FPIRC **Focus** Course

# The Sodium/Sulfur-Balance in a Pulp Mill

FPIRC # 20  
In co-operation with: **[](http://www.kau.se/eng/)**  
  
Division, Department, and University:  
[Pulp Technology](http://www.kau.se/en/pulp-technology),  
[Chemical Engineering](http://www.kau.se/en/chemical-engineering),[Karlstad University](http://www.kau.se/eng/) (KaU), Karlstad

**Course description/Content:**The course is of overview type and consists of class room lectures, computer simulations, an assignment carried out together with team colleagues, a mill visit and a final written examination.

* Overview, pulp mill, models
* Kraft cooking, washing, oxygen delignification, bleaching
* The recovery boiler and its chemistry
* LignoBoost
* White liquor oxidation
* Chlorine dioxide generation
* Odor destruction, Cross recovery
* Integration with a cellulose textile mill
* Mass balance models, examples
* A model assignment
* Presentation of the assignments
* Visit to a pulp mill
* Visit to a LignoBoost pilot plant

**Learning objectives:**The student will after the course have a good knowledge about process changes that affect the sodium/sulfur balance. He/she will also be able to make simulations of how much a process change will influence the sodium/sulfur balance for a given mill. The student will finally have a better general understanding of the existing process chemistry in a pulp mill.

**Pre-requisites:**

**Contributors:**Prof. Ulf Germgård, Karlstad University; Senior specialist Maria Björk, Stora Enso; Process consultant Hans Arne, Aprocon; Process consultant Hans Magnusson, consultant; Product mangager Kalle Pelin, Akzo Nobel; PhD Henrik Wallmo, Metso Power; M.Sc. Per Tomani, Innventia; M.Sc. Robin Ivarsson, Nordic Paper.

**Literature/Course material:**Reprints from journals and dissertations, handouts etc

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**Type:** Lectures, one assignment, and a mill visit

**ECTS:**4.5

**Examination:**Oral presentation of assignment, written assignment and written examination