INSTITUTE OF MATERIALS, MALAYSIA

IMM Mechanical Joint Integrity Certification Scheme

Certified Technician in Mechanical Joint Integrity for Small-bore Piping, Tubing and Valves

Code: MJI-SBV *HRDF claimable*

This certification program is designed to provide learners with knowledge encompassing safety hazards at valve sites, grounding knowledge of leak repairs pertaining to valves/small bore piping (SBP) and tubing, causes of Loss of Primary Containment (LOPC) in valves, small bore piping and tubing, identification of leaks, planning of repair works, hands-on skills in executing the repairs, post-repair activities, and periodic inspection required. It teaches both theoretical knowledge and hands-on skills relevant to LOPC repairs and prevention. It provides the theoretical basis and practical competencies required by a practical worker to sit for assessment so as to be certified competent in Mechanical Joint Integrity for Small-bore Piping, Tubing and Valves.

Reference standards (reference used shall refer to the latest published document):

- TBA

Who should apply

This certification program is for those who are in the key roles of installation, assembly and dis-assembly, maintenance and repair, operations and inspection of valves, packing, tubing, compression fittings, small-bore piping and threaded connections, such as:

- Instrument supervisors/team leads
- Valve technicians
- Mechanical technicians
- Maintenance technicians (mechanical/instrument discipline)
- Instrument specialists/engineers
- Operations (multi-skilled) technicians
- Well services personnel dealing with wellhead control panels, chokes and valves

Objectives

The objective of this certification program is to assess and certify workers on their knowledge and hands-on skills/competency concerning small-bore piping, tubing and valves, which covers supplementary health, safety and environment, fundamental theoretical knowledge, dis-assembly, inspection, assembly and reinstatement, post assembly checking/testing, and periodic inspection.

Examination topics

Supplementary health, safety and environmental knowledge when carrying out the works
Grounding knowledge required to carry out the works, covering;

- Valve types and components, valve packing body-bonnet flange, packing replacement, inspection and testing
- Small-bore piping, threaded connection, vibration impact, spool replacement, inspection and testing
- Tubing types, compression fittings, measure and bending, tube cutting, assembly and dis-assembly, tubing
- supports, re-make a tube fitting, inspection and repair.
- Hands-on skills in using a manual torque wrench and hydraulic torque wrench:
- Preparation and set-up of the works
- Reading and interpreting P & ID and isometric/hook-up drawings
- Preparing a simple work pack if there is no work pack provided for the works
- Planning the works, collecting and storage of materials, correct tools
- Disassembly of valve and packing replacement, small-bore piping, tubing and fittings

- Assembly of the valves, packing, tubing, fittings, small-bore piping and threaded connections
- Post-assembly inspection and testing, and periodic inspection of valves, packing, tubing, fittings, small-bore piping and threaded connections

Examination format

The examination/assessment consists of the following format:

(a) Examination – to complete answering the 35 multiple choice questions within 40 minutes

(b) Practical (hands-on) assessment 1 – Valve packing replacement; consisting of dis-assembly of a valve bonnet, replace the valve packing, re-assembly of the valve bonnet onto valve body, including valve and pipework inspection, set-up, post-assembly inspection and testing using compressed air to check for packing leaks, and re-tightening of packing (if required to stop the packing leak).

(c) Practical (hands-on) assessment 2 – Tube measurement, cutting and bending (3/8" or 10mm OD);
   i. Using a tube bender, cutter, gap inspection gauge and fitting wrenches, the activity consists of correctly bending and cutting a tube as per given tube drawing, installing a 3/8" or 10mm tube union or 3/8" or 10mm NPT connector.
   ii. Removing and re-installing a pressure gauge from/into a ½ NPT process connection

Examination duration

1 day

Examination fee

As specified on the IMM website.

Candidate's criteria

Candidate should have

- Minimum academic qualification - SPM or equivalent* OR
- Minimum 5 years working experience at site (offshore or onshore plant/construction site) in the instrument and process control discipline, hook-up and construction, and maintenance works using tube benders, cutters and gap inspection gauge AND
- Able to read and understand in English

*Candidate fulfills the minimum academic qualification without working experience at site (offshore or onshore plant/construction) is considered as a candidate without experience.

Pre-requisite training

A candidate without experience is required to attend IMM approved/recognized Mechanical Joint Integrity for Small-bore Piping, Tubing and Valves training course with a minimum duration of 2 days (16 hours) which prepares and provides comprehensive guidance and practice aligned to the topics covered in the examination.

A candidate with experience is encouraged to attend an IMM approved/recognized Mechanical Joint Integrity for Small-bore Piping, Tubing and Valves training course for examination preparation and scheme alignment.

Note: Evidence of training completion (where applicable) shall be submitted to the IMM prior to examination approval.

Criteria for certification

The candidate must pass in all the following 3 parts:

(a) Examination paper – Achieve minimum 60% mark

(b) Practical (hands-on) assessment 1 – Passed as competent

(c) Practical (hands-on) assessment 2 – Passed as competent

Certificate awarded

IMM Certified Technician in Mechanical Joint Integrity (MJI) for Small-bore Piping, Tubing and Valves

Validity period of certificate

5 years

Re-sit of examination

A candidate who had failed in one or more of the examination parts can apply to re-sit for the failed component(s) of the examination within a year from the date of the first examination. The candidate shall have to pay the full examination fee for the re-sit and without the need to attend any pre-requisite training course.

Information on re-certification

Candidates may submit a recertification application up to six (6) months before or within six (6) months after the certificate expiry date. Applications submitted within this period will be processed as usual and may require attendance at a refresher course, if applicable.

Applications submitted more than six (6) months after the certificate expiry date require the candidate to:

- Attend the refresher course, if applicable; and
- Retake the certification examination, regardless of work experience.

Candidates may apply to renew their certification for an additional five (5) years within six (6) months prior to the expiry of the certification period (after either the initial 5-year certification or the subsequent 5-year renewal) by:

- Providing proof to IMM of employment in a related field; and
- Attending the refresher course, if applicable.

Candidates who have been out of the profession for more than eighteen (18) months at any point during a 5-year certification or recertification period must retake the certification examination.