

Separation Processes I — ChE 360

Syllabus

Term:	2009 Fall
Course title:	Separation Processes I
Course description:	This is the first course in separations and examines traditional methods and technologies by which chemical engineers separate and purify mixtures. Emphasis here is on strippers, absorbers and distillation.
Course number:	ChE 360, Sect 001
Course instructor:	Angelo J. Perna
Office/lab location:	Tiernan 376/308
Telephone:	973 596-3616
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Office hours:	R 2:00 – 3:00 & F 2:00-3:00
Course hours & location:	T 11:30 – 12:55 Tier 107 & F 4:00 – 5:25 Tier 107
Prerequisite:	ChE 230 Thermodynamics (which includes having taken ChE 210 Material balances) ChE 370 Mass and Heat Transfer
Course textbook:	Geankoplis, C.J., <i>Transport Processes and Separation Process Principles</i> , 4 th Ed. Prentice Hall, ISBN 0-13-101367-X Other references as specified by Instructor

Course outcomes:

1. To have students understand the methods and technologies by which mixtures are separated and purified
2. To prepare students to design and operate separation processes, such as strippers, absorbers and distillation columns in a safe and environmentally effective manner

Topic covered:

1. Review of Thermodynamics and General Introduction to Separation Processes (1 week)
2. Single and Multiple Equilibrium Stages, Interphase Mass Transfer (1½ weeks)
3. Stripping and Absorption in Plate Towers, Stripping and Absorption in Packed Towers (1½ weeks)
4. Estimation of Mass Transfer Coefficients in Packed Towers (1 week)
5. Packed Tower Design (1 week)
6. Flash and Batch Distillation (1 week)
7. Simple Distillation Methods, Continuous Distillation with Reflux (2 weeks)
8. Constant Molal Overflow Systems, McCabe-Thiele Analysis (2 weeks)
9. Use of Efficiencies (1½ weeks)
- 10.3 exams (1½ weeks)

Grading+

The final course grade a student earns is the average of the 3 major exams on the material covered in the lectures

Points (100 pt basis)

Exams (3) total/300

90 > A ≤ 100

85 ≤ B+ < 90

80 ≤ B < 85

75 ≤ C+ < 80

70 ≤ C < 75

60 ≤ D < 70

0 ≤ F < 60

In rare cases a student may receive the grade of I and it must be removed as stated by school policy

Make-up exams will be given with a legitimate excuse acceptable to the Instructor and at a time and place set by the Instructor.

Cheating

Cheating will result in an automatic grade of F. Cheating is defined as the submission of work (homework or exam answers), which is the work of others as your efforts.

Attendance

Students are expected to attend all scheduled classes and on time. Attendance will be taken at the beginning of each class. Students entering the class after roll-call are marked absent and if they turn in any assignment, they will not be accepted. In addition if a student is 15 or more minutes late for an exam he/she will not be allowed to take the exam.

Note: The student is responsible for all information given in lectures, hand-outs whether they are present or not.