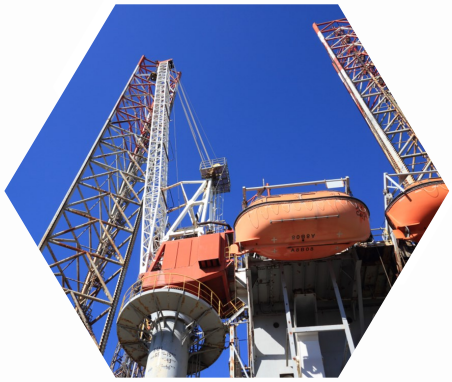
IMM TRAINING & CERTIFICATION SCHEMES 2021

Training & Certification Needs for Industrial Skillsets



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Contents *(cont'd.)*

IMM TRAINING AND CERTIFICATION SERVICES

The Institute of Materials Malaysia has been associated with training and certification of technical workers for more than 30 years. A major part of these schemes involves the certification of engineers and technicians in the oil and gas industry. IMM is currently making inroads into the construction, power and transport industry.

The job of personnel in these industries requires individuals to be competent and IMM has built a reputation over the years as a reliable training and certification body. To-date IMM has certified more than 9000 skilled workers through its competency development and certification programs for skilled workers. Most of them are required to carry out tasks that demand special skills while a significant number are also involved in making important technical judgements or decisions. Such judgements/decisions carry a significant impact on the work being carried out and any errors or shortcomings could result in serious consequences such as structural failures, corrosion, vibrations, loss of products, economic loss and injuries or even loss of lives.

Benefits of IMM Certification

IMM-approved training courses and the related certification programs are designed to equip workers with the skills and knowledge for entry into the industrial sector. The IMM certification provides proof and assurance to prospective employers that the certified persons have reached a given level of proficiency in a particular field. The focus is not only on developing competencies and skills from raw talent but also on upskilling their existing competencies to complement their work experience as it provides a jumping-off point for career advancements in the industry. Such skills enhancement through formal certification programs will expose the workforce to related and new technologies for improved efficiency. This in turn leads the existing workforce towards enhancing national productivity and making our industries more competitive.

IMM certification also increases the value of the competency tested worker to their respective organizations. IMM certification opens more doors as many positions work out better with a certified hire in place as industry work specifications increasingly demand certified personnel for contract jobs. Employers are more inclined, towards the certified candidate over the uncertified one. In addition, IMM's certification programs gives certified persons access to additional resources and better networking opportunities with peers and industry leaders, providing various opportunities for busines and career advancements.

Figure 1 summarises the benefits of IMM training and certification programs.

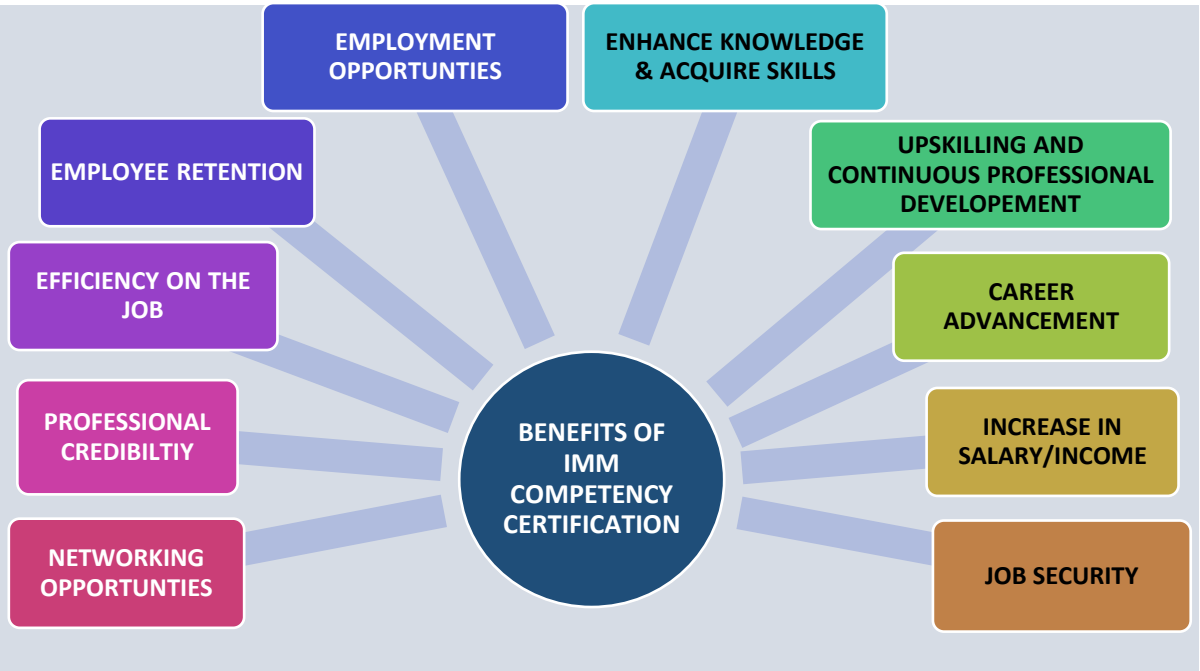

Figure 1: Benefits for Persons Certified to IMM Certification Schemes

Development of Certification Schemes

As one of the nation's recognized certification body for skilled workers in the materials science and technology fields, IMM has the capability to assess and certify that a person is competent to standards established and required by the industry in various sub-fields. Competence-based certification means that IMM is expected to examine a candidate's knowledge, skills, personal attributes, and qualifications specific to the program and/or scope of certification.

IMM's certification schemes have been developed over the years along with the competence criteria. The Technical Committees comprising subject matter experts continue to play a crucial role in developing new certification schemes or upgrading existing schemes and ensuring standards of competence meet the industry requirements. The development or review of the certification schemes are coordinated by Program Custodians nominated by the respective Technical Committees. The Program Custodian acts as the liaison between the Technical Committee and the IMM Secretariat which works closely with the Examination and Certification Panel.

The Examination and Certification Panel is the approving authority for all matters relating to examination and certification and includes examination sets, examiners, examination results, certification schemes and details, quality manuals and SOP, and other documents.

IMM's certification schemes for each category of competency cover the following elements in line with ISO requirements:

- Scope – job and certification title
- Job and task description – description of the tasks required to perform the audit
- Required competence – knowledge and skills
- Prerequisites – qualifications, work experience and training
- Assessment methods – written, oral, practical and observations
- Examination structure and duration
- Criteria for certification -assessments/examination pass scores
- Criteria for recertification – confirmation of continuing satisfactory work, work experience, examination/interview, continuous professional development

Figure 2 shows a list of the more popular IMM certification schemes including newly introduced schemes such as Mechanical Joint integrity, Thermit Welding and Coating Fingerprinting.

To ensure continued competency of the certified personnel, IMM has stipulated re-certification requirements which requires renewal of certification at the end of 3 years or 5 years depending on the individual scheme. The process of re-certification involves assessment of the manager- or supervisor-endorsed work experience during the certification cycle, compliance to continuous professional development requirements and may include the need for a refresher course followed by an examination.

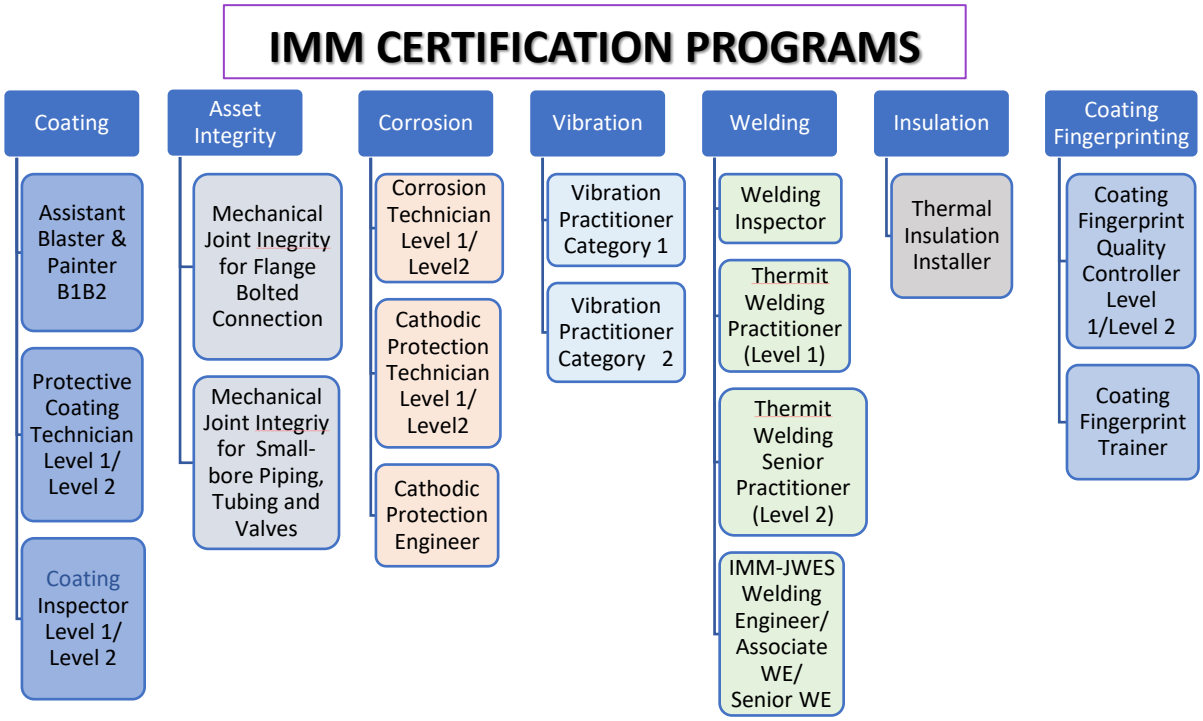

Figure 2: List of IMM Certification Schemes

Maintaining the Standards, Impartiality and Credibility of IMM Certification Schemes

To add further credence to its certification operations, IMM has put in place a system in accordance with the requirements of ISO/IEC 17024, *Conformity assessment – General requirements for bodies operating certification of persons.* It is now in the final stages of achieving accreditation to MS ISO/IEC 17024 after having been audited by technical assessors from the national accreditation body, the Department of Standards Malaysia.

