



GENERAL REQUIREMENTS FOR QUALIFICATION AND MIBOC CERTIFICATION OF CONDITION MONITORING AND DIAGNOSTIC PERSONNEL

ED002 Version 13

Accreditation Manager
miboc-accreditation@mobiustitute.com

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Introduction

The Mobius Institute Board of Certification (MIBoC) Scheme is managed and administered by the Mobius Institute Board of Certification, which takes into consideration the needs of industry through advice and guidance provided by a Governing Body, Scheme Committee and Technical Committees for each condition monitoring technology. The charters of these groups are outlined in documents ED121 – Governing Body Charter, ED025 – Scheme Committee Charter, ED024 – VA Technical Committee Charter, ED147 – IRT Technical Committee Charter, ED148 – US Technical Committee Charter and ED183 FLA Technical Charter respectively. Membership of committees is open to the participation of individuals and organizations, and further information is available from the Accreditation Manager of the Mobius Institute Board of Certification.

The MIBoC Scheme provides a Mobius Institute Board of Certification standard and associated programme, non-discriminatory and internationally available, for the certification of personnel in the condition monitoring and diagnostics. The programme conforms to the requirements of ISO/IEC 17024:2012 - Conformity assessment — General requirements for bodies operating certification of persons and ISO 18436-1:2021 Condition Monitoring and diagnostics of machines – Requirements for training and certification of personnel – Part 1: Requirements for certifying bodies and the certification process.

There are a range of qualification examinations available within the MIBoC Scheme covering various condition monitoring (CM) technologies and categories. Examinations are administered directly by MIBoC and/or through several Authorized Examination Centre's (AECs). Organizations that undertake training of condition monitoring personnel are assessed and approved by MIBoC against ISO18436-1, cl4.4d, and are referred to as Authorized Training Organizations (ATOs). The ATOs may deliver training directly or through Authorized Training Centre's (ATCs), which are assessed, approved and work under the direction of the ATO.

This document sets out general requirements of the MIBoC Scheme while the following documents set out specifics for each CM technology covered in the scheme:

- ED003 - VA Requirements, which conforms to the requirements of ISO 18436-2 (2014)
- ED133 - IRT Scheme Requirements, which conforms to the requirements of ISO 18436-7 (2014)
- ED134 - US Scheme Requirements, which conforms to the requirements of ISO 18436-8 (2013)
- ED183 - FLA Scheme Requirements, which conforms to the requirements of ISO 18436-4 (2014)

These documents are designed to provide comprehensive information for users of the MIBoC Scheme. The complete list of publicly available MIBoC documents is posted on MIBoC's website at www.mobiuscertification.org where all documents are publicly available to download free of charge.

If further information or advice is required on any certification matter, please contact the Certification Manager of MIBoC on certification@mobiusinstitute.com

Scope

This document describes a Scheme for the qualification and MIBoC Certification of Condition Monitoring and Diagnostic Personnel, that conforms to the requirements of ISO 18436-1 and the parts of ISO 18436 relevant to each CM technology.

The scheme will adopt new versions of these documents and normative references as they are published.

References

Normative References:

- ISO 18436-1: 2021, Condition monitoring and diagnostics of machines; Requirements for qualification and assessment of personnel: Requirements for certifying bodies and the certification process
- ISO 18436-2: 2014, Condition monitoring and diagnostics of machines; Requirements for qualification and assessment of personnel: Vibration condition monitoring and diagnostics
- ISO 18436-4: 2014, Condition monitoring and diagnostics of machines; Requirements for qualification and assessment of personnel: Field Lubricant Analysis
- ISO 18436-7: 2014, Condition monitoring and diagnostics of machines; Requirements for qualification and assessment of personnel: Thermography
- ISO 18436-8: 2013, Condition monitoring and diagnostics of machines; Requirements for qualification and assessment of personnel: Ultrasound
- ISO/IEC 17024: 2012, Conformity Assessment – General requirements for bodies operating certification of persons.

