MOBIUS INSTITUTE
TRAINING CENTER ATC AUTHORIZED
STRATEGIC RELIABILITY SOLUTIONS LTD

STRATEGIC RELIABILITY SOLUTIONS LTD.

USD 2000

Inclusive of Exam Fee & Printed course materials

UCAT-I ULTRASOUND ANALYSIS ISO 18436-8 CATEGORY I

COURSE OVERVIEW

Learn to be a confident and effective ultrasound technician - capable of diagnosing faults, detecting costly steam and air leaks, and precision lubricating bearings - with advanced 3D animations and interactive simulations that make everything easy to understand.

We will help you understand why ultrasound analysis is important. You will gain a solid understanding of the fundamentals of ultrasound, lubrication, and leak detection. You will learn how to take quality, dependable measurements, and you will begin the process of understanding how to diagnose common faults.

Once you complete the training, you can take the exam with confidence, and become certified to ISO 18436-8 Category I via the internationally respected Mobius Institute Board of Certification [MIBoC]. The MIBoC certification is accredited to ISO/IEC 17024.

UCAT-I CANDIDATE PROFILE

This course is intended for the ultrasound analyst and technician analyst who will:

- Collect ultrasound data to detect fault conditions in rotating machinery, electrical equipment, and a host of other equipment including valves, hydraulics, steam traps, and more
- Detect leaks in compressed air and steam systems
- Grease lubricate bearings with precision
- Use the training and certification as the start of a new and rewarding career as an ultrasound technician

1.868.274.4716
www.strategicreliabilitysolutions.com

U CAT I COURSE DETAILS

- Maintenance practices
  - Reactive, preventive, condition-based, proactive
  - How to decide between them
- Condition monitoring
  - Why it works
  - Vibration, infrared, oil analysis, wear particle analysis, and electric motor testing
  - Detecting faults, root causes, and quality control
  - Acceptance testing
- Principles of sound
  - What is sound, sound waves, and sine waves
  - Frequency, pitch, period, wavelength
  - Acoustic impedance, reflection, and transmission with different media (materials)
  - The inverse distance rule
- The application of ultrasound
  - Friction, turbulence, impacting, arcing, tracking, corona
- Ultrasound measurement
  - Heterodyning
  - The decibel dB scale
  - Metrics: RMS, Peak, crest factor, and Kurtosis
  - Listening versus measuring
  - Severity determination
- Collecting test data
  - Safety precautions
  - Sensor types: contact vs non-contact, magnets, horns, parabolic dishes
  - Collecting good data
  - Sensitivity validation
  - Repeatability & Sensor positioning
  - Shielding and competing ultrasound sources
  - Waveforms and spectra
- Data storage and management
  - Setting up a good database
  - ISO 14224 as a guide
- Leak detection
  - Steam systems
  - Compressed air systems and gas
  - Pressurized systems and systems under vacuum
  - Leak detection
  - Tightness testing
- Electrical testing
  - Safety systems
  - Corona, arcing, tracking
  - Particle discharge
- Lubrication
  - Concerns with traditional methods
  - On-condition lubrication
  - Avoiding over-greasing or under-greasing
- Testing different assets types
  - Valves, steam traps, bearings (low speed and high speed), compressors, pumps, hydraulic systems
  - A detailed explanation of all the above equipment and their failure modes
- Report generation
  - Providing actionable information
- Case studies
  - Many case studies are presented throughout the course

USD 2,000 per person
Printed course manuals & Exam fee included

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U CAT I

BENEFITS

You will learn…

- About condition monitoring, including a summary of the most common technologies
- About reliability improvement
- How ultrasound testing and ultrasound-assisted lubrication plays a key role in reliability improvement
- About the fundamentals of sound: frequency, amplitude, wavelength, pitch, and period
- How it is measured and quantified: dB, RMS, peak, kurtosis, and crest factor
- How sound behaves: speed of sound, reflection, refraction, and transmission
- How ultrasound is detected in industrial settings
- How to take dependable, repeatable, high-quality readings
- About listening to ultrasound, and capturing and interpreting waveforms and spectra
- About how to set up software systems, including the naming of assets
- About impacts, friction, turbulence, cavitation, arcing, tracking, corona, and partial discharge
- How it can be used to detect faults in bearings, electrical systems, steam traps, valves, hydraulic equipment, pumps, compressors, and other equipment
- About how hydraulics, electrical systems, steam systems, compressors, bearings, pumps, valves, steam traps, and other components work – all with vivid, realistic 3D animations
- How to correctly lubricate bearings: not too much, not too little
- How to collect data and perform tests safely
- How to generate reports that will provide people with the information they really need

FAST FACTS

Compliance:

- Training and certification: ISO 18436-8
- Certification: ISO 18436-1, ISO/IEC 17024
- Training: ISO 18436-3

Exam:

- Two hours
- 60 multiple-choice questions
- 70% passing grade
- Can be taken online

Certification requirements:

- Training course completed
- 6-months of work experience, verified by an independent person
- Pass a hearing test
- Valid for 5 years

Pre-study:

- Access to the “Learning Zone” upon registration and payment
- Complete set of videos covering every topic
- An excellent way to be prepared and get the most from the course

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