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

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1. 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 Committee. The charters of these groups are outlined in documents ED121 – Governing Body Charter, ED025 – Scheme Committee Charter, and ED024 – Technical Committee Charter, respectively. Membership of committees is open to the participation of individuals and organisations, and further information is available from the Certification 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 vibration 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 18436-1:2012 Condition Monitoring and diagnostics of machines – Requirements for training and certification of personnel – Part 1: Requirements for certifying bodies and the certification process, in the management of vibration analysis certification requirements based on ISO18436-2:2014.

There are a range of qualification examinations available within the MIBoC Scheme covering various Vibration Analysis categories. Examinations are administered directly by MIBoC and/or through a number of Authorized Examination Centres (AECs). Organisations 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 Organisations (ATOs). All ATOs comply with ISO18436-3: 2008+A1: 2009 requirements and those procedures specified for training in ISO18436-1 and ISO18436-2. The ATOs may deliver training directly or through Authorized Training Centres (ATCs), which are assessed, approved and work under the direction of, the ATO, in accordance with ISO18436-3.

This document sets out general requirements of the MIBoC Scheme while document ED003 - VA Scheme Requirements sets out vibration analysis specifics. These documents are designed to provide comprehensive information for users of the MIBoC Scheme. The complete list of publicly available MIBoC documents relevant to vibration analysis is detailed in publication reference ED040 - MIBoC External Documents, which 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 telephone number +61 3 59897285, or email certification.manager@mobiuscertification.org.

2. Scope

1.1. This document describes a Scheme for the qualification and MIBoC Certification of Vibration Condition Monitoring and Diagnostic Personnel, that conforms to the requirements of ISO 18436-1 and ISO18436-2. The scheme will adopt new versions of these documents and normative references as they are published.
1.2. Specific vibration analysis details of the certification are contained in document ED003 - VA Scheme Requirements, which conform to the requirements in ISO 18436-2.

2. References

2.1. Normative References:
- ISO 18436-1: 2012, 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

2.2. MIBoC Documents

- **ED121 - Governing Body Charter**, Charter of MIBoC’s Governing Body
- **ED025 - Scheme Committee Charter**, Charter of MIBoC’s Scheme Committee
- **ED024 - Technical Committee Charter**, Charter of MIBoC’s Technical Committee
- **ED040 - MIBoC External Documents**, List of documents relevant to MIBoC’s Scheme
- **ED003 - VA Scheme Requirements**, Specific Vibration Analysis Requirements for MIBoC Scheme
- **ATO006 - ATO Requirements**, Requirements for MIBoC Authorized Training Organisations
- **ATC011 - ATC Requirements**, Requirements for MIBoC Authorized Training Centres
- **AEC015 - AEC Requirements**, Requirements for MIBoC Authorized Examination Centres
- **ED009 - List of Approved Training Courses**, List of MIBoC Approved Training Courses
- **ED044 - Invigilator Instructions (non AEC)**, Instructions for the Invigilation of non-AEC examinations.
- **ED043 - Invigilation Application Form**, Application for invigilation of examination outside an AEC.
- **ED033 - Accommodation of Special Needs**, Procedure for the accommodation of Special Needs.
- **ED007 - Complaints/Appeals Procedure**, Procedure for Complaints & Appeals.
- **ED028 - Use/Misuse of Certified Analyst Logo**, Procedure outlining the approved use and penalties for misuse of the MIBoC Certified Vibration Analyst Logo
- **ED029 - Use/Misuse of Certificate/Wallet Card**, Procedure outlining the approved use and penalties for misuse of the MIBoC Certificate/Wallet Card.
- **ED041 - Recognition for Training Application Form**, Application form for the recognition of training course which is not on the list of Approved Training Courses.
3. Terms and Definitions

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

- **Authorized Training Organisation (ATO)** – Organisation competent to administer a programme to train personnel in Vibration Analysis courses in accordance with ISO18436-2 and ISO18436-3, and is also approved within the certification programme by the certification body, MIBoC, to design and conduct such training to ensure adherence to training curricula specified in ISO18436-2.
- **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 authorised 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 his/her participation in the certification process within the MIBoC Scheme.
- **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 the MIBoC offers certification in vibration analysis in accordance with ISO18436-2.
- **Certificate** - written testimony from a 3rd party certification body that an individual has shown proof of fulfilment of all requirements specified in ISO18436-2 for vibration analysis.
- **Examination Scoring Administrator** – an individual who is authorised by MIBoC to score written multiple choice examinations but cannot score narrative questions nor assess candidate’s prerequisites.
- **Experience** – period of time spent in performance of vibration analysis, which leads to the acquisition and maintenance of the skills and knowledge required for certification.
- **Invigilator** – an individual authorized 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 authorized 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 from (or change of) work activity which prevents the holder of MIBoC certification from practising the duties corresponding to the scope of the certification for a continuous period in excess of 365 days, or two or more periods for a total time exceeding 2/5th of the total period of validity of the certificate (i.e.: a number of periods exceeding two years).
  