Abbreviations

The following abbreviations are used within this document:

- MIBoC – Mobius Institute Board of Certification
- AEC – Authorised Examination Centre
- ATC – Authorised Training Centre
- VA – Vibration Analysis
- IRT - Infrared Thermography
- US – Ultrasound
- FLA- Field Lubricant Analysis

- TMS –online Mobius Training Management System

Terms and Definitions

For the purposes of this document, the following definitions apply:

Authorized Training Centre (ATC) – centre approved, authorised, and monitored by Mobius Institute to administer Mobius Institute training courses where theoretical and practical instruction are administered.

Authorized Examination Centre (AEC) – centre authorized and monitored by the Mobius Institute Board of Certification, being the Certification body, to administer and conduct MIBoC certification examinations.

Candidate – an individual who has fulfilled specified prerequisites, allowing their participation in the certification process within the MIBoC Scheme.

Certificate –certificate issued by a certification body in accordance with the conditions of its accreditation and bearing an accreditation symbol or statement certificate issued by a certification body in accordance with the conditions of its accreditation and bearing an accreditation symbol or statement

Certification process – all activities by which MIBoC establishes that a person fulfils specific competence requirements, including application, evaluation, decision on and issuance of certification, surveillance and recertification, use of certificates and logos/marks. In this scheme MIBoC offers certification in the following condition monitoring technologies: Vibration Analysis, Thermography, and Ultrasound and Field Lubrication.

Examination Scoring Administrator – an individual who is authorised by MIBoC to score multiple-choice examinations but cannot score narrative questions nor assess candidate’s prerequisites.

Experience – period of time spent in performance of the relevant condition monitoring technology, which leads to the acquisition and maintenance of the skills and knowledge required for certification.

Invigilator – an individual authorised by MIBoC to administer and supervise MIBoC examinations but who does not evaluate competency of the candidate.

Qualification – evidence of training, professional knowledge, skill and work experience.

Qualification Examination – an examination administered by a certification body (MIBoC), its approved AEC, or authorised invigilator which leads to the issuance of a certificate of conformity to the relevant standard.

Renewal – the procedure for revalidation of certification without examination after expiration of 5 years of the initial certificate.

Significant Interruption – An absence or change of activity which prevents the certified individual from practising the duties corresponding to the category in the method and the sector(s) within the certified scope, for either a continuous period more than two years (2years) or two or more periods for a total time exceeding three years (3years).

Note: Legal holidays or periods of sickness or courses of less than 30 days are not taken into account when calculating the interruption.

Training – the process of instruction in the theory and practice of condition monitoring in a technology and level appropriate for the qualification being sought.

TMS – online Mobius Training Management System, containing candidate records.

General Principles

MIBoC may delegate and approve some of the functions associated with the certification process, however all delegated functions are monitored, and MIBoC shall not delegate the decision on, or issuance of certification.

The purpose of MIBoC's certification process is to demonstrate the conformity of individuals with the requirements of the MIBoC Certification Scheme and the part of ISO18436 relevant to the condition monitoring technology, leading to written testimony of their conformity by way of certification.

Qualification for certification is not based on limiting conditions, such as undue financial commitment, training by a specific organisation, or membership in any specific organisation. However, specific and approved training courses involving standard curricula are required for recognition of compliance.

There is no limit to the number of persons certificated in any category.

MIBoC complies with all applicable national and international laws, regulations and statutory requirements. Matters relating to Occupational Health & Safety fall outside the scope of this scheme and are the responsibility of individual employers.

MIBoC certificate holders must recognise that personal integrity and professional competence are the fundamental principles on which their activities are founded. Accordingly, it is a condition of MIBoC certification that holders shall comply with a code of ethics (as defined in ED034 - *Certified Analyst Code of Ethics*). This undertaking is given at the time of the qualification examination and/or certification.

By issuing the certificate/wallet card, MIBoC attest to the qualification of the individual but does not give any authority to work. The employer shall be fully responsible for the authorisation to perform machinery condition monitoring and diagnosis, and the quality and validity of the results of such work.

Wherever there is a conflict between the requirements of standards concerning personnel qualification and certification, the MIBoC scheme will comply with ISO 18436 criteria unless otherwise indicated by text placed within a frame similar to that in which this text is displayed, as authorised by invocation of ISO21-1

Duties and responsibilities

The employer

Shall be fully responsible for the authorization of the applicant to work and to perform machinery condition monitoring and diagnosis, and the quality and validity of the results of such work. Before giving the authority to work, the employer may require the candidate to do additional training and qualification on specialized machinery, that is beyond the scope of this document. Certification from MIBoC does not give the candidate an authority to work. If the applicants are self-employed, they shall assume all responsibilities described for the employer. The employer cannot be directly involved in the qualification examination.

