



Center for Paper Business and Industry Studies

Newsletter of the Center for Paper Business and Industry Studies
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Intern Studies Biotech Goals

CPBIS internships provide highly qualified students with an opportunity to spend a summer or semester in residence at a host company facility. While there, the student conducts research in an area of interest to both the student and the host company. This real-world learning experience complements and advances the student's on-campus academic pursuits. Readers of this newsletter recently learned how such an arrangement benefited one CPBIS student, Stephen Makris, and his host company, Stora Enso North America.

A similarly beneficial arrangement took another CPBIS student, Rajan Singh, to ArborGen, LLC. ArborGen, a CPBIS sponsor, is a forest tree biotechnology company that develops and commercializes technology, products and services to generate environmental and productivity benefits for the forest products industries. Rajan is a Chemical Engineering graduate of Michigan Tech and is currently enrolled in the Paper Science and Engineering Master's degree program of IPST at Georgia Tech. In addition to strong technical credentials, he has solid knowledge of finance, operations and marketing, gleaned from management classes and participation in several state and national business plan competitions. With this background, he was well qualified to be awarded the CPBIS internship.

At ArborGen, Rajan engaged in detailed studies of the potential benefits of using biotechnology to alter the wood and fiber traits of trees used in the production of chemical pulps. He paid particular attention to the potential impacts of these trait

changes on the profitability of linerboard and uncoated free sheet production. Examples of the trait changes considered include altering the amount, chemical structure and distribution of lignin in the wood cell wall; modifying fiber length; and modifying the relative amounts and chemical characteristics of the wood's carbohydrate components. Although the study identified both benefits and drawbacks for all of these scenarios, some offered the prospect of significant increases in profitability. According to James Mann, ArborGen's Vice President, Finance and Business Development, "This study will be of considerable value to ArborGen in its efforts to choose those research pathways that are most likely to result in profitable outcomes."

Students and companies wishing to learn more about CPBIS internship opportunities are invited to contact any member of the CPBIS management team. For our contact information; see <http://www.cpbis.gatech.edu/people/mgtteam.html>

Research Update: Monitoring Production Facility Performance

In the November, 2001 issue of the Newsletter, Carol Carmichael of Georgia Tech's Manufacturing Research Center and Dr. Bert Bras, Associate Professor in the Woodruff School of Mechanical Engineering, introduced a research project they were about to undertake, entitled "Integrated Environmental and Economic Performance Monitoring of a Paper Manufacturing Operation.". Since then, much progress has been made and the project will soon be approaching completion.

The investigators seek to understand how pulp and paper companies can make and honor continuing and simultaneous commitments to economic prosperity and sustainability. Their goal is to examine performance from a sustainability perspective, defining “performance” as the relative effectiveness of a facility in transforming its capital resources – financial, technological, natural, and social – into value-added products and processes.

A case study approach is being used to compare costs and benefits, both economic and environmental, of current and proposed manufacturing scenarios. Simulation tools and decision support systems are employed to evaluate the scenarios on the basis of the extent to which they:

- allow and support communication of commitments to sustainability from the corporate level down to the appropriate business units;
- align production, accounting and environmental impact data;
- provide insights not readily gained from independent production, accounting, and environmental analyses by revealing the dynamic relationships among cost, productivity, and environmental impact; and
- reduce the time required for analysis of alternatives.

The project team is using case studies at two different newsprint mills to examine separate approaches and tools for monitoring environmental and economic performance. In one case, they focused on options for expanding de-inking plant (DIP) operations, considering both financial and environmental parameters. They developed an activity-based cost and environmental management model (ABCeM) that can serve as a decision support system. This model integrates data from a WinGEMS mill process model with data from process information and accounting systems, calculating costs in both financial and environmental terms. The practical goal is to identify the best way to expand DIP capacity, from both financial and environmental perspectives.

At the other newsprint mill, the team is examining the use of simple Excel spreadsheet models for developing a steady-state, mass balance model of the paper machine and calculating aggregate economic and environmental effects of various wet end control scenarios.

This research will bring the industry a step closer to having tools that provide greater insight into the dynamic relationships between economic and

environmental effects of proposed mill changes, allowing more informed and timely decision-making.

For additional information, please contact Carol or Bert:

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Distinguished Visitors

As you read this, it may be too late to attend (or view the live Webcast of) the 11:00 a.m., February 27 Distinguished Lecture Series (DLS) presentation by Dr. Richard Phillips, International Paper’s Sr. Vice President, Technology. If so, be sure to view the recorded Webcast, which will be available at <http://www.cpbis.gatech.edu/dls2004>. The presentation is entitled, "Imperatives for Manufacturing Success in the Paper Industry." Richard is well known for his keen insight into the nature of the challenges facing the paper industry today, and may be expected to present a lecture that is both highly relevant and useful.

Also, watch for next month’s DLS presentation by another highly respected industry leader, Mr. Frank Dottori, President and CEO of Tembec. Mr. Dottori’s lecture, “How Pulp and Paper Professionals Attain Successful Outcomes,” will be presented on March 26 in IPST’s Kress Auditorium and will be broadcast live on the Web.

Other Upcoming Events

“Management Development for Enhanced Performance,” A unique paper industry continuing education opportunity, Atlanta, May 10-14, 2004. See: <http://www.cpbis.gatech.edu/mgtdev>

“Achieving Rapid and Significant Mill Cost Reduction,” PIMA-CPBIS online Webcast, the second of three on cost management. See: <http://www.pimaweb.org/training/spring04seminar.html>

Sloan Industry Studies Annual Meeting, April 19-21, hosted by CPBIS and the Trucking Industry Program in Atlanta, Georgia at the Georgia Institute of Technology's new Hotel and Conference Center (by invitation). For additional information, see: <http://www.cpbis.gatech.edu/sloanmeeting> ■