CHEN 4460 - PROCESS SIMULATION, SYNTHESIS, AND OPTIMIZATION

Catalog Data: CHEN 4460: PROCESS SIMULATION SYNTHESIS AND OPTIMIZATION (3).
Lec. 1, Lab 3. Pr. completion of CHEN 3370, 3630, 3650, 3660, 3700 with grades of C or better.
Coreq. CHEN 3820. Fundamentals of computer-aided simulation and synthesis. Process integration and optimization principles including their applications in design, retrofitting and operation of chemical processes.

Instructor: Dr. Mario Richard Eden
210 Ross Hall
Office Phone: (334) 844-2064 Cell Phone: (334) 329-8958
E-mail: edenmar@auburn.edu
Class Webpage: http://wp.auburn.edu/eden/?page_id=75
Office Hours: Tuesday 1:00 - 3:00 PM + Any time I am at the office.

Class Schedule: Lectures: Tuesday 9:30 - 10:20 AM (136 Ross Hall)
Makeup Lectures: Will be scheduled as the need arises.
Labs: Section I: Tuesday & Thursday 11:00 AM - 12:20 PM (Ross 306)
Section II: Tuesday & Thursday 6:30 - 7:45 PM (Ross 306)
A large component of the lab sessions is in a novel multimedia form, which requires the use of headphones. Headphones for the semester can be checked out from Dr. Eden or the GTA’s.

Assistants: Alexander Kelly (Aspen Lab Assistant/Grader) Dr. Zheng Liu (Aspen Lab Assistant)
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Office Hours: TBA Office Hours: Wednesday 1:00 – 3:00 PM
Location: TBA Location: Ross 349
Zhelun Li (Class Homework Grader)
Email: zzl0020@auburn.edu
Office Hours: TBA
Location: TBA

Textbooks:
• Eden, M. R., "ASPEN Lab Notes", Auburn University – Posted as PDF on class website.

References:
• El-Halwagi, M. M. "Pollution Prevention through Process Integration: Systematic Design Tools",

Goal: This course is intended to introduce students to the fundamentals of computer-aided process synthesis, simulation, analysis and optimization. In particular, the course presents systematic tools for developing and screening potential process flowsheets. Students use a commercial process simulator (ASPEN PLUS) to aid in evaluating a variety of these process designs. Practical problems are used as examples. These problems include heat-integration, separation processes and environmentally benign designs. Using a commercial solver package (LINGO) students are introduced to the formulation and solution of linear and nonlinear mathematical optimization problems for chemical engineering applications.

Grading: Simulation Project (10%), Homework (10%), Midterm (30%), Final exam (50%)

Attendance: Class attendance is not required (but, remember, there may be unannounced quizzes).

Special Needs: Any students requiring special accommodations should contact the Director of the Program for Students with Disabilities.