The structure in place at IMM ensures impartiality which is a major requirement under ISO/IEC 17024 as training and certification activities are segregated. Pre-requisite training is outsourced to authorised training bodies (ATBs) who manage the training while IMM takes responsibility for the conduct of the certification examinations, independent of the training. However, generally, for the convenience of the candidates, the examinations are scheduled back-to-back with the training while ensuring that the examiner assigned is not the trainer.

The synergy between the industry and academia puts IMM in a strong position as a leading certification body and enables IMM to not only develop the training and certification programs but also to assess and certify if a candidate complies with the skill sets required to work in the industry according to established requirements/specifications. Thus, IMM certification programs developed jointly by the industry and academia has been proven to improve confidence on the job to both employer and employee and the user of services of the certified persons.

Conclusion

Being backed by technical resources, IMM's competency training and certification programs are well recognized by multi-national companies, small and medium enterprises and by authorities and clients in Malaysia as well as beyond its borders. With reviews and further improvements initiated in 2020, the year 2021 shall continue to see the dawning of a new era for IMMs' certification programs.

AREA OF ASSESSMENT FOR CERTIFICATION PROGRAMS

Competency	**A**	**Knowledge and understanding** Apply fundamental knowledge and understanding existing and emerging technology
	B	**Application to practice / analysis** Apply appropriate theoretical and practical method to the analysis
	C	**Leadership / management / supervision skill** Committed to provide technical leadership / management / supervision
Commitment	**D**	**Interpersonal skill** Effective communication / social skills
	E	**Professional conduct** Social responsibilities and committed to professional standards

IMM TRAINING & CERTIFICATION SCHEMES 2021

IMM TRAINING AND CERTIFICATION PROGRAM OVERVIEW

The Institute of Materials, Malaysia (IMM) offers engineering & technical professionals and practitioners a range of Certification Schemes and technical training courses to meet the requirements of the oil & gas, refining, petrochemical, transport, construction and other industries. Our programs have been developed together with the industry, academia and relevant stakeholders to ensure that the technical training and certification provided meet the relevant industry standards and requirements.

PROGRAM: COATING

IMM Certification Schemes and Courses	Technical Training Courses (Non-certification)
• Certified Protective Coating Technician (Blaster and/or Painter) Level 1 and Level 2 • Certified IMM-B1/B2 Assistant Blaster & Painter • Certified Coating Inspector Level 1 • Certified Coating Inspector Level 2 • Certified Blasting and Painting Supervisor • Certified Thermal Spray Coating Applicator • Certified Coating Quality Control Technician	• Refresher Course of Certified Protective Coating Technician (Blaster and/or Painter) Level 1 and Level 2 • Refresher Course of Certified Coating Inspector • Basic Knowledge on Corrosion Protection for Technicians and Engineers • Corrosion Control by Protective Coating • Basic Corrosion & Coating Course

PROGRAM: COATING FINGERPRINTING

IMM Certification Schemes and Courses	Technical Training Courses (Non-certification)
• Certified Coating Fingerprint Quality Controller Level 1 • Certified Coating Fingerprint Quality Controller Level 2 • Certified Coating Fingerprint Trainer	• Coating Fingerprint Foundation Course • Refresher Course of Certified Coating Fingerprint Quality Controller Level 1/Level 2

PROGRAM: CORROSION

IMM Certification Schemes and Courses	Technical Training Courses (Non-certification)
• Certified Corrosion Technician Level 1 • Certified Corrosion Technician Level 2 • Certified Cathodic Protection Technician Level 1 • Certified Cathodic Protection Technician Level 2 • Certified Cathodic Protection Engineer	• Corrosion Control by Cathodic Protection

PROGRAM: VIBRATION

IMM Certification Schemes and Courses	Technical Training Courses (Non-certification)
• Certified Vibration Practitioner Category 1 • Certified Vibration Practitioner Category 2 • Certified Vibration Specialist Category 3 • Certified Vibration Specialist Category 4	-

IMM TRAINING & CERTIFICATION SCHEMES 2021

PROGRAM: MECHANICAL JOINT INTEGRITY (MJI)

IMM Certification Schemes and Courses	Technical Training Courses (Non-certification)
• Certified Technician in Mechanical Joint Integrity (MJI) for Flange Bolted Connection • Certified Technician in Mechanical Joint Integrity (MJI) for Small Bore – Piping, Tubing, Valves	• Mechanical Joint Integrity • Pressure Safety Valve • Small Bore Tubing

PROGRAM: THERMAL INSULATION

IMM Certification Schemes and Courses	Technical Training Courses (Non-certification)
• Certified Thermal Insulation Installer	• Introduction to Thermal Insulation

PROGRAM: WELDING

IMM Certification Schemes and Courses	Technical Training Courses (Non-certification)
• Certified Welding Inspector • IMM-JWES Certified Associate Welding Engineer • IMM-JWES Certified Welding Engineer • IMM-JWES Certified Senior Welding Engineer	• Repair Welding of Pressure Equipment in Refineries & Chemical Plants • Welding & Joining Technology for Non-Welding Personnel • Steel Technology for Non-Technical Personnel

MISCELLANEOUS MATERIALS SCIENCE AND TECHNOLOGY (NON-CERTIFICATION) COURSES

Technical Training Courses	Technical Training Courses
• Materials Selection & Corrosion • Metallurgical Failure Investigation • Basic Course on Operation of Mobile Air Compressor • Competent Mobile Industrial Compressor Operator • Competent Mobile Industrial Equipment Inspector • Practical Approach to Inspection and Maintenance of Steam Turbine	• Practical Approach to Precision Alignment Methods • Practical Approach to Precision Balancing Methods • Reciprocating Compressors: Operations, Maintenance, Inspection and Troubleshooting • Troubleshooting Techniques for Rotating Equipment • Valve Operations, Maintenance and Inspection Including Flange Breaking

Note: A certifcate of attendance will be issued to all participants of non-certifcation professional development training courses while candidates who pass the assessment/examination of IMM-certification schemes will be certified with the issue of IMM competency certificate and IMM certification ID card in addition to the certificate of attendance.

More information on training and certification is available on IMM's website at www.iomm.org.my.

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LIST OF AUTHORISED TRAINING BODIES (ATBs), AUTHORISED TESTING CENTRE (ATC) AND ASSOCIATE TRAINING PARTNER (ATP)

AUTHORISED TRAINING BODIES (ATBs)

(Offer IMM Certification Training Programs and Courses)

ATBs	Training Programs & Courses
Seacademy Sdn. Bhd. (Sarawak) **Topfields Borneo Sdn. Bhd.** (Sarawak) **Sabah Skills & Technology Centre** (Sabah) **Epsilon Skills Academy Sdn. Bhd.** (Peninsular Malaysia) **Schmidt Abrasive Blasting Sdn. Bhd.** (Peninsular Malaysia) **SRC Global Resources Sdn. Bhd.** (Peninsular Malaysia) **NFK Technologies Sdn. Bhd.** (Peninsular Malaysia) **Advance Multiskills Training Centre Sdn. Bhd.** [Excludes courses marked with *] (Sarawak)	**Coating** • Certified Assistant Blaster & Painter Level 1 & Level 2 • Certified Protective Coating Technician (Blaster and/or Painter) Level 1 & Level 2 • Certified Blasting and Painting Supervisor • Certified Coating Inspector Level 1 & Level 2 • Certified Quality Control Technician* • Certified Thermal Spray Coating Applicator* • Basic Knowledge on Corrosion Protection for Technicians and Engineers* • Corrosion Control by Protective Paints* • Corrosion Control by Protective Coating*
Sabah Skills & Technology Center (Sabah) **Epsilon Skills Academy Sdn Bhd** (Peninsular Malaysia) **SRC Global Resources Sdn. Bhd.** (Peninsular Malaysia) **NFK Technologies Sdn. Bhd.** (Peninsular Malaysia)	**Mechanical Joint Integrity** • Certified Mechanical Joint Integrity for Small-bore Piping, Tubing and Valves • Certified Mechanical Joint Integrity for Flange Bolted Connections
Prasarana Malaysia Berhad (Malaysia)	**Thermit Welding** • Certified Thermit Welding Practitioner (Level 1) • Certified Thermit Welding Senior Practitioner (Level 2)

Note: The respective coverage area is indicated in brackets.

