



Boot camp Course: **From chip to pulp and paper**

Course Dates:
23/8-30/8 online lectures
31/8 LAB FEX Machine, Stockholm
1/9-3/9 Lab at KaU and KTH (parallel labs)

Schedule for Treesearch Boot Camp from Chip to Pulp and Paper

Lectures V34

Mon 23/8 08-10 History of technical use of forests, Different types of plants (
 10-12 Wood and Fiber Morphology
 13-15 Overview of Wood Chemistry
 15-17 Overview of the forest industry
Evening Group activity: Students creates a map

Tuesday 24/8

08-10 Forestry and flows. Sawmills and veneer industry
10-12 Wood handling.
13-15 Mechanical pulping
15-17 Chemistry of chemical and half chemical pulping.

Wednesday 25/8

08-10 Equipment of chemical pulping
10-12 Rinsing and washing of pulps
13-15 Oxygen delignification and bleaching
15-17 Characterization of pulp

Tuesday 26/8

08-10 Products, paper and board machines, fibre selection – virgin vs.
 recycled fibres, closed loops
10-12 Stock preparation – refining, wet- and dry strength additives,
 fractionation
13-15 Wet-end, forming
15-17 Pressing, drying, drying constraints
Evening activity: Group project work (Plan for experiments on FEX)

Friday 27/8

08-10 Calendaring, coating
10-12 Converting: printing. Appearance properties, analysis methods
13-16 Converting: packaging. Mechanical properties, stiffness-strength-fibre
 orientation, analysis methods

Monday 30/8

08-10 Overview of chemical balances in pulp industry (
10-12 Chemical recovery in kraft pulping
13-15 Generation of bleaching chemicals
15-17 Water purification in forest industry

All individuals transport to Stockholm and stay at hotel

Tuesday 31/8

whole day FEX pilot runs on sheet forming
 Groups work at different lab modules (rotating schedule)

All individuals go to Karlstad or Stockholm for continued lab work rest of the week

Schedule for Treesearch Boot Camp from Chip to Pulp and Paper

Wednesday 1/9	<i>Parallell laborations at KTH and KaU</i>
Morning	Introduction, safety instructions, calculations, start autoclave cooks ,
Afternoon	Washing, filtering, calculations and measurements, drying of pulp over night
Thursday 2/9	<i>Parallell laborations at KTH and KaU</i>
Morning	Kappa-number viscosity of pulp from yesterday
Afternoon	Optical properties viscosity of industrial pulp
Friday 3/9	Preparation and characterization of sheets (Both FEX-sheets and in-house made sheets).
Mid September	Presentation of projects (Online or in Stockholm).