Yeditepe University, Faculty of Engineering

Chemical Engineering Department

2017 Fall Term

ChBE 441 Process Dynamics and Control

Course objective: Introduction to the basic principles of process analysis, modelling and control techniques in chemical engineering, classification of transport phenomena models, subsystem analysis, numerical examples of tank systems, reaction kinetics, fluid flow and stage-wise operations. Linearization of nonlinear models. Laplace transforms of linear dynamic model equations. PID control.

Instructor: Assist. Prof. M. Oluş Özbek

Assistant: To be announced

Prerequisite: CHBE 386

TOPICS
Introduction
Process, Measurement and Instrumentation
Fundamental Models
Laplace Transforms
Transfer Function Models
MATLAB-Simulink Training
Dynamic Behavior of Processes
Feedback Control
Control System Instrumentation
Dynamic Behavior and Stability of Closed-Loop Control Systems
PID Controller Design, Tuning and Troubleshooting

Web-page:
http://chbe.yeditepe.edu.tr/courses/chbe441/index.html

Grading:

Homework/Project/Quiz/Attendance	15%
2 Midterm Exams (20% each)	40%
Final Exam	45%

Attendance: 80% Compulsory !!

Exam Dates: To be announced

Course book: D.E. Seborg, T.F. Edgar, D.A. Mellichamp, "Process Dynamics and Control", 3rd Ed. (2011), Wiley

Additional Materials:

- J. A. Romagnoti, A. Palazoğlu, "Introduction to Process Control", CRC press
- University of Michigan Chemical Engineering Process Dynamics and Controls Open Textbook, https://controls.engin.umich.edu/wiki/index.php/Main_Page