**MLDR 6800:** Manufacturing Leadership Capstone Project

**Instructors:** Dr. Norman Marsolan, Dr. Ron Rousseau, and Dr. Matthew Realff, School of Chemical and Biomolecular Engineering

**Description:** In this course, students will work in teams to complete a capstone project that addresses a request for proposal provided at the beginning of the semester. Successful completion of the project will require integration of the topics mastered in the business, leadership, manufacturing, and concentration courses.

**Learning Objectives:**

By the end of this course, a student should:

1. Be knowledgeable about the kinds of design and organizational decisions that challenge operations teams.
2. Carry out the key steps in the design of a forest bioproducts or chemical manufacturing process.
3. Be aware of the many kinds of environmental issues and safety considerations in operating a mill.
4. Appreciate the importance of maintaining high ethical principles in process design and mill management.
5. Function effectively on diverse teams of mixed ability and be able to evaluate both their own and their team members’ contribution to the overall process design.
6. Understand process simulators and be able to use them in process design, equipment sizing and costing, staffing requirements, profitability analysis and optimization.
7. Be able to apply heuristics in selecting chemical reactors or reactor trains, and in selecting separation processes for liquids, vapors, vapor-liquid mixtures and vapor-liquid-solid mixtures.
8. Be familiar with the most widely used industrial separation processes and their basis for separation.
9. Understand the concepts and application of heat and power integration to minimize energy requirements for forest bioproducts or chemical manufacturing plants.

**Class Text:** Product Design and Development, 5th Edition, K.T. Ulrich and S.D. Eppinger

**Grading:** 30% Project Plan, 70% Final Report and Presentation

**Academic**

**Integrity:** Any reference sources (including online sources) used to prepare written assignments must be paraphrased in your own words and cited.

Any student suspected of behavior in violation of the Georgia Tech Honor Code will be referred to the Office of Student Integrity. The Georgia Tech Honor Code is available on the Office of Student Integrity website (<http://www.osi.gatech.edu>)

**Lectures:** Project Planning and Budgeting

Team Dynamics and Management

Market Research and Benchmarking

Identifying Customer Needs

Concept Generation and Selection

System Level Design