

Machinery Vibration and Rotordynamics

January 16-20, 2023

Location: DoubleTree by Hilton Houston Intercontinental Airport hotel
15747 John F. Kennedy Blvd. Houston, TX

Some of the contents being presented are reproduced and adapted from the "Torsional Dynamic Overview" course developed by Brian Murphy, Rotating Machinery Analysis, Inc. copyrighted material

Monday 1/16

AGENDA

8:00 – 9:30	Vibration Results and Terminology for Rotordynamics Reviews basic vibration theory and shows how it is used for diagnostic and troubleshooting; lecture includes case study.	Childs-1
9:30 – 10:00	<i>Break</i>	
10:00 – 11:30	Introduction to Rotordynamics 1 2DOF Vibration absorber, 2DOF models for rotordynamics, the Föppl (1895) - Jeffcott(1919) (F-J) Model for rotordynamic analysis;	Childs-2
11:30 – 12:30	<i>Lunch Break</i>	
12:30 – 2:00	Introduction to Rotordynamics 2 Critical speed case studies, bent shaft excitation, Spiral Vibrations, Morton Effect; Lecture includes case studies	Childs-3
2:00 – 2:30	<i>Break</i>	
2:30 – 4:00	Design and Application of Fluid Film Bearings Fluid film bearing fundamentals, advantages and disadvantages of bearing types and bearing analysis programs	Zeidan-4

Tuesday 1/17

8:00 – 9:30	Introduction to Rotordynamics 3 Fractional-Frequency Whirl, Parametric Excitation, Rotordynamic Instabilities, Case Studies	Childs-5
9:30 – 10:00	<i>Break</i>	
10:00 – 11:30	Field Vibration Problems, Diagnosis, Analysis, and Resolution	Zeidan-6
11:30 – 12:30	<i>Lunch Break</i>	
12:30 – 2:00	Liquid Seals and Their Effect on Pump Rotordynamics	Childs-7
2:00 – 2:30	<i>Break</i>	
2:30 – 4:00	Gas Seals and Their Effect on Steam Turbine and Compressor Rotordynamics,	Childs-8

Wednesday 1/18

8:00 – 9:30	Squeeze Film Dampers, Design, Operations, Models and Technical Issues	San Andrés-9
9:30 – 10:00	<i>Break</i>	
10:00 – 11:30	Gas Bearings for Turbomachinery	San Andrés-10
11:30 – 12:30	<i>Lunch Break</i>	
12:30 – 2:00	Experience in the Use of Squeeze Film Dampers and Damper Seals	Zeidan-11
2:00 – 2:30	<i>Break</i>	
2:30 – 4:00	Fluid Film Bearing Failures, Identification and Corrections	Zeidan-12

Thursday 1/19

8:00 – 9:30	Planning and Making Rotordynamic Measurements	Delgado-13
9:30 – 10:00	<i>Break</i>	
10:00 – 11:30	Making Analysis and Measurements Work Together	Delgado-14
11:30 – 12:30	<i>Lunch Break</i>	
12:30 – 2:00	Torsional Vibrations Overview and Analysis	Delgado-15
2:00 – 2:30	<i>Break</i>	
2:30 – 4:00	Torsional Vibrations, continued	Delgado-16

Friday 1/20

8:00 – 9:30	Rotordynamics Overview and API Requirements	Delgado-17
9:30 – 9:45	<i>Break (note 15 minute today)</i>	
9:45 – 11:15	Introduction to Computer Modeling of Rotordynamics	Delgado-18
11:15-12:00	<i>Lunch Break (note 3/4 hour today)</i>	
12:00 – 1:30	Computer Modeling of Transient Rotordynamics	Delgado-19
1:30 – 1:45	<i>Break (note 15 minute today)</i>	
1:45 – 3:15	Computer Modeling Demonstration	Delgado-no files