AUTHORISED TESTING CENTRE (ATC)

(Offers IMM Examination and Assessments)

ATC: JOTAC Academy Sdn. Bhd. (Peninsular Malaysia)
Certification Examination/Assessments
• Certified Protective Coating Technician (Blaster and/or Painter) Level 1 & Level 2
• Certified Coating Inspector Level 1 & Level 2
• Certified Corrosion Technician Level 1
• Certified Cathodic Protection Technician Level 1

LIST OF AUTHORISED TRAINING BODIES (ATBs), AUTHORISED TESTING CENTRE (ATC) AND ASSOCIATE TRAINING PARTNER (ATP) *(cont'd.)*

ASSOCIATE TRAINING PARTNER (ATP)

(Offers IMM Certification Training Programs and Courses)

ATP: Materials Technology Education Sdn Bhd
(Malaysia and Overseas)
IMM Training Programs & Courses

Coating

- Certified Protective Coating Technician (Blaster and/or Painter) Level 1 & Level 2
- Refresher Course for Certified Protective Coating Technician (Blaster and/or Painter) Level 1 and Level 2
- Certified Assistant Blaster & Painter Level 1 & Level 2
- Certified Blasting and Painting Supervisor
- Certified Coating Inspector Level 1 & Level 2
- Refresher Course for Certified Coating Inspector Level 1 and Level 2
- Certified Coating Quality Control Technician
- Certified Thermal Spray Coating Applicator
- Basic Knowledge on Corrosion Protection for Technicians and Engineers
- Corrosion Control by Protective Paints
- Corrosion Control by Protective Coating

Coating Fingerprinting

- Coating Fingerprint Foundation Course
- Certified Coating Fingerprint Quality Controller Level 1
- Certified Coating Fingerprint Quality Controller Level 2
- Refresher Course of Certified Coating Fingerprint Quality Controller Level 1/Level 2

Train the Trainer

- Certified Trainer

Corrosion

- Certified Corrosion Technician Level 1
- Certified Corrosion Technician Level 2
- Certified Cathodic Protection Technician Level 1
- Certified Cathodic Protection Technician Level 2
- Certified Cathodic Protection Engineer
- Corrosion Control by Cathodic Protection

Thermal Insulation

- Introduction to Thermal Insulation
- Certified Thermal Insulation Installer

Vibration

- Certified Vibration Practitioner Category 1
- Certified Vibration Practitioner Category 2
- Certified Vibration Specialist Category 3
- Certified Vibration Specialist Category 4

Welding

- Certified Welding Inspector
- Repair Welding of Pressure Equipment in Refineries & Chemical Plants
- Welding & Joining Technology for Non-Welding Personnel
- Steel Technology for Non-Technical Personnel

IMM-JWES Courses

- Certified Associate Welding Engineer (AWE)
- Certified Welding Engineer (WE)
- Certified Senior Welding Engineer (SWE)

Mechanical Joint Integrity

- Certified Mechanical Joint Integrity for Small-bore Piping, Tubing and Valves
- Certified Mechanical Joint Integrity for Flange Bolted Connections
- Valve Operations, Maintenance & Inspection Including Flange Breaking

Loss of Primary Containment

- Mechanical Joint Integrity
- Pressure Safety Valve
- Small Bore Tubing

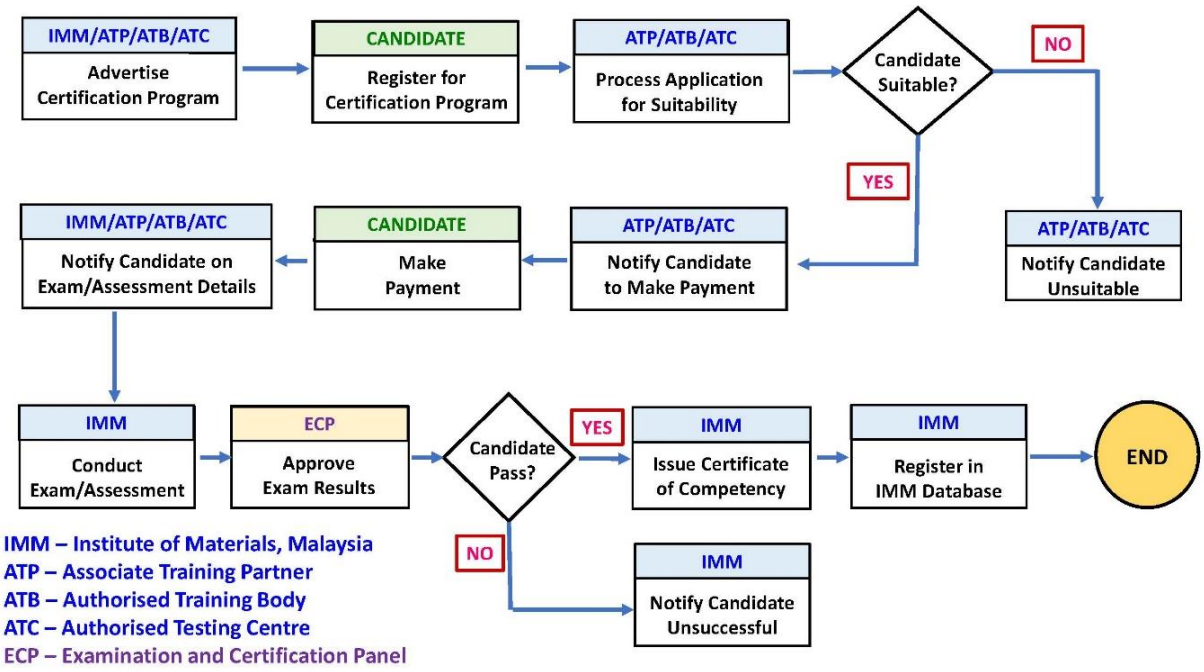
Rotating Equipment

- Competent Mobile Industrial Compressor Operator
- Competent Mobile Industrial Equipment Inspector
- Inspection & Maintenance of Pumps
- Practical Approach to Inspection and Maintenance of Stream Turbine
- Practical Approach to Precision Alignment Methods
- Practical Approach to Precision Balancing Methods
- Reciprocating Compressors: Operations, Maintenance, Inspection & Troubleshooting
- Troubleshooting Techniques for Rotating Equipment

Other Materials Courses

- Materials Selection & Corrosion
- Metallurgical Failure Investigation
- Basic Course on Operation of Mobile Air Compressor

FLOW CHART FOR THE CERTIFICATION PROCESS



IMM – Institute of Materials, Malaysia
ATP – Associate Training Partner
ATB – Authorised Training Body
ATC – Authorised Testing Centre
ECP – Examination and Certification Panel

INTRODUCTION OF IMM'S CONTINUING PROFESSIONAL DEVELOPMENT (CPD) SCHEME FOR CERTIFIED PERSONNEL

With effect from 1st January 2022, all IMM Certified Personnel will be required to submit their yearly Continuing Professional Development (CPD) report to qualify for renewal of their certification upon expiry. The objective of CPD is to encourage Certified Personnel to regularly improve themselves and keep themselves updated with latest developments in their industry. As such, IMM certified personnel must commence collecting CPD Points during the year 2021 to meet the required one-year CPD Points by January 2022.

CONTINUING PROFESSIONAL DEVELOPMENT (CPD) LOG TEMPLATE

(Supporting documents to be submitted wherever applicable)

Date or Period	Professional Development Activity Code & Description	Role	No. of Activity Hours	Weightage	No. of CPD Points

The CPD points calculation shall be based on the weightage factor shown below for each Activity Code.

Professional Development Activity Code	Professional Development Activity Scope	Weightage Factor
A	Attend Training Courses/Workshops	4
B	Course Trainer/Facilitator/Examiner/ Conference Presenter	3
C	Attend Seminar/Conference	2
D	Paper Author Main author (max 30 hours/year) Co-author (max 10 hours/year)	2
E	Attend Committee Meeting	1

The minimum number of CPD Points per year shall be **10 points**.
The minimum number of CPD Points per 5 year for re-certification shall be **100 points**.

COATING PROGRAMS

IMM Coating Certification Scheme

IMM Certified Protective Coating Technician (Blaster and/or Painter) Level 1 & Level 2

Code: PCT *HRDF claimable*

This certification scheme will enable the candidates to have an understanding and exposure on the subject of Blasting and Painting, mainly in the oil & gas and heavy engineering industries. The participants will be assessed both in the theory and practical aspects of Blasting and Painting which will determine their competency in accordance to the terms and conditions of IMM Coating Certification Scheme.

