

Reciprocating Machinery Dynamics
March 30 - April 2, 2026
Location: Embassy Suites San Antonio Airport Hotel
Cypress Lecture Hall Meeting Room
10110 US Hwy 281 San Antonio, TX

Syllabus

Monday		Instructor Name
8:00 – 8:45	Introduction and Basic Vibration Theory	Troy Feese
8:45 – 10:00	Piping Vibration Analysis: Natural Frequencies	Kyle Kuecker
10:00 – 10:15	Break	
10:15 – 12:00	Mode Shapes: Piping Vibration & Stress - Fatigue Strength/Codes - Allowable Vibration Amplitudes	Kyle Kuecker
12:00 – 1:00	Lunch Break	
1:00 – 2:45	Piping Sample Problems - Thermal Pipe Stress Considerations	Charles Hill
2:45 – 3:00	Break	
3:00 – 4:30	Reciprocating Machinery Kinematics: Shaking Forces - Bearing Loads, Anchor & Support Problems	Charles Hill
4:30 – 5:00	Compressor Manifold Vibration	Charles Hill

Tuesday		
8:00 – 10:00	Basics of Acoustics: Acoustic Velocity, Wavelength - Acoustic Resonances - Pulsation Generation Mechanisms in Reciprocating Equipment	Kile Watson
10:00 – 10:15	Break	
10:15 – 12:00	Basics of Acoustics (cont'd): Acoustic Spectral Response to Excitation - Effects of Pulsation, Forces, Performance, Cavitation - Pulsation Control Techniques - Volumes, Filters, Pressure Drop - Comparison of Pulsation Control Devices - Acoustic Filters - Mechanical Analogies & Concepts of Surge Volumes & Filters	Kile Watson
12:00 – 1:00	Lunch Break	
1:00 – 3:00	Piping Acoustics Modeling: Acoustical Simulation Examples - Resonance in Compressor & Pump Systems	Charles Hill
3:00 – 3:15	Break	
3:15 – 5:00	API 618 and API 688	Kile Watson

Wednesday		
8:00 – 10:00	Diagnostic Procedures & Test Methods	Stephen Price
10:00 – 10:15	Break	
10:15 – 12:00	Diagnostic Procedures & Test Methods (cont'd)	Stephen Price
12:00 – 1:00	Lunch Break	
1:00 – 3:00	Introduction to Torsional Vibration: Steady-State Analysis - Variable Frequency Drives (VFD's) - Time Transient Analysis	Troy Feese

Thursday		
8:00 – 10:00	Torsional Vibration (cont'd): Reciprocating Machinery Considerations - Field Testing Measurement Techniques	Troy Feese
10:00 – 10:15	Break	
10:15 – 12:00	Case Histories	Troy Feese Kyle Kuecker
12:00 – 1:00	Lunch Break	
1:00 – 3:00	Case Histories (cont'd)	Stephen Price David Hanes