



**CENTRE OF EXCELLENCE IN MANUFACTURING
NATIONAL INSTITUTE OF TECHNOLOGY,
TIRUCHIRAPPALLI**

Test and Optimization Lab

Test.Lab – Structures & Rotating Machineries Duration: 40 Hours

PREREQUISITES	Basic understanding of Noise and Vibration
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WHO SHOULD ATTEND	Engineers and Technicians
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INTRODUCTION TO DSP AND LMS TEST.LAB 8 Hours

Digital Signal Processing basics: Aliasing-Auto Power-Spectrum-Windows-Time Domain-Frequency Domain. **Introduction to LMS SCADAS, Sensors and Lemo Connectors:** LMS SCADAS Types-Channels-Tacho Port-Output Port-Connections.

GEOMETRY 4 Hours

Geometry Creation: Coordinate Systems-Components-Nodes-Lines-Surfaces

DATA ACQUISITION (PRE-PROCESSING) 24 Hours

Signature testing with electrical motor: Channel Setup-Tracking setup- Acquisition Setup-Online Processing-Measure

Spectral testing with aircraft model: Channel Setup-Scope and test Setup- Measure- Validate

Impact testing with aircraft model: Channel Setup-Impact Scope-Impact Setup-Measure-Validate

ANALYSIS (POST-PROCESSING) 4 Hours

Modal Analysis: Modal data Selection-Time MDOF-Band-Stabilization-Shapes-Modal Synthesis-Modal validation-Multi Run Model

Operational Modal Analysis: Operation Data Collection-Operation Data Selection-Operation Time MDOF-Operation Synthesis-Operation validation-Multi Run Model

Practice: Geometry Creation and Analysis with Fiber mounting Plate and Aircraft Model