



**PD077**  
**Failure Prevention, Repair and Life Extension of Piping, Vessels and Tanks**

**Day 1**

- Life cycle of vessels, tanks and piping systems
- Design margins for new equipment vs. fitness-for-service margins for operating equipment
- Post-Construction codes and standards for operating equipment
- Recognizing and classifying damage mechanisms
- Inspection strategies and risk-based inspection programs
- Evaluation of remaining life for wall thinning (corrosion, erosion, general, local, pitting) using API 579-1 / ASME FFS-1 and comparison to other assessment methods

**Day 2**

- Evaluation of remaining life for cracking mechanisms (corrosion, fatigue, leak or break) using API 579-1 / ASME FFS-1 and comparison to other assessment methods
- Evaluation of creep and embrittlement mechanisms using API 530 and comparison to metallographic methods
- Causes an evaluation of mechanical damage
- Cause and evaluation of flow-induced vibration
- Cause and evaluation of pressure transients and waterhammers

**Day 3**

- Repair and maintenance package
- Examination and leak testing repairs
- PCC-2 Welded repairs
- PCC-2 Mechanical repairs
- PCC-2 Wrap repairs
- Conclusion and summary