  **NOTE:** Legal holidays, or periods of sickness, or training courses of less than thirty days are not taken into account when calculating the interruption.
- **Training** – the process of instruction in the theory and practice of vibration analysis in a level appropriate for the qualification being sought.
- **TMS** – online Training Management System, containing candidate records.
4. Abbreviations

The following abbreviations are used within this document:

- MIBoC – Mobius Institute Board of Certification
- AEC – Authorized Examination Centre
- ATC – Authorized Training Centre
- ATO – Authorized Training Organisation
- VA – Vibration Analysis
- TMS – online Training Management System

5. General Principles

5.1. MIBoC is responsible for granting, maintaining, renewing, extending, restricting and withdrawing certificates.
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.

5.2. The purpose of MIBoC’s certification process is to demonstrate the conformity of individuals with the requirements of the MIBoC Certification Scheme and the specified standard, ISO18436-2, leading to written testimony of their conformity by way of certification.

5.3. Qualification for certification is not based on limiting conditions, such as undue financial commitment, training by a specific organization, or membership in any specific organization. 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.

5.4. 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.

5.5. 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.

5.6. 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 authorization 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 VA 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

6. Duties and responsibilities

As per ISO 18436-1 cl 6.3, the employer:

- confirms the validity of the personal information provided, which may include a declaration of education, training and experience required for the eligibility of the candidate;
- cannot be directly involved in the qualification examination;
- is responsible for:
  - issuing the operating authorisation to work, where operating authorisation is a written statement issued by the employer based on the individual’s competence as specified by the certificate and amongst other factors, such as the job-specific knowledge, skill and physical ability, which should be assessed by the employer for the specific task before issuing an authority to work.
  - Certification from MIBoC does not give the operator an authority to work.
- any job-specific training;
- verification of continuity in the application of the vibration condition monitoring technology without significant interruption;

Candidates for MIBoC Certification may be self-employed or unemployed so long as they provide documentary evidence that experience has been gained under the supervision of suitably qualified personnel.

A self-employed candidate shall assume all of the responsibilities ascribed to an employer.

7. Classification of personnel

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

8. Eligibility for Examination

8.1. Eligibility for examination is defined within ED003 - VA Scheme Requirements in terms of the required minimum level of education and duration of training for vibration analysis.

8.2. 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 Annex A2 of ED003 - VA Scheme Requirements. Sources of technical information are listed in Annex B of ED003 - VA Scheme Requirements. The minimum duration of cumulative training is shown in Table 1 of ED003 - VA Scheme Requirements. This training should be in the form of lectures, demonstrations, practical exercises and formal training courses.

8.3. Training must be undertaken through a MIBoC approved or recognised training course, as per ED009 - List of Approved 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.

8.4. 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 organization or training centre; and

Certificates of Completion for training may be issued and distributed by either a MIBoC approved ATO or one of the ATO’s ATCs.

8.5. The time devoted to each topic was as specified in Annex A2 of ED003 - VA Scheme Requirements and is consistent with the category of certification being sought.

8.6. 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) and completion of the TMS Candidate Registration Record prior to the examination.

9. 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 vibration analysis and is competent to perform the activities outlined in ED003 - VA Scheme Requirements: Classification of Personnel for the category of certification being attempted.

9.1. The minimum duration of experience required for vibration analysis is defined in the document ED003 - VA Scheme Requirements.

9.2. The experience may be acquired either prior to or following success in the qualification examination. In the event that the experience is accrued following successful examination, the results of the examination shall be held by MIBoC, without issuance of a certificate, and remain valid for up to five years or double the minimum required duration of experience, whichever is the lesser. Certification will be completed when MIBoC receives evidence of the required experience.

9.3. Documentary evidence of completion of prerequisite training and experience, and application for initial examination shall be submitted to MIBoC by completing the Candidate Registration in the TMS.

9.4. The MIBoC Certification Manager shall review each candidate’s certification prerequisites, including education, training, and experience and qualification examination score, to determine the candidate’s certification status.
10. Certification Examination

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

10.2. For each certification category, the candidates shall be required to answer a type and number of examination questions as specified in document ED003 - VA Scheme Requirements.

