits of the flotation process.
-Describe the newsprint deinking processes used at several Canadian mills.
-Discuss the reasons for different pulp brightnesses between fresh waste and old news.
-Do a cost comparison between secondary fibre and virgin Kraft.
-Discuss wet strength resin removal.

5. Indicate a knowledge of the effects of recycling.

Potential Elements of the Performance:

-Discuss the effects of recycling on paper machine maintenance and clothing.
-List and explain the effects of recycling on paper or board strength properties.
-List and explain the effects of recycling on drainage time.
-List and explain the effects of recycling on paper optical properties.
-Discuss possible tests used to determine recycle content.

6. Indicate a knowledge of additives used with recycled fibres.

Potential Elements of the Performance:

-Explain the use of retention aids in recycled fibres.
-Explain the use of drainage aids in recycled fibres.
-Explain the use of dry strength additives in recycled fibres.

III. TOPICS:

1. Recycling and recycling products.
2. The Canadian secondary fibre industry.
3. Contaminants in waste paper.
4. Recycling processes.
5. Effects of recycling.
6. Additives in recycling.

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

There is no text or manual for this course. Students will be required to take class notes.

V. EVALUATION PROCESS/GRADING SYSTEM:

A final grade for this course will be based on the results of two tests and one assignment, all weighted equally.

The following semester grades will be assigned to students in postsecondary courses:

Grade	Definition	Grade Point Equivalent
A+	90 - 100%	4.00
A	80 - 89%	3.75
B	70 - 79%	3.00
C	60 - 69%	2.00
R (Repeat)	59% or below	0.00
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field placement or non-graded subject areas.	
U	Unsatisfactory achievement in field placement or non-graded subject areas.	
X	A temporary grade. This is used in limited situations with extenuating circumstances giving a student additional time to complete the requirements for a course (see *Policies & Procedures*	

Manual – Deferred Grades and Make-up).

NR Grade not reported to Registrar's office. This is used to facilitate transcript preparation when, for extenuating circumstances, it has not been possible for the faculty member to report grades.

VI. SPECIAL NOTES:

Special Needs:
If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your instructor and/or the Special Needs office. Visit Room E1204 or call Extension 493, 717, or 491 so that support services can be arranged for you.

Retention of course outlines:
It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other postsecondary institutions.

Plagiarism:
Students should refer to the definition of “academic dishonesty” in *Student Rights and Responsibilities*. Students who engage in “academic dishonesty” will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course/program, as may be decided by the professor/dean. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

Course outline amendments:
The Professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Substitute course information is available in the Registrar's office.

VII. PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced credit in the course should consult the professor. Credit for prior learning will be given upon successful completion of a challenge exam or portfolio.

VIII. DIRECT CREDIT TRANSFERS:

Students who wish to apply for direct credit transfer (advanced standing) should obtain a direct credit transfer form from the Dean’s secretary. Students will be required to provide a transcript and course outline related to the course in question.