Welcome to the pulp and paper undergraduate course

Instructor:
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Grading:
- 2 midterms 40% each. One on pulping, one on papermaking.
- UVIC: Midterm 1 Thursday Feb 28; Midterm 2: Thursday April 4
- UBC: Midterm 1 Friday March 1; Midterm 2 Wednesday April 3
- Example Midterm (MECH 450D – MidTerm Feb 2011) note typo in Q3a … 6000 litres is … 6000 litres per minute. (Partial solution is here: Partial Soln for Midterm 1 2011)
- Example Midterm 2 (I dont have solutions)
- Video Project (20%): Up load to youtube and email link to the video to both TA’s (email above) by Monday March 25th.

Project:
- Work in a group of 2-3 people
- Choose a new bio-product that can be made from forest materials (example, carbon fibre car parts …). Please submit your team and your proposed bio-product to your TA by January 18th.
- Develop a short video presentation that covers (NO More than 5 minutes):
  - The process of going from tree to bio-product
  - The properties of the material
  - The estimated environmental impact (benefit).
  - An economic review
  - Marks awarded for interesting / artistic / entertainment value.

We will review all projects during class and videos will be graded by your classmates.

Due (March 22nd)

Textbook:
No textbook. Only the notes that you can find below. However, a reference that you may be interested in would be Handbook for Paper and Paper Technologists – Gary Smook (3rd Edition).
Note you dont have to buy it. Another good reference series is the Papermaking Science & Technology Series which is available as reference in the IRC library at UBC.

Lecture topics:

Topic 1 – Introduction (Lecture Slides)

Topic 2 – Natural resources (Text) (Lecture Slides)

Topic 3 – Mechanical pulping (Lecture Slides) (More info: Research Paper on Intensity from Miles)

Topic 3.1 Stone Ground Wood (Text)

Topic 3.2 Refiner Mechanical pulps (Text)

Topic 3.3 Chemi-Thermo Mechanical Pulps (Text)

Topic 4 – Pulp Rheology (Text) (Lecture Slides) (TAPPI TIS410-14)

Topic 4.5 – Consistency and Freeness (Lecture slides)
Topic 5 – Pulp Screening (Text) (Lecture Slides) (Power text)

Topic 6 – Cleaning / Hydrocyclones (Text) (Lecture Slides)

Topic 7 – LC Refining (Text) (Lecture Slides)

Topic 8 - Reconciliation (Text) (No Lecture slides)

Topic 9 – Mechanical pulp brightening (Lecture Slides)

Topic 10 – Kraft Pulping (Lecture Slides)

Topic 11 Papermaking Introduction (Text) (Lecture Slides) (Video 1)

Topic 12 Papermaking Approach Flow (Text) (Lecture Slides)

Topic 13 Papermaking Forming (Text) (Lecture Slides)

Topic 14 Papermaking Pressing (Text) (Lecture Slides)

Topic 15 Papermaking Drying (Text) (Lecture Slides)

Topic 16 Papermaking Calendering (Text) (Lecture Slides)

Videos:
- Really Big Things – Kvarnsveden Paper mill (Part 1: Debarking and chipping)
- (Part 2: Refining and papermaking)
- Aylesford Newsprint (Recycle and papermaking)

Assignments

1. Assignment 1 (Solutions)

2. Assignment 2 (Solutions)

3. Assignment 3 (word doc here and excel sheet Assignment 3 – Solution H-Factor)

Last updated on January 8, 2014 @12:06 pm