

MEscope ODS VIDEOS™ Training

COURSE DESCRIPTION:

This Course is designed to provide “hands-on” instruction in use of a high-speed video camera and the MEscope ODS Videos™ animation software.

Courses provided at the customer’s site can be designed to allow analysis of one or two on-site machinery applications.

AGENDA / SYLLABUS:

1-Day Lecture Presentation on the Fundamentals of Experimental Modal Analysis (EMA) and Operating Deflection Shape (ODS) analysis and testing.

2-Day Software Training with *The ME’scope Workbook*®.

Projects Include:

Project 1: Camera Basics (Chronos 1.4 / Chronos 2.1) Kron Technologies

- a. Frame Rate
- b. Resolution
- c. Triggering

Project 2: MEscope ODS Videos™ Software Overview

- a. Operating Deflection Shape
- b. Experimental Modal Analysis
- c. Advanced Signal Processing
- d. ODS Videos™ Processing Wizard

Project 3: Lighting and Setup Tips

- a. Flicker-Free LED’s
- b. 100% Dimable LED’s
- c. Light Stands
- d. Batteries

Project 4: Data Capture Best Practices

- a. Orthogonal Views: Lateral, Axial, Vertical
- b. 45° 3-D Views
- c. Close-Ups: Couplings, Mounts, Foundations

Project 5: Processing High-Speed Video

- a. The Wizard
- b. Scripts / Hot Keys
- c. The Time Domain (TWF)
- d. The Frequency Domain (FFT)

Project 6: Data Manipulations / Signal Processing

- a. Vibration Parameters and Severity: Displacement, Velocity, Acceleration
- b. Filtering
- c. FFT and Inverse FFT

Project 7: Presentation

- a. Color Contour Plots

- b. Arrows (Vector) Plots
- c. Orbit Plots
- d. Reference Lines

Project 8: Real World Examples

STUDENT OUTCOMES:

The student(s) outcomes will include strategies for performing accurate and repeatable MEscope ODS Videos™ testing and analysis. This includes proper test methods, hardware and software setup, and the ability to distinguish acceptable results from erroneous data. The student will also be able to pick up strategies for interpretation of machinery animations.

Students will be provided a copy of *The ME’scope ODS Videos™ Workbook*®. This workbook includes a series of step by step instructions for completing several Field and Classroom projects selected for the software training. The value in this workbook is that it can be used as a refresher guide whether the student is a consistent user, performs this type of testing at irregular intervals, or even rarely at all. Regardless of the usage, the step-by-step workbook process does not rely on memorization or software “tricks”. All of the videos are saved such that they can be processed over and over for future learning.

This course includes a 30-day fully functioning ME’scope software license for each student.

COURSE DURATION:

The course is designed as a (3) day process. The first day includes a lecture on High-Speed camera capture and analysis. The following two days will include *ME’scope ODS Videos™* software training as guided by *The ME’scope ODS Videos™ Workbook*®.

COST ESTIMATE:

Instructor Fee for First Five (5) students	\$ 8,475.00
Additional Students (above 5)	\$ 1,525.00 (ea)

Instructor Travel Expenses :

Airfare	\$ 700.00
Lodging	\$ 600.00
Rental Car	\$ 350.00
Fuel for Rental Car	\$ 35.00
Meals @ \$50/day	\$ 250.00
Travel Time @ \$60/hr	\$ 960.00
Airport Parking @ \$22/day	\$ 110.00
Printing	\$ 350.00

Expenses Estimate Total **\$ 3,355.00**

Introduction to Modal & ODS Analysis

COURSE DESCRIPTION:

This course is designed to present Experimental Modal Analysis (EMA) and Operating Deflection Shape (ODS) analysis in a form that concentrates on Fundamental Concepts and Simple Guidelines instead of complex mathematical relationships. The student will focus on methodologies for performing accurate testing and operation of the associated ME'scope software.

Courses provided at the customer's site can be designed to allow analysis of one or two on-site machinery applications.

AGENDA / SYLLABUS:

1-Day Lecture Presentation on the Fundamentals of Experimental Modal Analysis (EMA) and Operating Deflection Shape (ODS) analysis and testing.

2-Day Software Training with *The ME'scope Workbook*®.

Projects Include:

- Project 1: ME'scope VES Window Navigation
- Project 2: Manual Structure Creation
- Project 3: Automated Structure Creation
- Project 4: Generating Extruded Shapes (a, b, c, d)
- Project 5: Modifying Coordinate Systems (a, b)
- Project 6: Combining Substructures
- Project 7: Frequency Domain ODS Analysis
- Project 8: Assigning Measurements & Animation (a, b, c)
- Project 9: Importing & Manipulating EMA Data
- Project 10: EMA Curve Fit & Animation
- Project 11: Additional EMA Curve Fit Examples (a, b, c)
- Project 12: ODS Acquisition Window Setup
- Project 13: EMA Acquisition Window Setup
- Project 14: Finite Element Analysis / Correlation

STUDENT OUTCOMES:

The student(s) outcomes will include strategies for performing accurate and repeatable EMA and ODS tests. This includes proper test methods, instrument and software setup, and the ability to distinguish acceptable results from erroneous data. The student will also be able to pick up strategies for interpretation of machinery animations.

Students will be provided a copy of *The ME'scope Workbook*®. This workbook includes a series of step by step instructions for completing the 10-13 individual projects selected for the software training. The value in this workbook is that it can be used as a refresher guide whether the student is a consistent user, performs this type of testing at irregular intervals, or even rarely at all. Regardless of the usage, the step-by-step workbook process does not rely on memorization or software "tricks".

This course includes a 30-day fully functioning ME'scope software license for each student.

COURSE DURATION:

The course is designed as a three (3) day process. The first day includes a lecture on Experimental Modal Analysis and Operating Deflection Shape analysis. The following two days will include ME'scope software training as guided by The *ME'scope Workbook*®.

COST ESTIMATE:

Instructor Fee for First Five (5) students \$ 8,475.00
Additional Students (above 5) \$ 1,525.00 (ea)

Instructor Travel Expenses :

Airfare \$ 700.00
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