

Course Title: SChE® Certificate Program: Reactor Runaway and Overpressure Protection

Course ID:	Course Type:
ELA989	eLearning Course
http://www.aiche.org/ela989	

Course Outline

Unit 1: Review of Reactor Runaway Process Safety Incidents

- Describe several runaway reactor process safety incidents
- Identify common causes of this class of incident
- Relate these causes to the Center for Chemical Process Safety Risk Based Process Safety management system elements.

Unit 2: Characterization of Reactor Systems with the Potential for Runaway Events

- List the key questions to ask and data needed to characterize an exothermic reaction
- Describe reactor calorimetry experiments
- Use reactor calorimetry data to characterize the reaction.

Unit 3: Elimination and Prevention of Runaway Reaction Hazards

- Elimination and Prevention of Runaway Reaction Hazards
- Consideration of Inherently Safer Options
- Design for Process Safety Layers of Protection

Unit 4: Design of Overpressure Relief Systems

- Identify key factors that influence the relief system design
- Identify important factors in determining the reactive relief load
- Classify the phase of a runaway reactor's contents
- Describe the general process of designing a relief valve for a vessel with the potential for a runaway reaction
- Recognize the need for good hazard identification, good process safety information, and good analysis of potential risk scenarios to design safeguards to prevent and mitigate runaway reaction hazards.