

# ExpertALERT (EA) 101 Training Outline

- I. Introductions**
  - a. Instructor & Student Intros
  - b. Prerequisites
  - c. Curriculum Overview (need to know vs nice to know)
  - d. Housekeeping & Class Schedule
- II. Getting Started**
  - a. Logging in to ExpertALERT
  - b. SQL Database basics – (Sequential Query Language)
  - c. ODBC Administrator – (Open Database Connectivity)
- III. Software Tours – Expert & Standard ALERT; Collector X; Sybase SQLAnywhere**
  - a. Software overview
  - b. Application navigation
  - c. System configurations and communication options
- IV. Intro to Vibration Review**
  - a. Vibration Theory Review – Understanding the Objectives
  - b. Time domain / Frequency domain
  - c. Accelerometer theory – triaxial pad orientation
  - d. Sensor mounting considerations
- V. Manual Review of Vibration Data (ExpertALERT)**
  - a. Viewing Waveforms
  - b. Viewing Spectra
  - c. Basic Vibration Analysis, (imbalance, misalignment, bearing wear, looseness)
- VI. Automated Diagnostic Methodology and Conventions**
  - a. Machine train is the sum of its components
  - b. Machine families (MID concept)
  - c. Test operating conditions (steady state speed and load)
  - d. Stud mounted tri-axial sensor (no magnets)
  - e. Average + 1 standard deviation relative criteria
  - f. CBM verses Troubleshooting



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- g. Vibration Test Analysis Guide (VTAG)

## **VII. Setting Up the Database - The 7 Step Process**

- a. Prepare the machine for vibration analysis
- b. Prepare the database for vibration analysis (EA)
- c. Conduct the initial vibration measurements (CX)
- d. Fine tune the database setup (EA)
- e. Collect several sets of data (CX)
- f. Create average baseline (EA)
- g. Fine tune average baseline (EA)



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**VIII. Prepare the Machine**

- a. Understand the Machine
- b. Good Candidate for Vibration Analysis?
- c. Define Standard Test Conditions
- d. Test Locations
- e. Mounting Pads
- f. Machinery VTAG Exercises

**IX. Prepare the Database (ExpertALERT Software)**

- a. Analytical Knowledge Base (MID)
- b. Machine and Test Locations
- c. Data Collection Setup Parameters
- d. Process Points
- e. Practice Setup Exercises

**X. Collecting Data (CollectorX Software)**

- a. Routine route measurements
- b. Advanced off-route measurements
- c. CollectorX options
- d. TRIO communication

**XI. Fine Tune Database**

- a. Conceptual overview in EA101
- b. Complete coverage in EA 201

**XII. Build Average + 1 Standard Deviation Baseline**

- a. Conceptual overview in EA101
- b. Complete coverage in EA 201

**XIII. Additional Items (by request)**

- a. Impact Demodulation
- b. Diagnosing Rolling Contact Bearing Wear
- c. Single Plane Rotor Balancing



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