

CBE 250

Process Synthesis

Spring 2008

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Lectures: TR 11:00-12:15 Room 3345 Engr Hall

Discussion: W 1:20-3:15 PM Room 2239 Engr Hall

Office Hours: Mondays 3 – 5 PM (ET, Rm 3239) and Tuesdays 1 – 3 PM (RM, Rm 3635)

Webpage: <http://courses.engr.wisc.edu/ecow/get/che/250/root/>
Look here for homework assignments and solutions, sample exams, notices, etc.
Use the Student Forum to post questions or comments.

Text: *Introduction to Chemical Processes: Principles, Analysis, Synthesis*
Regina M. Murphy, McGraw-Hill (2007)

References: See References on course webpage
Many reference books and physical property databases are available online!
Check out the Wendt Library link on our course homepage.

Grading:	Quizzes:	15%
	Three exams:	45%
	Final exam:	20%
	Homework:	15%
	Project:	5%

CBE 250
Course Syllabus
Spring 2008

Part 1 Introduction to chemical processes: converting raw materials to useful products

Topics: The chemical process industry
 Raw material choices, reaction path synthesis
 Generation-consumption analysis
 Process flowsheeting, chemical process equipment
 Material balance equations
 Degree of freedom analysis

Feb. 14 Exam 1

Part 2 The tools of chemical processes: reactors and separators

Topics: Conversion, yield, selectivity
 Recycle, purge
 Chemical reaction equilibria and chemical kinetics
 Separation technologies
 Phase equilibrium
 Staging
 Separation task sequencing

Mar. 27 Exam 2

Part 3 Energy balances: effective use of a limited resource

Topics: Energy balance equations
 Working with enthalpy: changes with temperature, phase, composition
 Energy management, energy integration
 Heat exchange

May 1 Exam 3

Part 4 Putting it all together: term project

May 13 Final Exam (2:45 PM)