Candidates for MIBoC Certification may be self-employed or currently unemployed so long as they provide documentary evidence that experience has been gained. Verification of documented experience is to the discretion of MIBoC.

Classification of personnel

The classification and general limitations of Vibration personnel are defined for four categories in accordance with ISO18436-2 clause 4

The classification and general limitations of Thermography personnel are defined for three categories in accordance with ISO18436-7 clause 4

The classification and general limitations of Ultrasound personnel are defined for three categories in accordance with ISO18436-8 clause 4

The classification and general limitations of Field Lubricant Analysis personnel are defined for three categories in accordance with ISO18436-8 clause 4

Eligibility for Examination

Eligibility for examination is defined within ED003, ED133, ED134 and ED183 in terms of the required minimum level of education and duration of training for the relevant condition monitoring technology.

To be eligible to apply for examination the candidate shall provide documentary evidence of successful completion of a MIBoC recognised course of formal training based on the specific requirements of ED003, ED133 or ED134 and ED183. This training should be in the form of lectures, demonstrations, practical exercises, and formal training courses.

Training must be undertaken through a MIBoC approved or recognised training course, as per ED009 - *List of Approved VA Training Course*, ED144 - *List of Approved IRT Training Courses* or ED146 - *List of Approved US Training Courses*. Candidates may apply for recognition for a training course undertaken which is not on the list of approved training courses by using ED041 - *Recognition for Training Application Form*.

To receive credit for the completion of a course, candidates must satisfy MIBoC that they have successfully completed the specified training as validated by a quantifiable and verifiable training course examination or continual assessment, leading to the issuance of a certificate-of-training provided by an approved training organisation or training centre and;

Certificates of Completion for training may be issued and distributed by a MIBoC approved ATCs.

The time devoted to each topic was as specified in ED003, ED133 or ED134 and ED183, and is consistent with the category of certification being sought.

Eligibility to attempt a qualification examination includes submission of the training certificate/declaration or other evidence to MIBoC, together with evidence of experience, payment of the examination fee (or invoiced), other documentary requirements as outlined in ED003, ED133 or ED134 and ED183, and completion of the TMS Candidate Registration Record prior to the examination.

Eligibility for Certification

The candidate shall have a combination of education, training, and experience to ensure he or she understands the principles and procedures applicable to the relevant condition monitoring technology and is competent to perform the activities outlined in the classification of personnel in ED003, ED133, ED134 and ED183 for the category of certification being attempted.

Documentary evidence of completion of prerequisite training, experience, other certification requirements, and application for initial examination shall be submitted to MIBoC by completing the Candidate Registration in the TMS. The MIBoC Certification Manager shall review each candidate's certification pre-requisites to determine the candidate's certification status.

Certification Examination

The Certification Examination shall be prepared by MIBoC and distributed to AECs or approved invigilators.

For each certification category, the candidates shall be required to answer a type and number of examination questions as specified in document ED003, ED133, ED134 and ED183.

The exam questions shall be selected from a database of questions. They shall be of a practical nature yet test the candidate on concepts and principles required to conduct condition evaluations using the relevant technology. The questions may involve the interpretation of charts & plots. Simple mathematical calculations may be required.

- The pass mark required is specified in document ED003, ED133, ED134 and ED183.
- The examination shall be closed book for Categories I, II and III; however, the examination at Category IV (vibration analysis) may be open book at the discretion of MIBoC. The examination may be presented in languages other than English.
- Candidates shall not be in possession of any reference documentation during a MIBoC examination, except for materials which are enclosed in the exam package.

Conduct of Examinations

Certification examinations are authorised by MIBoC conducted at an AEC and are administered by a MIBoC authorised invigilator in accordance with document *AEC015 - AEC Requirements*; or outside an AEC, administered by a MIBoC authorised invigilator in accordance with *ED044 - Invigilator Instructions (non-AEC)*. Applications for such invigilated exams shall be submitted to MIBoC using *ED043-Invigilation Application Form*.

