2013 Introduction to Pulp and Paper Technology Course Schedule

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MONDAY, JANUARY 7
PULPING TECHNOLOGY
SESSION 1: 8:00 A.M. – 12:00 P.M.
OVERVIEW OF INDUSTRY
- Industry trends, statistics and information sources
WOOD AND FIBER RAW MATERIALS
- Discuss wood and fiber sources
- Differences between hardwoods and softwoods, and important fiber properties that affect paper properties
PREPARATION OF WOOD AND CHIPS FOR PULPING
- Woodyard operations including debarking, chipping, screening, storage, and recovery

SESSION 2: 1:00 P.M. – 5:00 P.M.
OVERVIEW OF PULPING
- Primary categories, including chemicals and cooking conditions
- General pulping terminology
- Common pulp properties and tests
KRAFT PULPING
- Major types of equipment used in pulping
- Overview of primary operations in the digesters
- Major pulping variables
- Overview of some major kraft pulping trends
MECHANICAL AND SEMI-CHEMICAL PULPING
- Primary mechanical pulping processes
- Mechanical vs. chemical and hybrid pulp properties

5:00 P.M.
- Networking Hour with Refreshments

TUESDAY, JANUARY 8
SESSION 3: 8:00 A.M. – 12:00 P.M.
PULP PROCESSING
- Overview of fiber line pulp processing including washing, screening and cleaning
- Major equipment types and key operating variables
BLEACHING
- Bleaching processes, including oxygen delignification, chlorine dioxide, caustic extraction, peroxide, and others
- Bleaching equipment, chemicals, and reactions
- Trends and environmental issues

SESSION 4: 1:00 P.M. – 5:00 P.M.
RECYCLING
- Categories of recycled paper and board
- Types of contaminants associated with recycled paper and the problems they cause
- Overview of the different operations and equipment involved with contaminant removal
CHEMICAL RECOVERY
- Overview of the major recovery operations, including evaporation, combustion, and recausticizing
- Composition and properties of black liquor and what happens in the evaporators and recovery units
- How pulping liquor is regenerated in recausticizing
- Lime kiln operations at an overview level

WEDNESDAY, JANUARY 9
PAPER TECHNOLOGY
SESSION 5: 8:00 A.M. – 12:00 P.M.
INTRODUCTION TO PAPER GRADES AND PROPERTIES
- Important paper and board properties and tests, including strength, optical and printing properties
PAPER MILL STOCK PREPARATION
- Refining process, primary effects on fibers, and the effects of refining on paper machine operations and paper properties
- Primary additives used in paper, including strength adhesives, pigments, sizing, and retention aids

SESSION 6: 1:00 P.M. – 5:00 P.M.
PAPER MACHINE WET END OPERATIONS
- Stock approach system operations prior to the paper machine
- Two main types of headboxes used in papermaking and their internal operations
- Sheet forming process, slice operations, jet to wire effects, fiber orientation, formation, microturbulence, dewatering, and sheet structure variations
- Sheet forming operations and paper properties
- Forming fabrics, save alls
- Twin wire gap formers, varieties, mechanisms of dewatering, and sheet structure

THURSDAY, JANUARY 10
SESSION 7: 8:00 A.M. – 12:00 P.M.
PRESSING
- Different types of press section configurations and what happens in a press nip
- What happens to the sheet during pressing
- Pressing variables and trends
DRYING
- Drying operations at an overview level, including dryer internal operations with steam and condensate, major water removal rate differences, and major equipment & operating variables that affect rate of drying
- How drying and sheet shrinkage affect paper and board properties; and the role of felts, draw, and sheet restraint
- Overview of tissue machine yankee drying and creping operations
CALENDERING AND WINDING
- Different types of calenders
- Sheet properties and examination of the major calendering variables
- Winding and roll finishing operation overview

SESSION 8: 1:00 P.M. – 3:00 P.M.
SURFACE TREATMENTS
- On machine size press operations, including equipment types and the variables that affect starch pick up in the size press
- Primary components in a coating, including pigments, adhesives, and additives
- Differences between roll, air knife, and blade coaters
- Drying of coating, equipment and mechanism, supercalendering
ENVIRONMENTAL CONTROL
- Overview of primary and secondary effluent treatment. Review of air & water environmental issues associated with the P&P processes
NOTE: There are scheduled 10 minute breaks approximately each hour to permit networking and one on one discussions with the Instructor.