Who should apply

This certification scheme is suitable for new workers as well as those with experience.in painting or blasting who want to be certified.

Objectives

To access the following knowledge and skills in:

1. Specifying protective paint/coating system to a variety of substrates
2. The preparation of substrates prior to painting
3. The application of paint coatings
4. The diagnosis and rectification of faults in paint coatings and communicate in written form

Exam topics

1. Understanding corrosion- types, factors affecting corrosion and effects of corrosion
2. Standards and paint materials data sheets
3. Composition and important types of paint
4. Surface preparation and related techniques
5. Application of paint
6. Paint faults and coating defects
7. Quality assurance checks
8. Health, safety and environment - hazards, safety features and preventive measures
9. About coating fingerprinting

The programme includes a 2-hour refresher course (i.e. pre-assessment lecture) followed by an examination/assessment.

Examination Format

The examination comprises both theory and practical assessments, as follows:

- Theory
  Paper 1 – Surface preparation, 20 Multiple Choice Questions
  Paper 2 – Painting, 20 Multiple Choice Questions
- Practical assessment
  Part 1 – Surface preparation
    i. Identify the main parts of a setup blasting equipment.
    ii. Identify the safety features of blasting equipment and explain its function.
    iii. To carry out blasting on a test panel to SA 2 ½ standard.
  Part 2 – Painting
    i. Identify the main parts of an airless spray equipment.
    ii. Identify and explain the safety features on an airless spray gun.
    iii. Show how to check that the two-pack paint is the correct one with reference to the paint technical data sheets.
    iv. Explain how mixing of two pack paint is to be carried out.
    v. To carry out spraying of paint on test panel.

IMM Coating Certification Scheme

IMM Certified Protective Coating Technician (Blaster and/or Painter) Level 1 & Level 2

Cont'd.

Exam duration

Theory: 1 hour for both Parts 1 and 2
Practical: 5 hours for both Parts 1 and 2

Candidate's criteria

Candidates should have

i. Minimum academic qualification - SPM or equivalent OR
ii. 2 years of blasting and/or painting experience. Candidates with less than 2 years experience must submit a testimonial from employer or client to demonstrate their eligibility OR
iii. IMM Certified B1B2 Assistant Blaster and/or Painter with a minimum of 1 year experience in blasting and/or painting.

Pre-requisite training

Candidates without experience are required to attend related training course (such as the 4-day training course recognized by IMM), which prepares and provides comprehensive guidance and practice aligned to the topics covered in the examination.
Candidates with experience are encouraged to attend an appropriate training course (recognized by IMM).

IMM CPD points

The candidate is entitled for 112 IMM CPD points if he/she attended the 4-day training course recognized by IMM *(7 activity hours x 4 days x 4 weightage factor)*.

Criteria for competency

The candidate must be successful in each of the following

i. Minimum pass mark of 70% each of Part 1 and Part 2 in the theory examination
ii. Minimum pass mark of 70% each of Part 1 and Part 2 in the practical assessment

Certificate awarded

1. **IMM Certified Protective Coating Technician Level 2 (Multi-skill)**
   (If the candidate is successful in all parts of the Blaster and Painter examinations)

2. **IMM Certified Protective Coating Technician Level 1 (Blaster) OR**
   IMM Certified Protective Coating Technician Level 1 (Painter)
   (If the candidate is successful in either Surface Preparation (Blaster) or Painter Assessment only)

Validity period of certificate

5 years

Re-sit of examinations

A candidate who failed in one or all examinations can apply to re-sit for that part/section of the examination which he has failed within a year from the date of the last examination. The candidate shall have to pay the examination fee for the re-sit.

IMM Coating Certification Scheme

Certified Protective Coating Technician (Blaster and/or Painter) Level 1 & Level 2

Cont'd.

Information on re-certification

6 months prior to expiry of certification (at the end of the 5th year of certification), candidate can apply for re-certification for another 5 years by

- providing proof to IMM that he/she has been employed in a related profession; and
- accumulating sufficient Continuing Professional Development (CPD) points*.

Prior to the expiry of the 5-year re-certification (at the end of the 10th year of certification), candidate can continue to be certified for a further 5-year period by

- providing proof to IMM that he/she has been employed in a related profession;
- accumulating sufficient CPD points*; and
- attending the relevant Refresher Course for certification (if any).

The candidate must re-sit the certification examination if he/she has been out of the profession for more than 18 months continuously during the 5-year certification or re-certification period.

*The minimum number of CPD Points to be accumulated over a 5-year period shall be 100 points with an annual requirement of at least 10 points.

IMM Coating Training Course

Certified Protective Coating Technician Refresher Course

Code: PCTR *HRDF claimable*

Protective Coating Technician Level 1 and/or Level 2 has a 5-year certification validity followed by another 5-year re-certification period. As a result, after 10 years, the certification needs to be renewed. Hence, the Refresher Course of IMM Certified Protective Coating Technician Level 1/Level 2 is designed to ensure that the certified technicians keep their knowledge up-to-date when applying for re-certification. This refresher course is designed to update blasters and painters on surface preparation and paint application.

Who should apply

The program is suitable for certified blasters and painters whose certification is about to expire. Note: As the PCT Level 1/Level 2 is open for re-certification after the discontinuation of the program in 2019, consideration is also given to applicants with expired certification subject to terms and conditions.

Objective

This program aims to serve as a useful refresher course for experienced blaster/sprayers who want to be re-certified.

Course topics

1. What is corrosion and methods of corrosion protection
2. Surface preparation required prior to application of paint
3. Preparation of paint and application of paint
4. Paint faults and coating defects
5. Importance of quality control
6. Health, safety and environment
7. Coating fingerprint

Program duration and mode

Half day and may be conducted on-line.

IMM CPD points

Participants are entitled for 16 IMM CPD points *(4 activity hours x 4 weightage factor)*.

Candidate's criteria

Candidate shall possess IMM Protective Coating Technician Level 1/ Level 2. While this course is not mandatory for those who are being re-certified for the first time, the certified individual is encouraged to attend.

However, this course is mandatory at the expiry of the re-certification period (at the end of the 10th year of certification), for all certified individuals as a pre-requisite for re-certification by IMM.

Certificate awarded

Certificate of attendance

Validity period of certificate

1 year

IMM Coating Training Course

Certified Protective Coating Technician Refresher Course

Cont'd.

Information on re-certification

The candidate is eligible for re-certification within 1 year of attendance subject to the following conditions being met:

- providing proof to IMM that he/she has been employed in a related profession
- accumulating sufficient CPD points*

The candidate must re-sit the certification examination if he/she has been out of the profession for more than 18 months continuously during the certification/re-certification period.

*The minimum number of CPD Points to be accumulated over a 5-year period shall be 100 points with an annual requirement of at least 10 points.

IMM Coating Certification Scheme

Certified B1B2 Assistant Blaster & Painter

Code: ABP *HRDF claimable*

This program is designed to fulfill the requirements for the Oil & Gas Industry and other industries with similar requirements to have certified Assistant (Helper) for Blasters & Painters. Candidates are certified after attending a 2 days' classroom and training on the industrial fundamental of Blasting and Painting.

The assessment to obtain the certification is a written exam with multiple choice question and hands-on exam to verify that the candidates are ready to work as an Assistant Blaster or Painter.

Who should apply

Existing helpers who are without any certification, other trades interested in Blasting and Painting and fresh entry into the Oil & Gas Industry including school leavers are eligible to enroll for the program.

Objectives

For every topic covered, candidates shall be explained and briefed on the basic concepts, standard approaches and guidance commonly used and practiced by industries. This program is conducted both in a classroom and workshop consisting of 60% lecture and 40% hands-on exercises.

Exam topics

1. Introduction to blasting & painting – Theory & practical (Blasting work / painting application)
2. Surface preparation & blasting
3. Blasting & painting equipment
4. Paint & thinner
5. Painting application methods
6. Common painting system
7. Coatings defects and remedy
8. Quality inspection checks and tools
9. Safety precaution in blasting & painting
10. Safety in blasting and painting

The formal assessment includes the following:

1. Familiar with safety aspects, rules and regulations in blasting & painting
2. Basic knowledge of inspection tools usage and methods
3. To be able to read and understand basic usage of technical data
4. Understanding the methods of surface preparation, difference between those methods and the properties of each method.
5. Familiar with all drying type and drying factors.
6. Able to understand the use of volume solid in paint materials
7. Understanding of meaning of drying time, pot life and shelf life
8. Knowing the type of application using different application equipment
9. Clear understanding of defect, cause and remedy

IMM Coating Certification Scheme

Certified B1B2 Assistant Blaster & Painter

Cont'd.

Exam format

1. Written Examination – Multiple Choice Question / 25 Questions / 1 Hour
2. Practical Assessment
   i. Set up of equipment's blasting & painting
   ii. Safety requirement check
   iii. Application methods blasting & painting

Exam duration

1 Day

Candidate's criteria

Complete Primary School and able to read and write in English or Bahasa Malaysia

Course duration

Candidates without experience are required to attend a 2-day training course recognized by IMM while those with experience are encouraged to attend an appropriate training course

IMM CPD points

The candidate is entitled for 56 IMM CPD points if he/she attended the 2-day training course recognized by IMM *(7 activity hours x 2 days x 4 weightage factor)*.