At the time of examination, the candidate shall have in his or her possession valid proof of identification, showing a photographic image, which shall be shown to the invigilator upon request. The invigilator will countersign the examination sign-off sheet validating this proof of identify in accordance with *AEC015 - AEC Requirements*.

Provision is made for candidates with a disability which may affect their ability to complete MIBoC examinations, in accordance with document *ED033 - Accommodation of Special Needs*.

- The candidates shall have access to a basic, non-programmable scientific calculator during the examination. The presence of mobile phones and any other electronic communication, image capturing, or data storage device is prohibited in examination rooms. Refer to documents *AEC015 - AEC Requirements* or *ED044 - Invigilator Instructions (non-AEC)* for invigilator procedures.
- Once an examination has commenced, candidates found breaching the examination conditions will be considered to have cheated and their examination will be terminated. No examination results will be issued for those examination parts already completed and a letter will be sent to the candidate concerned explaining why their examination was terminated. Candidates considered to have cheated in a MIBoC examination will be ineligible for another MIBoC examination for a period of 12 calendar months from the date of the examination in which cheating was considered to have taken place.
- At the end of the qualification examination, completed examination scripts and all related paperwork must be placed in the exam envelope, sealed and handed to the invigilator, who shall return them to MIBoC, according to *AEC015 - AEC Requirements* or *ED044 - Invigilator Instructions (non-AEC)*.
- The candidate shall use only black or blue ink pens. The use of pencils and red pens is not permitted, nor is the use of correction fluid. Any corrections made on the exam paper shall be initialled.
- The translation of qualification examinations into languages other than English is managed by MIBoC.

Scoring of Examinations

Completed examination papers will be scored by an authorised person (Examination Scoring Administrator) at MIBoC by comparison with model answers.

To achieve qualification the candidate shall obtain a minimum pass mark as specified in ED003, ED133, ED134 and ED183.

Re-examination

In the event that a candidate is unsuccessful in passing the certification examination, the candidate can apply to be re-examined provided that the re-sit takes place no sooner than 30 days after the previous exam date. MIBoC may use its discretion in allowing an earlier re-sit examination. A candidate who fails three consecutive attempts will be excluded from further examinations for a period of 12 months. A candidate whose examination results have not been accepted for reason of fraud or unethical behaviour shall wait at least 48 months before re-applying for examination.

Publication of Examination Results

The examination results notification (pass or fail and examination score range) will be issued to the candidate's e-mail address given in the TMS Candidate Record, with guidance on successful completion of prerequisites if applicable.

If so, authorised by the candidate (via the TMS Candidate Record), the examination result (pass or fail and examination score range) shall also be e-mailed to the AEC who conducted the exam.

Examination results will normally be issued within 15 business days of receipt of the examination papers at MIBoC, provided all prerequisites are satisfied.

Publication of Certified Candidates

Once all pre-requisites have been met and the candidate has been certified, the Certification Administrator shall publish the candidate's name, country, condition monitoring technology, category, and date of certification on the MIBoC website list of certified analysts.

The Certification Manager shall verify upon request whether an individual holds a current, valid certification and the scope of that certification, except where the law requires such information not to be disclosed.

Certification

The Möbius Institute Board of Certification (MIBoC) will issue certification to candidates who fulfil all prerequisites (training, experience, and success in the relevant examination) for certification.

Validity of Certification

The maximum period of validity of a MIBoC certificate/wallet card is five years from the date of initial certification or renewal.

MIBoC certification shall be invalid:

- five years after certification unless the certificate holder applies for renewal.
- if the certificate holder becomes physically and/or mentally incapable of performing the duties.
- if a *significant interruption* takes place in the application of the competence for which the individual is certified.
- if an individual fails to satisfy the surveillance requirements, as outlined in 19. *Surveillance*.
- at the discretion of MIBoC, after reviewing evidence of unethical behaviour.

MIBoC certifications at specific categories can be verified at www.mobiuscertification.org or by contacting MIBoC's Certification Manager at certification@mobiusinstitute.com.

Renewal

At any time within the final 6 months of certificate validity the holder may renew his certificate for a further period of five years from the original expiry date upon submission of satisfactory documentary evidence of continuity, without significant interruption, in the application of the relevant condition monitoring technology. To ensure continuity of certification, it is advisable to apply at least 6 weeks prior to expiry. Applications for renewal after a certificate has expired may be considered at MIBoC's discretion.

