

**COURSE INFORMATION:**

**Course:** FPT 102  
**Course Title:** Papermaking  
**Lecture Hours/Week:** 3.0  
**Lab Hours/Week:** 0.0  
**Credit Hours/Semester:** 3.0

**DL Attendance/VA Statement****Textbook Information****COURSE DESCRIPTION:**

This course provides an overview of papermaking, including papermaking terminology, main operations of the paper mill conducted by stock preparation, stock and paper testing procedures, flow of stock and paper equipment and additives used in the paper mill, and printing methods.

**COURSE COMPETENCIES:****Module 1**

- Acquire a basic knowledge of wood and pulp fibers
- Describe standard papermaking process variables/measurements
- Describe the main operations conducted in the stock preparation area.
- Describe the additives used in papermaking and their effect on paper characteristics

**Module 2**

- Understand the flow of stock through the wet-end processes
- Understand the flow of stock through the dry-end processes

**Module 3**

- Identify basic types of surface treatments for paper
- Identify the key subsystems in coaters and calenders
- Understand the basic steps in paperboard manufacture

**Module 4**

- Know the important physical properties of paper
- Identify tests used to establish the physical properties of paper
- Describe the end uses of paper and printing
- Understand environmental issues surrounding papermaking

**MINIMAL STANDARDS/PERFORMANCE OBJECTIVES:**

## Module 1

Students will know the basic properties of wood and pulp fibers used in the papermaking process. The students will know the important process variables that characterize the papermaking process and how those variables are measured. The student will know how stock is prepared as well as the types of additives used and their influence of the properties of the paper produced.

## Module 2

Students will know the basic components/processes of the wet end:

- Approach systems
- Head box
- Sheet forming
- White water
- Broke
- Pressing
- Vacuum

Students will know the basic components/processes of the dry end:

- Drying
- Calendering
- Profile control
- Reeling
- Machine drives
- Winding
- Finishing

## Module 3

Students will be able to describe the basic types of surface treatments used on paper: sizing, pigment coating, calendering and the equipment used in these processes. Students will also be able to describe the basic steps of paperboard manufacture.

## Module 4

Students will be able to identify the key physical properties of paper and techniques to measure those properties. The student will know the basic end uses of paper and the fundamentals of printing. The students will be familiar with environmental issues that relate to the manufacture of paper.

## **COURSE REQUIREMENTS:**

Students are responsible for attaining competencies through completion of the following course requirements:

### **ATTENDANCE**

Students will be bound by the policies stated in the York Technical College Student Handbook. Students must attend 80% of the hours assigned the class for a semester to receive credit for the course. In case a student does miss a class, the student is responsible for obtaining the material that was covered during the absence. If a student is aware that a class will be missed, then the student should notify the instructor at the earliest possible date.

An exception to this policy will be made for absences due to scheduled work at Bowater such as mandatory overtime or special work schedules required to support maintenance activities during a shutdown.

### **COMPLETION OF ALL HOMEWORK AND READING ASSIGNMENTS**

Students are expected to complete all homework and reading assignments, graded or ungraded.

### **PARTICIPATION IN CLASS DISCUSSIONS AND HANDS-ON ACTIVITIES**

Students are expected to participate during class, including question and answer periods that follow class presentations made by other students and/or guest speakers.

### **COMPLETION OF ALL ASSESSMENTS/TESTS.**

Students are expected to complete all assessments and tests. If a student misses a test or assessment because of illness or urgent emergency, it is the responsibility of the student to notify the instructor prior to the class period, or at the earliest possible date. At that time a new date for a make up assessment/test can be scheduled. Students with unexcused absences during an assessment or test will be allowed to take a make it up at the discretion of the instructor.

### **ACADEMIC HONESTY:**

"York Technical College adheres to the South Carolina TECH Student Code, approved by the State Board for Technical and Comprehensive Education on

March 13, 1974 (revised last April 25, 1984). Copies of this code are available in the Library and from Student Services. ...Any student caught cheating or involved in any other academic dishonesty will be given a grade of zero and will be subject to further disciplinary action."

### **EVALUATION STRATEGIES/GRADING:**

The grading scale will be as follows:  
(See addendum or instructor for specific details)

Grade	Points
A	90 - 100.0
B	80 - 89.9
C	70 - 79.9
D	60 - 69.9
F	00 - 59.9

### **EVALUATION METHOD**

### **TOTAL POINTS**

End-of- Module Tests (3, equally weighted)	60%
Comprehensive Module 4 Examination	20%
Class Project	20%

### **ENTRY LEVEL SKILLS:**

There are no special skills required for entrance into this course.

### **PREREQUISITES:**

None

### **CO-REQUISITES:**

None

### **METHODS OF INSTRUCTION:**

This course consists 48 hours of class instruction. The class instruction includes lectures, demonstrations, discussions, and tests. The lectures are given while drawing on the chalkboard, using overhead projections, PowerPoint presentations, CD-ROM based CAI, on-line instruction, or videotapes.

**TOPIC/CONTENT OUTLINE:** (based on 12 week course cycle)

<u>Week #</u>	<u>Topic</u>
1	Introduction, basics of wood and pulp fibers, pulping overview
2	Stock preparation, secondary fibers in paper, non-fiber additives
3	Tour of stock preparation and Module 1 Test
4	Discussion of wet end processes
5	Discussion of dry end processes
6	Tour of wet and dry end operations and Module 2 Test
7	Surface treatment, coating, calendering
8	Paperboard manufacture and Module 3 Test
9	Properties and testing of paper, including a lab tour
10	Uses of paper, printing of paper
11	Environmental issues, project presentations
12	Project presentations and final exam