

A large industrial machine, possibly a steam turbine or generator, is shown in a factory setting. The machine is painted blue and has a large white pipe with a red stripe and the text "LP. MAIN STEAM" and an arrow pointing right. Two workers in orange safety gear are visible near the machine. The background shows a large industrial building with a blue steel frame and windows.

ODSM

Operational Deflection Shape (ODS) & Modal Analysis Course

Expert analysis techniques to solve problems

When challenged with difficult vibration analysis problems where its source is not known, or there is a resonant condition without an obvious solution, or you simply need to convince yourself or others of a specific diagnosis; Operational Deflection Shape and Modal Analysis are the best tools to find the correct solutions.

Operational Deflection Shape (ODS) and Modal Analysis allow the vibration analyst to visualize, analyze and identify corrective actions to solve vibration issues on both rotating machines and structures.

Even the most experienced vibration analyst will benefit from this unique three-day course and will leave with an excellent understanding of how to properly use ODS and Modal Analysis in their diagnostic work.



ODSM

OPERATIONAL DEFLECTION SHAPE &
MODAL ANALYSIS COURSE

Course Overview

The Mobius Institute Operational Deflection Shapes & Modal (ODSM) Analysis course provides a solid foundation of understanding of how to use these technologies to “see” the deformation shape of machines and structures, allowing you to visualize dynamic conditions that traditional frequency domain spectra and waveform data cannot illustrate. You will learn how to setup ODS & Modal Analysis tests, collect the data and accurately interpret faults from ODS and Modal animations. Using these powerful diagnostic tools will allow you to be a more effective and confident vibration analyst.

Operational Deflection Shapes

You will learn about planning ODS jobs, phase analysis, instrumentation requirement and how to set up your analyzer to collect time and frequency based projects, ODS data types, and use of ME'scope™ software to model, animate and analyze ODS projects.

Modal Analysis

You will learn about planning Modal Analysis projects, resonance testing methods, Modal testing instrumentation, excitation methods, single and multiple degree of freedom test methods, use of ME'scope software to model, animate and analyze modal projects and methods to avoid and correct resonance including using finite element tools in ME'scope software.

Case histories will be presented to illustrate and reinforce what you will learn during the course.

*(ME'scope is a product and trademark of Vibrant Technology)

Our public courses are conducted by an experienced, certified Mobius Institute instructor at Mobius Institute authorized training centers in 50 countries throughout the world. See the Mobius institute website at www.mobiusinstitute.com to see the courses scheduled in your area. All of our training courses are also offered at your site, so if you have several people to train, we can come to your location.

Course Details

Format: 3 days at a public course venue of classroom training, discussion and case histories

Optional: Examination, 70% passing grade (given at the end of the public course session)

CEUs: 3

Course Prerequisite: ISO Category II is recommended but not required. Please join us if you are interested in two very powerful vibration analysis techniques

Certification: A course certificate will be given to those who successfully pass the examination

Outcome: You will come away from this course with an understanding of how to plan ODS and Modal analysis jobs, set up and collect the required data, operate ME'scope software and analyze test results

List of Topics Covered

- Phase Analysis Review
 - Diagnosing common faults
 - Measuring phase
 - Visualizing phase data
- Operational Deflection Shape Testing
 - When/where to use ODS
 - Planning an ODS job
 - Making ODS measurements, instrumentation requirements, data types
 - Using ME'scope software to draw structures, import data, animate & make movies
 - Interpreting ODS results
 - Case studies
- Resonance Testing Methods
 - Choosing an impact device
 - Single & dual-channel impact tests
 - Coast-down testing
 - Negative averaging
- Structural Dynamics
 - Natural frequencies, resonance, criticals, mode shapes, nodes, anti-nodes, mass, stiffness & damping

ODS & Modal Analysis Course - Candidate Profile:

- You are responsible for analyzing vibration on rotating machines or structures
- You wish to “see” vibration in a way that you never have before
- You want to be a more capable and confident vibration analyst
- You want to become more proficient at diagnosing vibration issues
- You want to be able to characterize resonance problems and identify methods to avoid or correct resonance
- You want your diagnosis to be easily understood by your customers

- Modal Analysis
 - Theory and planning modal surveys, single & multiple degrees of freedom testing
 - Choosing a driving point, fixed excitation or fixed response, Fmax, resolution & averaging
 - Making modal measurements, modal data types & instrumentation requirements
 - Using ME'scope software to draw, import data & animate modal data
 - Curve fitting modal data
 - Analysis & interpretation of modal results
- Correcting and avoiding resonance
 - Evaluate structural modification options in ME'scope software using the Structural Dynamics Modification tools (SDM).
 - Reducing the force exciting resonance using precision balancing & alignment
 - Change the speed or use VFD frequency blocking

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TODAY!**

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Take your next step by contacting us. You can reach us by email at **learn@mobiustitute.com** or call us toll free in North America at (877) 550-3400 or worldwide at (+1) 206-842-4000.

www.mobiustitute.com

Love Learning.

MOBIUS INSTITUTE is a worldwide provider of Reliability Improvement, Vibration Analysis and Precision Maintenance education for plant managers, reliability engineers and condition monitoring technicians, allowing plants to be successful in implementing reliability improvement programs through delivery of more easily understandable and comprehensive training of Reliability and Vibration Analysis via public, in-plant and online education programs. Since 1999, Mobius Institute has delivered superior education through its Crystal Clear™ methodology that uses innovative 3D animations and software simulations that make complex topics easier to understand. Mobius Institute has training centers in 50 countries and its certification body is ISO 18436-1 and ISO/IEC 17024 accredited.

Certification & Global Operations

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