- For renewal of an ultrasound certificate, the candidate must also submit evidence of passing a hearing test by submitting form [ED160 – Hearing Test Declaration](#). The date of the hearing test should be within 6 months of the renewal date.
- For renewal of an infrared thermography certificate, the candidate must also submit evidence of passing the MIBoC color test. Please contact certification@mobiusinstitute.com to arrange this online test.
- If the criteria for renewal are not met, MIBoC will cancel the certificate upon its expiry date, and to regain the certificate concerned the individual will need to successfully complete the process for initial certification.
- Application for renewal of certification is made through the students TMS profile.
- The renewed certificate will be designated as issue 02, 03, etc.

Surveillance

If any member of the condition monitoring community is aware of a MIBoC certified analyst who is acting in breach of the *Certified Analyst Code of Ethics Agreement* (ED034), they should immediately report this to the MIBoC Certification Manager.

Any person who falsely claims to be MIBoC certified should also be reported to the MIBoC Certification Manager (an individual's certification status can be verified by contacting MIBoC).

Complaints and Appeals

An aggrieved party in a dispute, which considers itself to have reasonable grounds for questioning the competency or ethical behaviour of a MIBoC certified individual, may petition MIBoC for cancellation of certification. Such a petition must be in writing and be accompanied by all relevant facts and, if it is the view of MIBoC that an adequate case has been presented, a full investigation of the circumstances under dispute will be initiated, as per ED007 - *Complaints/Appeals Procedure* using document ED010

Complaints may also be made against MIBoC in the form of

- criticism of a MIBoC policy/procedure, and/or
- criticism of a MIBoC approved exam invigilator.

The candidate or the employer may make appeals against certificate cancellation, failure to certify or failure to renew.

All complaints/appeals must be made in writing, as per *ED007 - Complaints/Appeals Procedure using document ED010*

Certification and Examination Records

MIBoC will retain records relating to qualification and certification of personnel for a minimum period of 5 years from

- the date of application for candidates who have not been certified, or
- the date of certification or renewal for the candidates who have been certified.

Records shall include the following candidate information:

- application forms or records,
- examination documents, including questionnaire & scoring sheets,
- renewal applications, and
- reasons for withdrawal or cancellation of certification.

Use and Misuse of Certificates and Logos

The issue of a MIBoC certificate indicates that the holder has demonstrated an acceptable level of competence and knowledge measured by means of an examination and evidence of training and experience conducted in accordance with the prevailing requirements for the relevant condition monitoring technology. Holders or employers are not permitted to imply any further degree of competence on the basis of the certificate.

MIBoC certificate holders or their employers must not use or refer to MIBoC certificates, the MIBoC logo, nor must they knowingly allow them to be used or referred to by a third party, in a manner that may be considered fraudulent or to bring the MIBoC Scheme into dispute.

The use of, as well as the penalties for misuse of the MIBoC certification logo and/or the MIBoC certificate/wallet card are outlined in ED028 - Use/Misuse of MIBoC Certified Analyst Logo and ED029 - Use/Misuse of MIBoC Certificate respectively.

The logo of the Joint Accreditation System of Australia and New Zealand (JAS-ANZ) is only to be used in conjunction with the MIBoC certification logo and may not be used in isolation. Where used the JAS-ANZ logo must be placed adjacent to the MIBoC certification logo and the dimensions of the JAS-ANS symbol and MIBoC certification logo are proportionately equal. The URL for the JAS-ANZ register (www.jas-anz.org/register) must be displayed alongside the first instance of the JAS-ANZ symbol in a document.

Certificates and wallet cards are valuable documents, which should be kept in a safe place. Any suspicion of forgery or misrepresentation must be reported to the MIBoC Certification Manager.

Transition Period

During any transition period, MIBoC may appoint duly qualified personnel as invigilators and/or examiners for a period not exceeding five years from the effective date of scheme and examination implementation. Any extension of this period can be granted only on the authority of the MIBoC Scheme Committee.

Files

All files and records are maintained and stored in accordance with the requirements of ISO/IEC 17024, ISO18436-1 cl 11.