Criteria for competency

Examination Paper – Achieve above 70% marks
Practical Assessment – Obtain Pass in the assessment (Pass/Fail)

Certificate awarded

IMM Certified B1B2 Assistant Blaster & Painter

Validity period of certificate

5 years

Information on re-certification

6 months prior to expiry of certification (at the end of the 5th year of certification), candidate can apply for re-certification for another 5 years by

- providing proof to IMM that he/she has been employed in a related profession; and
- accumulating sufficient Continuing Professional Development (CPD) points*.

Prior to the expiry of the 5-year re-certification (at the end of the 10th year of certification), candidate can continue to be certified for a further 5-year period by

- providing proof to IMM that he/she has been employed in a related profession;
- accumulating sufficient CPD points*; and
- attending the relevant Refresher Course for certification (if any).

The candidate must re-sit the certification examination if he/she has been out of the profession for more than 18 months continuously during the 5-year certification or re-certification period.
*The minimum number of CPD Points to be accumulated over a 5-year period shall be 100 points with an annual requirement of at least 10 points.

IMM Coating Certification Scheme

Certified Blasting and Painting Supervisor

Code: BPS *HRDF claimable*

There is an increasing demand for trained blasters and painters qualified to undertake the additional responsibilities supervisor in blasting and painting. This course is to upgrade these blasters and painters who wish to gain advance skills in surface preparation and paint application quality for the Blasting and Painting Supervisor

Objectives

This training aim to provide participants with the knowledge and skills:

1. To understand how protective coating can effectively control corrosion
2. To ensure surface preparation is properly carried out
3. To ensure proper application of paints and awareness of coating defects
4. Understanding the role of Blasting and Painting Supervisor

Exam topics

Fundamentals of Protective Coating for Corrosion Protection

1. Surface preparation good practice control, coating handling and application
2. Coating degradation, defects and failures
3. Conversion and calculation
4. Health, safety and environment issue
5. Role and responsibilities
6. Human relations

Course duration

2 days

IMM CPD points

The candidate is entitled for 56 IMM CPD points if he/she attended the 2-day training course recognized by IMM *(7 activity hours x 2 days x 4 weightage factor)*.

Who should attend

Blasting and Painting supervisor and; Blasters and Painters who wish to upgrade their knowledge and skills to another level of competency.

Pre-requisite(s)

Certified Protective Coatings Technician Level 2 (Multi-Skill) with working experience

Certificate awarded

IMM Certified Blasting and Painting Supervisor

Information on re-certification

6 months prior to expiry of certification (at the end of the 5th year of certification), candidate can apply for re-certification for another 5 years by

- providing proof to IMM that he/she has been employed in a related profession; and
- accumulating sufficient Continuing Professional Development (CPD) points*.

Prior to the expiry of the 5-year re-certification (at the end of the 10th year of certification), candidate can continue to be certified for a further 5-year period by

- providing proof to IMM that he/she has been employed in a related profession;
- accumulating sufficient CPD points*; and
- attending the relevant Refresher Course for certification (if any).

IMM Coating Certification Scheme

Certified Blasting and Painting Supervisor

Cont'd.

Information on re-certification *(cont'd.)*

The candidate must re-sit the certification examination if he/she has been out of the profession for more than 18 months continuously during the 5-year certification or re-certification period.

*The minimum number of CPD Points to be accumulated over a 5-year period shall be 100 points with an annual requirement of at least 10 points.

IMM Coating Certification Scheme

Certified Coating Inspector Level 1

Code: CIL1 *HRDF claimable*

This scheme covers the technical and practical fundamentals of coating inspection work. The Coating Inspector Level 1 certification scheme is established to certify the competency of individuals equipped with the knowledge and skills in coating inspection.

Who should apply

The scheme is suitable for candidates with or without experience in industrial painting or inspection and will also be applicable to those who require a knowledge of painting inspection such as painting inspector, painting supervisor, technicians, specifiers and engineers who have been trained and/or have experience in coatings inspection and desire to be certified for career advancement.

Objective

To assess the following knowledge and skills:

- Specify protective paint/coating system to a variety of substrates
- Supervise the preparation of substrates prior to painting
- Supervise the application of paint coatings
- Conduct inspections to satisfy clients / industry & government standards
- Diagnose and rectify faults in paint coatings and communicate in written form

Exam topics

- Introduction to corrosion
- Composition and manufacture of paints and paint fingerprinting
- Types of paint and their use
- Surface preparation
- Application and storage of paint
- Paint faults and coating defects
- Test and measurement instrumentation
- Safety and health
- The coating inspector
- Coating project specifications

Examination format

Written examination: Multiple choice questions on assessment topics including the assessment of understanding the practical aspects on the use of inspection tools and visual inspection. Exam consists of 100 Multiple Choice Questions

Examination duration

2.5 hours

Candidate's criteria

- Pass in SPM with at least 2 years relevant work experience OR
- Diploma or Degree in equivalent Science / Engineering related field OR
- IMM PCT Level 2 or equivalent

Pre-requisite training

Candidates without experience are required to attend related training course (such as the 4-day training course recognized by IMM) which prepares and provides comprehensive guidance and practice aligned to the topics covered in the examination.

IMM Coating Certification Scheme

Certified Coating Inspector Level 1

Cont'd.

Pre-requisite training *(cont'd.)*

Candidates with experience are encouraged to attend an appropriate training course (recognized by IMM).

IMM CPD points

The candidate is entitled for 112 IMM CPD points if he/she attended the 4-day training course recognized by IMM *(7 activity hours x 4 days x 4 weightage factor)*.

Criteria for certification

Pass the examination with a minimum total mark of 70%.

Certificate awarded

IMM Certified Coating Inspector Level 1

Validity period of certificate

5 years

Information on re-certification

6 months prior to expiry of certification (at the end of the 5th year of certification), candidate can apply for re-certification for another 5 years by

- providing proof to IMM that he/she has been employed in a related profession; and
- accumulating sufficient Continuing Professional Development (CPD) points*.

Prior to the expiry of the 5-year re-certification (at the end of the 10th year of certification), candidate can continue to be certified for a further 5-year period by

- providing proof to IMM that he/she has been employed in a related profession
- accumulating sufficient CPD points*; and
- attending the relevant Refresher Course for certification (if any).

The candidate must re-sit the certification examination if he/she has been out of the profession for more than 18 months continuously during the 5-year certification or re-certification period.

** The minimum number of CPD Points to be accumulated over a 5-year period shall be 100 points with an annual requirement of at least 10 points.*

IMM Coating Certification Scheme

Certified Coating Inspector Level 2

Code: CIL2 *HRDF claimable*

IMM offers the Coating Inspector Level 2 certification scheme to broaden the technical knowledge and perform inspection analysis and monitoring in a structured and systematic inspection diagnostic.

Who should apply

Certified Coating Inspector Level 1

Objectives

To access the following knowledge and skills:

1. Specify protective paint/coating system to a variety of substrates
2. Supervise the preparation of substrates prior to painting
3. Supervise the application of paint coatings
4. Conduct inspections to satisfy clients / industry & government standards
5. Diagnose and rectify faults in paint coatings and communicate in written form

Examination topics

1. Corrosion theory and terminology
2. Advance surface preparation
3. Advance paint faults and coating defects test
4. Measuring instrument / Inspection – Diagnose Failure
5. Composition & manufacture of paints
6. Application & storage of paints
7. The role of a coating inspector / ITP
8. Painting specification
9. Calculation / Mathematics'
10. Safety and health

Examination format

Exam consists of 3 sections to be conducted over 1 full day.

1. Paper 1 consists of 6 subjective questions (10 marks each).
2. Paper 2 consists of 4 practical questions (10 marks each)
3. Paper 3 is the oral exam (25 marks) whereby each candidate will be interviewed individually.

Examination duration

Paper 1 - 3 hrs
Paper 2 - 2 hrs
Paper 3 - 30 mins (during Paper 2)

Candidate's criteria

Certified Coating Inspector Level 1 or equivalent
Minimum 6 months of documented working experience after obtaining IMM CI Level 1 certification or equivalent qualifications.

Pre-requisite training

Candidates are encouraged to attend related training course (such as the 1-day training course recognized by IMM) which prepares and provides comprehensive guidance and practice aligned to the topics covered in the examination.

IMM Coating Certification Scheme

Certified Coating Inspector Level 2

Cont'd.

Pre-requisite training *(cont'd.)*

Candidates with experience are encouraged to attend an appropriate training course (recognized by IMM).

IMM CPD points

The candidate is entitled for 28 IMM CPD points if he/she attended the 1-day training course recognized by IMM *(7 activity hours x 1 day x 4 weightage factor)*.

