

FALL SEMESTER 2006  
**CM 4851: CHEMICAL ENGINEERING DESIGN LABORATORY 1 (1 credit)**

**Schedule:**

2 sections: Thurs. (9:05 to 11:55 a.m.; 1:05 to 3:55 p.m.)

**Course Objectives:**

This course, which runs concurrently with CM 4850 (“Process Analysis & Design 1”), prepares students for the transition to industry by teaching necessary skills in process and project analysis, design, evaluation, and management. Students will gain an appreciation for the profit motive, how it affects business decision-making, and how the chemical engineer fits into this process. For an open-ended project assignment, students must define the appropriate scope, synthesize a variety of alternatives, design and cost the project, perform an economic evaluation, assess the risk, and make a presentation suitable for management or other decision makers.

Students are asked to analyze an existing facility, simulate current operations, assess improvement opportunities, demonstrate the economic consequences of the changes, and provide a recommended course of action. Periodic written and oral reports are required.

**Instructors:**

**Dr. Carl C. Nesbitt**, 202-H, [cnesbitt@mtu.edu](mailto:cnesbitt@mtu.edu)

**Dr. Daniel A. Crowl**, 202-B, 487-3221, [crowl@mtu.edu](mailto:crowl@mtu.edu)

**Mr. D.J. Wiegand**, office hours TBA, [djwiegand@mtu.edu](mailto:djwiegand@mtu.edu)

**Reference Texts:**

Perry, R.H. and D.W. Green (Editors), Chemical Engineer's Handbook, 6th Edition (or newer), McGraw-Hill, 1984.

Watke, S. et al., Manual for Design Report Writing in Engineering, Michigan Tech. Univ., Houghton, Michigan, 1991. **(required)**

**Grading:**

Report 1	20 %
Report 2	20 %
Report 3	40 %
Oral Presentation	20 %
Peer Evaluation	Borderline

**Key Dates:**

Report 1: <i>Existing Plant Diagnostics</i> (memo report; Week 4)	28 Sept
Report 2: <i>Simulation &amp; Sensitivity Analysis</i> (memo rpt; Week 9)	2 Nov
<i>Oral Presentation</i> (business casual dress; Week 13)	7 Dec
Report 3: <i>Plant Improvement Report</i> (formal report; Week 14)	15 Dec