

Course Learning Objectives - CBE 360

Process Dynamics and Control (3)

At the conclusion of this course the student should be able to:

- 1) Develop cause-and-effect models (both steady-state and dynamic) of simple process systems from basic chemical engineering principals.
- 2) Develop empirical cause-and-effect models from process response data.
- 3) Describe and analyze the interaction of dynamic systems using block diagrams
- 4) Calculate dynamic responses of process systems using both analytical and numerical techniques.
- 5) Identify and describe the role of the typical elements of an industrial process control loop including the range and span of sensors and flow characteristics of control valves.
- 6) Describe the PID control law, explain the role of each of its modes, and tune a PID controller for a desired response
- 7) Explain the concept of cascade and feedforward control and demonstrate an understanding of where and how they can be used to enhance the operation of a process system.
- 8) Design a control strategy to achieve stated process operational objectives for unit operations and multiunit systems.