Criteria for competency

Pass certification exam with minimum 70% marks for each paper

Certificate awarded

IMM Certified Coating Inspector Level 2

Validity period of certificate

5 years from the date of examination

Information on re-certification

6 months prior to expiry of certification (at the end of the 5th year of certification), candidate can apply for re-certification for another 5 years by

- providing proof to IMM that he/she has been employed in a related profession; and
- accumulating sufficient Continuing Professional Development (CPD) points*.

Prior to the expiry of the 5-year re-certification (at the end of the 10th year of certification), candidate can continue to be certified for a further 5-year period by

- providing proof to IMM that he/she has been employed in a related profession;
- accumulating sufficient CPD points*; and
- attending the relevant Refresher Course for certification (if any).

The candidate must re-sit the certification examination if he/she has been out of the profession for more than 18 months continuously during the 5-year certification or re-certification period.

*The minimum number of CPD Points to be accumulated over a 5-year period shall be 100 points with an annual requirement of at least 10 points.

IMM Coating Training Course

Coating Inspector Refresher Course

Code: CIR *HRDF claimable*

Coating Inspector Level 1 or Level 2 has a 5-year certification validity followed by another 5-year re-certification period. As a result, after 10 years, the certification needs to be renewed. Hence, the Refresher Course of IMM Certified Coating Inspector is designed to ensure that the coating inspectors keep their knowledge up-to-date. While many of the inspectors will carry out numerous important inspections in their work, it is very likely they were not re-trained for all the topics covered in Coating Inspector Level 1 or Level 2 course.

Who should apply

For IMM Certified Coating Inspectors Level 1 or Level 2 who are applying for re-certification.

Objective

The objective of this refresher course is to review and revise the topics and to provide up-to-date knowledge and skills required in conducting quality inspections on coatings.

Course topics

- Introduction to corrosion
- Components of paints and paint manufacturing
- Important types of paints and their use
- Surface preparation
- Application and storage of paint
- Paint faults and coating defects
- Tests and measurement instrumentation
- Safety and health
- The Coating Inspector
- Coating project specifications
- New paint technology
- IMM Coating Fingerprint

Course duration

1 day

IMM CPD points

Participants are entitled for 28 IMM CPD points *(7 activity hours x 1 day x 4 weightage factor)*.

Examination

The course participants are not required to sit for any exam but shall be eligible to sit for the IMM Certified Coating Level 1 or Level 2 certification examination.

Candidate's criteria

Candidate shall possess IMM Coating Inspector Level 1 or Level 2.
While this course is not mandatory for those who are being re-certified for the first time, the certified individual is encouraged to attend.
However, this course is mandatory at the expiry of the re-certification period (at the end of the 10th year of certification), for all certified individuals as a pre-requisite for re-certification by IMM.

IMM Coating Training Course

Coating Inspector Refresher Course

Cont'd.

Certificate awarded
Certificate of attendance

Validity period of certificate
1 year

Information on re-certification
The candidate is eligible for re-certification within 1 year of attendance subject to the following conditions being met:

- providing proof to IMM that he/she has been employed in a related profession
- accumulating sufficient CPD points*

The candidate must re-sit the certification examination if he/she has been out of the profession for more than 18 months continuously during the certification/re-certification period.

** The minimum number of CPD Points to be accumulated over a 5-year period shall be 100 points with an annual requirement of at least 10 points.*

IMM Coating Certification Scheme

Certified Coating Quality Control Technician

Code: CQCT *HRDF claimable*

IMM Certified Coating Quality Control Technician (Quality Control and Quality Assurance) course is mainly targeting for candidates on the technician level before they can proceed to the inspector level. Graduate of the program will acquire a Certificate of IMM Certified Coating Quality Control Technician issued by IMM.

This is an intensive training program of basic functions of quality control of surface preparation, coating types & failure and inspection knowledge and criteria.

Exam topics

1. QC vs QA
2. Monitoring environmental conditional
3. Reference standards and codes
4. Pre-cleaning inspection and inspection (tools, method and sequence)
5. Surface preparation
6. Coating materials and handling practices
7. Application procedure
8. Materials traceability
9. Repairs and remedial coating work
10. Documentation and compiling accurate reports
11. Recommendation

Course duration

2 days

IMM CPD points

The candidate is entitled for 56 IMM CPD points if he/she attended the 2-day training course recognized by IMM *(7 activity hours x 2 days x 4 weightage factor)*.

Who should attend

Blasters & Painters Technician and Blasting & Painting Supervisor who wish to upgrade their knowledge and skills to another level of competency

Pre-requisite(s)

No previous experience required.

Certificate awarded

IMM Certified Coating Quality Control Technician

Information on re-certification

6 months prior to expiry of certification (at the end of the 5th year of certification), candidate can apply for re-certification for another 5 years by

- providing proof to IMM that he/she has been employed in a related profession; and
- accumulating sufficient Continuing Professional Development (CPD) points*.

Prior to the expiry of the 5-year re-certification (at the end of the 10th year of certification), candidate can continue to be certified for a further 5-year period by

- providing proof to IMM that he/she has been employed in a related profession;
- accumulating sufficient CPD points*; and
- attending the relevant Refresher Course for certification (if any).

IMM Coating Certification Scheme

Certified Coating Quality Control Technician

Cont'd.

Information on re-certification *(cont'd.)*

The candidate must re-sit the certification examination if he/she has been out of the profession for more than 18 months continuously during the 5-year certification or re-certification period.

*The minimum number of CPD Points to be accumulated over a 5-year period shall be 100 points with an annual requirement of at least 10 points.

IMM Coating Certification Scheme

IMM Certified Thermal Spray Coating Applicator

Code: TSCA *HRDF claimable*

The use of protective coatings for corrosion prevention has grown rapidly during the past decade and thermal spray coating (or "metallizing") represents the significant portion of the growth.

Thermal spray coating (TSC) has been used for steel structures for many years in various industrial applications for corrosion control, wear control, metal body repair, and hard surfacing. In the corrosion industry, TSC has proved performance of over 15 years in harsh corrosive environments. As for engineering application, TSC systems such as metallic coating and ceramic coating are widely used in reclaiming and protecting components in the power, oil & gas, marine and general industries. TSC systems include flame-spray, arc-spray, plasma spray, high-velocity oxygen fuel spray etc.

Exam topics

1. Why and what are thermal spray coatings
2. Types of thermal spray coating systems
3. Application and selection of thermal spray coating systems
4. Case studies
5. Sealer coat and surface preparation

Course duration

4 days

IMM CPD points

The candidate is entitled for 112 IMM CPD points if he/she attended the 4-day training course recognized by IMM *(7 activity hours x 4 days x 4 weightage factor)*.

Who should attend

This course is for those in the field of coating who desire to understand and learn the increasing use of thermal spray coating in the fight against corrosion. It is recommended for graduates of IMM Coating Scheme.

Pre-requisite(s)

No previous working experience required.

Certificate awarded

IMM Certified Thermal Spray Coating Applicator

Information on re-certification

6 months prior to expiry of certification (at the end of the 5th year of certification), candidate can apply for re-certification for another 5 years by

- providing proof to IMM that he/she has been employed in a related profession; and
- accumulating sufficient Continuing Professional Development (CPD) points*.

Prior to the expiry of the 5-year re-certification (at the end of the 10th year of certification), candidate can continue to be certified for a further 5-year period by

- providing proof to IMM that he/she has been employed in a related profession;
- accumulating sufficient CPD points*; and
- attending the relevant Refresher Course for certification (if any).

IMM Coating Certification Scheme

IMM Certified Thermal Spray Coating Applicator

Cont'd.

Information on re-certification *(cont'd.)*

The candidate must re-sit the certification examination if he/she has been out of the profession for more than 18 months continuously during the 5-year certification or re-certification period.

*The minimum number of CPD Points to be accumulated over a 5-year period shall be 100 points with an annual requirement of at least 10 points.

IMM Coating Training Course

Basic Knowledge on Corrosion Protection for Technicians and Engineers Course

Code: CPTE *HRDF claimable*

Today, there is still a lack of knowledge on corrosion protection for many technicians and engineers. The industries need to address this problem urgently to ensure that all facilities to be built will be free from serious corrosion problem in the future and all existing facilities are maintained properly.

Objective

This one-day training aim to provide participants with the much-needed basic knowledge and skills in corrosion protection:

1. What corrosion is and seriousness of corrosion problem.
2. Common mistakes made by designers that will aggravate corrosion problem.
3. The importance of good QA/QC (Role of coating inspector).
4. Corrosion protection by painting.

Course content

1. Introduction to corrosion.
2. How serious is the corrosion problem?
3. Some common mistakes made by designer or engineer who prepared the technical drawings/specifications.
4. Poor QA/QC lead to early corrosion of newly built facilities.
5. Philosophy of maintenance.
6. How long can facilities or structures last with good maintenance?
7. Methods of corrosion protection.
8. Do galvanised & stainless-steel surface need to be protected against corrosion?
9. Corrosion protection by painting:
    - What is paint?
    - The importance of surface preparation.
    - Painting specification and coating selection.
    - Application and storage of paints.
    - Paint faults and coating defects.
    - Test and measuring instruments to be used for QA/QC.
    - Safety and health and the role of a coating inspector.

