DESCRIPTION

Chemical Reactor Design and Control uses process simulators like Matlab®, Aspen Plus, and Aspen Dynamics to study the design of chemical reactors and their dynamic control. There are numerous books that focus on steady-state reactor design. There are no books that consider practical control systems for real industrial reactors. This unique reference addresses the simultaneous design and control of chemical reactors. After a discussion of reactor basics, it:

• Covers three types of classical reactors: continuous stirred tank (CSTR), batch, and tubular plug flow

• Emphasizes temperature control and the critical impact of steady-state design on the dynamics and stability of reactors

• Covers chemical reactors and control problems in a plantwide environment

• Incorporates numerous tables and shows step-by-step calculations with equations

• Discusses how to use process simulators to address diverse issues and types of operations

This is a practical reference for chemical engineering professionals in the process industries, professionals who work with chemical reactors, and students in undergraduate and graduate reactor design, process control, and plant design courses.
William L. Luyben, PhD, is a Professor of Chemical Engineering at Lehigh University. In addition to teaching for forty years, Dr. Luyben spent nine years as an engineer with Exxon and DuPont. He has written nine books, including Distillation Design and Control Using Aspen Simulation (Wiley), and more than 200 papers. He was awarded the AIChE CAST Division "Computing Practice Award" in 2003 and elected to the Process Automation Hall of Fame in 2005.

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