10.3. 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 vibration machinery condition evaluations. The questions may involve the interpretation of charts & plots. Simple mathematical calculations may be required.

10.4. The pass mark required is 70%.

10.5. The examination shall be closed book for categories I, II and III; however the examination at category IV may be open book at the discretion of MIBoC.

10.6. The examination may be presented in languages other than English.

10.7. Candidates shall not be in possession of any reference documentation during a MIBoC examination, except for materials which are enclosed in the exam envelope.

11. Conduct of Examinations

11.1. Certification examinations are authorised by MIBoC conducted at an AEC and are administered by a MIBoC authorized invigilator in accordance with document AEC015 - AEC Requirements; or

11.2. outside an AEC, administered by a MIBoC authorized invigilator in accordance with ED044 - Invigilator Instructions (non AEC). Applications for such invigilated exams shall be submitted to MIBoC using ED043 - Invigilation Application Form.

11.3. 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.

11.4. 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.

11.5. 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.

11.6. 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.

11.7. 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).

11.8. 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.

11.9. The translation of qualification examinations into languages other than English is managed by MIBoC.

12. Scoring of Examinations

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

12.2. To achieve qualification the candidate shall obtain a minimum pass mark as specified in ED003.

13. Re-examination

13.1. In the event that a candidate is unsuccessful in passing the certification examination, he/she can apply to re-sit the exam twice, 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 in the event that evidence of further training acceptable to MIBoC is undertaken. A candidate who fails three consecutive attempts will be excluded from further examinations for a period of 12 months.

13.2. A candidate whose examination results have not been accepted for reason of fraud or unethical behaviour shall wait for one year before re-applying for examination.
14. Publication of Examination Results

14.1. 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.

14.2. If so authorized 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.

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

15. Publication of Certified Vibration Analysts

15.1. Once all pre-requisites have been met, the Certification Administrator shall publish the candidate’s name, country and date of certification and category certificated on the MIBoC website list of certified vibration analysts.

15.2. 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.

16. Certification

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

16.2. When a candidate for certification has met the training and educational requirements and achieved a pass in the qualification examination, but has not yet satisfied the prerequisite experience requirements, the candidate’s certification may be deferred for up to 2 years, or twice the minimum required period of experience, from the date of success in the MIBoC examination (whichever is the lesser).

17. Validity of Certification

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

17.2. 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 the wallet card is not signed by the holder;
• in any condition monitoring technology other than Vibration Analysis;
• at the option of MIBoC after reviewing evidence of unethical behaviour;
• 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 20. Surveillance;
• at the discretion of MIBoC, after reviewing evidence of unethical behaviour.

17.3. MIBoC certifications at specific categories can be verified at www.mobiuscertification.org, or by contacting MIBoC’s Certification Manager at certification.manager@mobiuscertification.org.

18. Renewal

18.1. At any time within the final 6 months of certificate validity, the holder may renew his certificate for a further period of five years upon submission of satisfactory documentary evidence of continuity, without significant interruption, in the application of vibration analysis. 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.

18.2. 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.

18.3. Application for renewal of certification is made on the Application for Certification Renewal form, which is Annex A of ED036 - Certification Renewal.

18.4. The issue number of the renewed certificate will be incremented by one (i.e. issue 02, 03 etc).

19. Surveillance

19.1. MIBoC will carry out random surveillance checks during the certification, renewal and recertification processes to ensure that the information provided by the candidate as part of their application is accurate and complies with the requirements of the certification scheme. Information relating to a candidate’s work experience may be verified through a candidate’s manager or supervisor.
19.2. 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.

19.3. 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).

20. Complaints and Appeals

20.1. 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.

20.2. 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.

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

20.4. All complaints/appeals must be made in writing, as per ED007 - Complaints/Appeals Procedure.

21. Certification and Examination Records

21.1. 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.
22. Use and Misuse of Certificates and Logos

22.1. 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 vibration analysis. Holders or employers are not permitted to imply any further degree of competence on the basis of the certificate.

22.2. 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.

22.3. 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.

22.4. 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.

22.5. 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. Loss of certificates/wallet cards must be reported to MIBoC. Theft of certificates/wallet cards must be reported to the legal authorities in the country concerned and MIBoC.

23. Transition Period

23.1. 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.

24. Files

24.1. All files and records are maintained and stored in accordance with the requirements of ISO/IEC 17024, ISO18436-1 cl 11 and ISO18436-3 cl 10.