Course duration

1 day

IMM CPD points

Participants are entitled for 28 IMM CPD points *(7 activity hours x 1 day x 4 weightage factor)*.

Who should attend

Technicians and engineers

Pre-requisite(s)

No previous working experience required.

Certificate awarded

Certificate of attendance

IMM Coating Training Course

Corrosion Control by Protective Coating Course

Code: CCPC *HRDF claimable*

Today, there is still a lack of knowledge on corrosion protection for many technicians and engineers. The industries need to address this problem urgently to ensure that all facilities to be built will be free from serious corrosion problem in the future and all existing facilities are maintained properly.

Objective

This three-day training aim to provide participants with the much-needed basic knowledge and skills in corrosion protection:

1. What corrosion is and seriousness of corrosion problem.
2. Common mistakes made by designers that will aggravate corrosion problem.
3. The importance of good QA/QC (Role of coating inspector).
4. Corrosion protection by painting.

Course content

1. Introduction to corrosion.
2. How serious is the corrosion problem?
3. Some common mistakes made by designer or engineer who prepared the technical drawings/specifications.
4. Poor QA/QC leads to early corrosion of newly built facilities.
5. Philosophy of maintenance.
6. How long can facilities or structures last with good maintenance?
7. Do galvanised & stainless-steel surface need to be protected against corrosion.
8. Methods of corrosion protection.
9. Corrosion protection by painting:
    - What is paint? What is coating?
    - The importance of surface preparation.
    - Paint specification and coating selection.
    - Application and storage of paint.
    - Paint faults and coating defects
    - Test and measuring instruments to be used for QA/QC
    - Safety and health and the role of a Coating Inspector
10. Practical on surface preparation using hand tools, power tools and grit blasting to corroded spots and on mixing of paint and painting of prepared surface of corroded spots and doing stripe coating

Course duration

3 days

IMM CPD points

Participants are entitled for 84 IMM CPD points *(7 activity hours x 3 days x 4 weightage factor)*.

Who should attend

Technicians and engineers

Pre-requisite(s)

No previous working experience required.

Certificate awarded

Certificate of attendance

IMM Coating Training Course

Corrosion Control by Protective Paints Course

Code: CCPP *HRDF claimable*

This two-day course is aimed to provide course participants a firm foundation of the fundamentals of corrosion and how coating when properly applied will ensure efficient and cost-effective protection.

Objectives

- Understand what corrosion and protective coating are
- Accurately determine the extent of corrosion problems
- Evaluate various protective coatings
- Choose the most cost-effective coating system for optimum protection

Course content

- Corrosion fundamentals
- Paint & protective coating
- Surface preparation
- Application of paints
- Coating failure, repair and maintenance

Course duration

2 days

IMM CPD points

Participants are entitled for 56 IMM CPD points *(7 activity hours x 2 days x 4 weightage factor)*.

Who should attend

Managers, engineers, contractors, site supervisor, architects, and technical paints consultants

Pre-requisite(s)

No previous working experience required.

Certificate awarded

Certificate of attendance

COATING FINGERPRINT PROGRAMS

IMM Coating Fingerprint Training Course

Coating Fingerprint Foundation Course

Code: FPF *HRDF claimable*

The paint & coatings and oil & gas industries have initiated the requirement for a polymeric Coating Fingerprint Certificate (similar to a Mill Certificate for metals) to improve quality assurance and quality control. The authentication Fourier Transform Infra-Red (FTIR) analysis has been selected as the appropriate method to provide the requirement, in addition to other physical tests which are regularly conducted by the paint & coating manufacturers, for fingerprinting.

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

- IMM FP01, *Coating Fingerprinting Overall Procedures for Paints Using FTIR and Other Related Methods*
- IMM FP02, *Paint Raw Material Overall Procedures Using FTIR and Other Related Methods*
- IMM FP03, *Dried Coating Fingerprinting Overall Procedures Using FTIR and Other Related Methods*

Who should apply

Anyone interested in the topic and their applications including graduates with bachelor degree through PhD level, researchers, chemists, engineers, physicists, or technicians from academia and industry who work in or are beginning to work in the field. Managers in this industry will greatly benefit from this overview lecture course.

Objectives

This course will equip the trainee with the knowledge and skills in FTIR analysis for authentication of coating fingerprinting, equipment, mechanics of the FTIR testing, appreciation of the strengths and limitations of FTIR method, interpretation & analysis of FTIR results, and exposure to FTIR sample analysis in the classroom.

Course topics

- Coating Fingerprint Certificate
- Sampling standards of materials
- IMM FTIR Analysis Standards for protective coatings
- Basic introduction to FTIR
- Basic application of a FTIR software
- Generation of Reference FTIR spectrum
- Estimation of degree of similarity for samples
- Rejection and acceptance of samples
- Dos and Don'ts in FTIR analysis
- Running samples using ATR accessories
- Interpretation of FTIR test results
- Quality control tools in a FTIR software
- Data analysis using a commercial FTIR software

Course duration

One (1) day

IMM CPD points

Participants are entitled for 28 IMM CPD points *(7 activity hours x 1 day x 4 weightage factor)*.

Exam format

Test of 20 multiple choice questions

IMM Coating Fingerprint Training Course

Coating Fingerprint Foundation Course

Cont'd.

Exam duration
20 minutes or less

Candidate's criteria
No previous working experience required
Minimum academic qualification: SPM, SKM, SVM or equivalent

Certificate awarded
Certificate of attendance

Validity period of certificate
5 years for eligibility to sit for IMM Certified Coating Fingerprint Quality Controller Level 1 certification examination

IMM Coating Fingerprint Certification Scheme

Certified Coating Fingerprint Quality Controller Level 1

Code: FP1 *HRDF claimable*

The oil & gas and petrochemical industries have implemented the requirements for Coating Fingerprint Certificate (equivalent to the Mill Certificate for Metals) for all the protective coatings and paints supplied to the industry operators. As such, paint manufacturers will be required to engage an IMM Certified Coating Fingerprint Quality Controller (FPQC) to conduct FTIR analysis and associated physical tests [*i.e.* the quality control tests (QC)] on paints to produce a Coating Fingerprint Certificate that ensures the batch-to-batch consistency of the paints supplied. An FPQC will be engaged by the (sub-)contractors / auditors / owners to review the Coating Fingerprint Certificate submitted to the job site. An FPQC can be employed to carry out on-site authentication FTIR analysis on paints using mobile or handheld equipment for quality assurance (QA) purpose or in a 3rd-party laboratory to perform QA FTIR analysis.

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

- IMM FP01, *Coating Fingerprinting Overall Procedures for Paints Using FTIR and Other Related Methods*
- IMM FP02, *Paint Raw Material Overall Procedures Using FTIR and Other Related Methods*
- IMM FP03, *Dried Coating Fingerprinting Overall Procedures Using FTIR and Other Related Methods*

Who should apply

This certification scheme is for those who will be involved in conducting quality control and quality assurance on coating/paint systems such as quality assurance managers and supervisors for coating contractors, representatives of coating suppliers, end-client project supervisors and QA/QC personnel, analysts at testing laboratories, coating inspectors, paint factory chemists and assistant chemists, paint QC technicians *etc*. It will also be of interest to estimators, steel fabricators and structural engineers involved in designing or maintaining steel structures.

Objective

The objective of this certification scheme is to assess and certify personnel on the knowledge and skills required in conducting quality control and quality assurance on coating/paint systems. As a result, the Coating Fingerprint Certificate issued by the persons certified as IMM Coating Fingerprint Quality Controller Level 1 will be recognized by both client and contractor.

Exam topics

- Why do we need to fingerprint paints?
- IMM Coating Fingerprint Certification Scheme and the execution of Coating Fingerprint Certificate by paint manufacturer/supplier, fabricator/contractor/sub-contractor, external auditor, end-user and 3rd-party testing laboratory
- Preparation, review and validation of the Coating Fingerprint Certificate and the compulsory & optional appendices
- Basic components of protective coatings (*e.g.* epoxy coatings, inorganic zinc coatings, organic-zinc coatings, polyurethane coatings, acrylic coatings, polyester coatings *etc*.)
- Related physical analyses associated with protective coatings (*e.g.* viscosity, density, color code, non-volatile matter, weight solids for organic/inorganic-zinc coatings *etc*.)
- ISO and ASTM standards on Attenuated Total Reflectance-Fourier Transform Infrared (ATR-FTIR) testing and the fingerprinting regions for different types of protective coatings
- IMM FTIR Analysis Standards for protective coatings
- Users' technical specification on FTIR fingerprinting on coatings
- Sampling standards of materials for in-house and on-site

IMM Coating Fingerprint Certification Scheme

Certified Coating Fingerprint Quality Controller Level 1

Cont'd.

