IRD Mechanalysis Vibration Analysis ISO 18436-2 Category III

IRD Mechanalysis® Limited
The Vibration People®
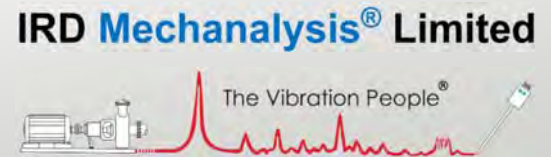
About IRD Mechanalysis Training Offering

IRD Mechanalysis Ltd. offers Vibration Condition Monitoring Training in accordance with ISO 18436-2. IRD boasts of training 40,000 plus engineers world over in Vibration analysis and in India it has trained 3000 plus engineers. The training is compliant to the requirements of ISO 18436-2 & ISO/IEC 17024

Vibration Analysis Training Category III

Individuals certified to Category III are qualified to perform and/or direct and/or establish programmes for vibration condition monitoring and diagnostics of machines in their company and also mentor the juniors. Personnel classified to Category III require all the knowledge and skills expected of personnel classified to Category I and Category II, and shall also be qualified for additional skills as per the content below.

The Trainers

Senior executives and Vibration analyst of IRD and its associates will conduct the training programme. The faculty members have wealth of experience in Vibration analysis and Reliability. The training is laced with IRD Training lierature and Case studies.

Methodology

The training will consist of Theory, Case studies and "Hands On" experiments on Motor Demonstrator set in the class room. If the training is being conducted in Training Centre of the Plant, measurements on plant machines and discussions shall form a part of the training

Content of the Training as per ISO 18436

1. **Principles of vibration** - Basics, Vectors, modulation, Phase, Natural frequency, resonance, critical speeds, Force, response, damping, stiffness, Instabilities, non-linear systems

2. **Data acquisition** - Instrumentation, Dynamic range, signal-to-noise ratio, Transducers, Sensor mounting, mounted natural frequency, Fmax, acquisition time, Proximity sensor conventions, Triggering, Test planning, Test procedures, Data formats, Recognition of poor data

3. **Signal processing** - Analog sampling, digital sampling, FFT computation and application, Time windows: uniform, Hanning, flat-top, Filters: low pass, high pass, band pass, tracking, Anti-aliasing, Bandwidth, resolution, Averaging: linear, synchronous time, exponential, Dynamic range

4. **Condition monitoring** -Computer data base set-up, Monitoring programme design, Alarms set-up: narrowband, envelope, Baseline, trending, Route planning, oil analysis, infrared thermography, motor current analysis and acoustic emission

5. **Fault analysis** - Spectrum analysis, harmonics, sidebands, Time waveform analysis, Phase analysis, Transient analysis, Orbit analysis, Shaft centreline analysis, Enveloping, Mass unbalance, Misalignment, Mechanical looseness, Rubs, instabilities, Bearing defects: rolling element, journal, Electric motor defects, Flow induced vibration, Gearbox analysis, Resonance and critical speeds, Turbomachinery

6. **Corrective action** - Field balancing, Flow control, Isolation and damping. Resonance control

7. **Equipment knowledge** - Electric motors, generators and drives, Pumps, fans, Steam turbines, gas turbines, Compressors, Reciprocating machinery, Rolling mills, paper machines, other process equipment, Machine tools, Structures, piping, Gearboxes Rolling element bearings, Journal bearings, Gearing, Couplings, belts

8. **Acceptance testing** - Test procedure, Specifications and standards, Reporting, Impact testing, Forced response testing, Transient analysis, Operating deflection shapes

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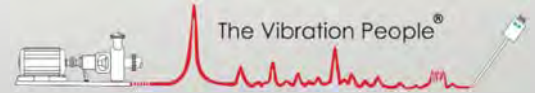
ISO18436-2 Category III other details

Duration
5 Days includes Training and Certification examination

Training format
 - On premises
 - Star Hotels in principal cities
 - Virtual Training - Instructor led
 - Virtual Training - Automatic from IRD website

Certification and Training
 - In accordance with ISO18436-2 and ISO/IEC 17024
 - Examination of 4 hours duration
 - 100 questions - multiple choice
 - Pass grade 70%
 - Validity 5 years

Education Board
IRD Mechanalysis Education Board (IMLBoC) overseas the delivery and certification process

Eligibility for Trainees
36 months of work experience and Certified to Vibration Analysis Category II in accordance with ISO18436-2.

About IRD Mechanalysis

IRD Mechanalysis was incorporated in Columbus, Ohio in the year 1955 by Sir Glen H. Thomas. The company made Instruments for Vibration Monitoring and provided Vibration analysis services. During the 1960's, IRD was offering Vibration Analysis services to **NASA** for their ground support equipment.

IRD was the world's first to introduce Formal Vibration Analysis Training in several levels. IRD was also the world's first to make Vibration data collector and Vibration software (IRD816 Data collector and IRD7090 Software)

IRD Mechanalysis Limited was originally registered in India in 1978 as a Joint Venture Company with IRD Mechanalysis Inc. USA and Chester UK. By the year 2000 these two overseas operations closed   after being acquired, but the Indian company became an independent entity and registered as IRD Mechanalysis Limited. It continues to support IRD's Customers worldwide.

About IRD Mechanalysis Training

IRD created Vibration analysis Training programmes in the 60s in 5 levels. They started with Basic level to working level and then to very advanced level. It also had Training Courses in Balancing Technology, Data collection technology and Maintenance Management.

International Organization for Standardization (ISO) Geneva, created ISO18436 document in 2003 to rationalize and bring order in this very important aspect of Vibration Condition Monitoring. By this time IRD had globally trained 40,000 plus engineers and technicians.

IRD today offers all the four categories of Vibration analysis Training as defined by ISO18436. It also delivers its well known courses of the past - VT1 and VT2 (Vibration Technology 1 and 2). IRD has wealth of experience and documented literature and case studies pertaining to Vibration analysis. The current ISO18436 Training makes use of this priceless legacy of IRD.

Vibration Analyst CAT III
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