

Course Title: SACHE® Certificate Program Damage Mechanisms: Asset Integrity and Reliability

Course ID:	Course Type:
ELA988	eLearning Course
http://www.aiche.org/ela988	

Course Outline

Unit 1: Corrosion Theory

- Explain what damage mechanisms are and give some examples;
- Using corrosion theory, describe the way in which process equipment can degrade in operation;
- Look for and detect corrosion mechanisms; and
- Explain how corrosion mechanisms contribute to risk in an operating facility.

Unit 2: Mechanical and Chemical Unit Processes

- Explain the importance of understanding the Operating Context of the equipment;
- Describe how the material of construction is selected for process equipment;
- Explain how Corrosion Control Documents can be used as a tool for process design; and
- Explain what can happen when the equipment is operated outside of its design basis.

Unit 3: Test and Inspection

- Explain why equipment inspection is important from a safety, up-time, and jurisdictional perspective;
- List some jurisdictional regulations for mechanical integrity requirements;
- Describe some basic inspection methods, including visual, ultrasonic thickness, eddy current, and radiographic weld inspection;
- Describe the requirements for equipment inspection and how they're implemented; and
- Explain how risk concepts are integrated into an inspection program.

Unit 4: Inspection Evaluation and Restorative Actions

- Explain what a P-F Failure Curve is and how it can be used to better understand inspection, corrective action, and ultimate failure;
- Explain what an Equipment Life Cycle Curve is and why it's important;

- Explain how inspection data can be used to determine equipment remaining life;
- List the options available to correct equipment deficiencies; and
- Explain what an Asset Effectiveness Plan is and how it can be used as a maintenance management tool.