



UCAT- I

ISO 18436-8

UCAT I - Ultrasound Analysis

Learn from the world's leading provider of condition monitoring & reliability training & certification. Mobius Institute courses are the most internationally recognized, understandable and interesting training available, meeting the highest standard of certification.

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, hydraulics and a host of process equipment including valves and steam traps.
- Detect leaks in compressed air and steam systems.
- Grease lubricate bearings with precision.
- Learn how to take quality, dependable measurements, and you will begin the process of understanding how to diagnose common faults.
- Use the training and certification as a foundation to a rewarding career as an ultrasound technician or to manage others who will do ultrasound analysis.
- The training is available both as a classroom course taught by an authorized instructor or on-line for self-paced, time-flexible learning.

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Course Content

Topic Covered

Maintenance practices and Condition monitoring

- The benefits of condition monitoring
- Overview of 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 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

Leak detection

- Steam systems
- Compressed air systems and gas
- Pressurized systems and systems under vacuum
- Leak detection
- Tightness testing

Electrical testing

- Safety precautions
- Corona, arcing, tracking
- Partial discharge

Lubrication

- Concerns with traditional methods
- On-condition lubrication
- Avoiding over-greasing or under-greasing

Report generation

- Providing actionable information

Case studies

- Various case studies and applications

Testing different asset 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

Data storage and management

- Setting up a good database
- ISO 14224 as a guide

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FAQs

HOW LONG IS THE CERTIFICATION VALID?

Certification is valid for five (5) years.

HOW DO I RENEW MY CERTIFICATION?

Mobius will endeavor to contact you before your certification expires, therefore it is important that you keep your TMS records up to date (TMS is the training management system you will use to register for the course and for certification).

If you change roles, it is essential that you update your records.

HOW DO I QUALIFY FOR RENEWAL?

As per the ISO standard, you are not required to attend conferences or do further courses, however, we hope you will take advantage of www.mobiusconnect.com and the sites linked to Mobius CONNECT® so that your knowledge remains current.

These sites are free of charge.

When it is time to renew your certification, you will be asked to nominate an independent person who can provide evidence of continued work experience in the field of ultrasound condition monitoring for the previous five years without significant interruption.

You will also be required to submit evidence of passing a hearing test at the time of renewal. There will be a small fee to renew your digital certificate and to renew your certification status with the accreditation body.

WHAT ARE THE EXPERIENCE REQUIREMENTS FOR UCAT I?

You must have six months of experience generally associated with maintenance, reliability, and ultrasound testing.

You will be asked to nominate an independent person who can verify that you have that experience.

WHAT IS THE HEARING TEST?

As per the requirements of ISO 18436-8, candidates should be given hearing examinations to ensure natural or corrected hearing acuity exists in at least one ear.

A record of the results should be retained and presented to MIBoC upon request.

The individual should be capable of hearing a standard pure tone in an audiometry exam with results of an average of 25 dB hearing level or lower.

This examination should be administered upon initial certification and upon renewal, be administered by a licensed professional, and a record of the test made available to MIBoC upon request.

Candidates who do not provide a record of passing the hearing test will receive conditional certification under which it becomes the responsibility of their employer to assess the candidate's hearing acuity and their suitability to perform ultrasound data collection and/or analysis. This condition of certification will be noted on the candidate's certificate.

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Classroom Course:

Duration: 5 days

Classroom courses are held either as public courses or in-house.

Classroom students are given free access to the on-line course for 4 months from enrollment.

A hard copy course manual is supplied at the course.

Certification Exam:

The certification exam is held on the afternoon of the last day of the course.

Distance Learning (on-line) Course:

The course is made up of videos of short studio recordings, totaling 48 hours, presented by Tom Murphy, a renowned Ultrasound Instructor from the UK. The content is very comprehensive and informative, with audio commentary and animated visual slides.

A colour bound printed course manual is provided to follow the course and study offline. Students have four (4) months to complete the course and can extend access for an additional fee.

Certification Exam:

The certification exam must be taken at a MIBoC Authorised Examination centre or with other students on the final day of a public classroom course. Mobius can assist with locations and available dates.

UCAT 1 Certification requires:

- Prerequisite of a minimum of 6 month's verified work experience
- Completing the whole course on-line
- Passing the exam with a minimum of 70%
- The exam is 2 hours, closed book with 60 multiple choice questions.
- Evidence of passing a hearing test

Highly credentialed certification

Once you complete the training you will be eligible to take the exam to become certified by the internationally renowned Mobius Institute Board of Certification [MIBoC] to ISO 18436-8 Category I. The MIBoC certification is one of the few international programs accredited to ISO/IEC 17024 – there is no higher standard in condition monitoring certification.

All MIBoC certified reliability practitioners receive personalized logos with their certification number and name for their own professional use. Mobius Institute maintains a listing of all certified analysts on their website and provides each person with a certification confirmation webpage.

For more information about Mobius Institute's accreditation, please visit www.mobiusinstitute.com/certification.



To enroll or find more information, go to:
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Reliability Institute of Australia is an Authorized Mobius Training Partner and MIBoC exam centre.