- In-house and on-site FTIR testing for protective coatings
- Basic introduction to FTIR hardware: desktop, mobile and handheld
- Basic application of a FTIR software: desktop, mobile and handheld
- Generation of Reference FTIR spectrum before the qualification for new maintenance painting system and products for offshore application.
- Estimation of degree of similarity for in-house / on-site sample FTIR spectrum with Reference FTIR spectrum
- Rejection and acceptance of samples based on threshold set using different *compare* algorithms
- Dos and don'ts in FTIR analysis: desktop, mobile and handheld
- Running samples using ATR accessories for desktop & mobile; and running samples using handheld device
- Interpretation of FTIR test results: in-house, 3rd-party laboratory and on-site
- Common quality control tools in a FTIR software
- Data analysis using a commercial FTIR software

Exam format

The exam/assessment paper consists of 100 – 120 multiple choice questions

Exam duration

100 min or less

Candidate's criteria

Candidate shall possess the following criteria:

- Has attended the IMM Coating Fingerprint Foundation Course (a 1-day classroom & laboratory course); OR
- Has been certified as IMM Coating Inspector Level 2 or equivalent [*e.g.* Society for Protective Coatings (SSPC) Coating Inspector Level 2, NACE International Coating Inspector Level 2, the British Gas Approved Scheme (BGAS) Coating Inspector Level 2, the Norwegian Professional Council for Education and Certification of Inspectors for Surface Treatment (FROSIO) Coating Inspector Level 2, Institute of Corrosion (ICorr) Coating Inspector Level 2, Association for Certification and Qualification of Anticorrosive Paintwork (ACQPA) Coating Inspector Level 2 *etc*.]

Pre-requisite training

Candidate is required to attend the 2-day IMM Coating Fingerprint Quality Controller Level 1 training course as the training prepares and provides comprehensive guidance and practice to the candidate aligned to the topics covered in the examination.

IMM CPD points

The candidate is entitled for 56 IMM CPD points if he/she attended the 2-day training course recognized by IMM *(7 activity hours x 2 days x 4 weightage factor)*.

Criteria for competency

Successful in the examination with a minimum pass mark of 70%

IMM Coating Fingerprint Certification Scheme

Certified Coating Fingerprint Quality Controller Level 1

Cont'd.

Certificate awarded

IMM Certified Coating Fingerprint Quality Controller Level 1

Candidate will also be authorised to use the Coating Fingerprint Quality Controller Rubber Stamp (Figure 1) in all documents and reports, including the Coating Fingerprint Certificate, in relation to coating fingerprint to any person, company or authority in Malaysia.

Figure 1

Validity period of certificate

5 years

Information on re-certification

6 months prior to expiry of certification (at the end of the 5th year of certification), candidate can apply for re-certification for another 5 years by

- providing proof to IMM that he/she has been employed in a related profession; and
- accumulating sufficient Continuing Professional Development (CPD) points*.

Prior to the expiry of the 5-year re-certification (at the end of the 10th year of certification), candidate can continue to be certified for a further 5-year period by

- providing proof to IMM that he/she has been employed in a related profession;
- accumulating sufficient CPD points*; and
- attending the relevant Refresher Course for certification (if any).

The candidate must re-sit the certification examination if he/she has been out of the profession for more than 18 months continuously during the 5-year certification or re-certification period.

*The minimum number of CPD Points to be accumulated over a 5-year period shall be 100 points with an annual requirement of at least 10 points.

IMM Coating Fingerprint Certification Scheme

Certified Coating Fingerprint Quality Controller Level 2

Code: FP2

The oil & gas and petrochemical industries have implemented the requirements for Coating Fingerprint Certificate (equivalent to the Mill Certificate for Metals) for all the protective coatings and paints supplied to the industry operators. As such, IMM Certified Coating Fingerprint Quality Controllers (FPQC) will be engaged by paint manufacturers, 3rd-party laboratories, (sub-)contractors, auditors and owners to prepare or to review Coating Fingerprint Certificate for quality assurance and quality control (QA & QC) purpose. This certification scheme places special emphasis on generation of a good Reference spectrum for in-house paint manufacturers and 3rd-party laboratories, which is very crucial for subsequent estimation of degree of similarity for batch-to-batch paint consistency. Besides, on-site inspection using mobile or handheld equipment, review of Coating Fingerprint Certificate and cross-checking of raw FTIR spectrum will be highlighted.

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

- IMM FP01, *Coating Fingerprinting Overall Procedures for Paints Using FTIR and Other Related Methods*
- IMM FP02, *Paint Raw Material Overall Procedures Using FTIR and Other Related Methods*
- IMM FP03, *Dried Coating Fingerprinting Overall Procedures Using FTIR and Other Related Methods*

Who should apply

This certification scheme is for those who will be involved in conducting quality assurance or quality control (QA/QC) on paint systems such as quality assurance managers and supervisors for paint contractors, representatives of paint suppliers, end-client project supervisors and QA/QC personnel, analysts at testing laboratories, coating inspectors, paint factory chemists and assistant chemists, paint QC technicians *etc*. It will also be of interest to estimators, steel fabricators and structural engineers involved in designing or maintaining steel structures.

Objective

The objective of this certification scheme is to assess and certify IMM Certified Coating Fingerprint Quality Controllers Level 1 on upgraded knowledge and skills in quality control and quality assurance on coating/paint systems. In addition, the persons certified as IMM Coating Fingerprint Quality Controller Level 2 can continue to issue the Coating Fingerprint Certificate.

Exam topics

- IMM FTIR Analysis Standards for protective coatings
- Good practice for generation of Reference FTIR spectrum before the qualification for new maintenance painting system and products for offshore application.
- Preparation of Coating Fingerprint Certificate: Standard template and customized template
- Good practice for estimation of degree of similarity for in-house / on-site sample FTIR spectrum with Reference FTIR spectrum
- Rejection and acceptance of samples based on threshold set using different *compare* algorithms
- Rejection and acceptance of samples based on threshold set using desktop, mobile and handheld FTIR equipment

Exam format

The exam/assessment paper consists of 50 – 70 multiple choice questions

IMM Coating Fingerprint Certification Scheme

Certified Coating Fingerprint Quality Controller Level 2

Cont'd.

Exam duration
50 min or less

Candidate's criteria
Candidate shall possess valid IMM Certified Coating Fingerprint Quality Controller Level 1 certificate with at least 6-month working experience on coating fingerprint.

Pre-requisite training
Candidate is required to attend the 1-day IMM Coating Fingerprint Quality Controller Level 2 training course as the training prepares and provides comprehensive guidance and practice to the candidate aligned to the topics covered in the examination.

IMM CPD points
The candidate is entitled for 28 IMM CPD points if he/she attended the 1-day training course recognized by IMM *(7 activity hours x 1 day x 4 weightage factor)*.

Criteria for competency
Successful in the examination with a minimum pass mark of 70%

Certificate awarded
IMM Certified Coating Fingerprint Quality Controller Level 2

Candidate will also be authorized to use the Coating Fingerprint Quality Controller Rubber Stamp (Figure 1) in all documents and reports, including the Coating Fingerprint Certificate, in relation to coating fingerprint to any person, company or authority in Malaysia.

Figure 1

Validity period of certificate
5 years

Information on re-certification
6 months prior to expiry of certification (at the end of the 5th year of certification), candidate can apply for re-certification for another 5 years by

- providing proof to IMM that he/she has been employed in a related profession; and
- accumulating sufficient Continuing Professional Development (CPD) points*.

IMM Coating Fingerprint Certification Scheme

Certified Coating Fingerprint Quality Controller Level 2

Cont'd.

Information on re-certification *(cont'd.)*

Prior to the expiry of the 5-year re-certification (at the end of the 10th year of certification), candidate can continue to be certified for a further 5-year period by

- providing proof to IMM that he/she has been employed in a related profession;
- accumulating sufficient CPD points*; and
- attending the relevant Refresher Course for certification (if any).

The candidate must re-sit the certification examination if he/she has been out of the profession for more than 18 months continuously during the 5-year certification or re-certification period.

*The minimum number of CPD Points to be accumulated over a 5-year period shall be 100 points with an annual requirement of at least 10 points.

IMM Coating Fingerprint Training Course

Coating Fingerprint Quality Controller Refresher Course

Code: FPR

Coating Fingerprint Quality Controller Level 1 or Level 2 has a 5-year certification validity followed by another 5-year re-certification period. As a result, after 10 years, the certification needs to be renewed. Hence, the Refresher Course of IMM Certified Coating Fingerprint Quality Controller Level 1 is designed to ensure that the quality controllers keep their knowledge up-to-date. While many of the quality controllers will carry out numerous important tests in their work, it is very likely they will not retrain for all the topics covered in Coating Fingerprint Quality Controller Level 1 or Level 2 course. This refresher course is designed to review and revise the main authentication FTIR analysis.

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

- IMM FP01, *Coating Fingerprinting Overall Procedures for Paints Using FTIR and Other Related Methods*
- IMM FP02, *Paint Raw Material Overall Procedures Using FTIR and Other Related Methods*
- IMM FP03, *Dried Coating Fingerprinting Overall Procedures Using FTIR and Other Related Methods*

Who should apply

IMM Certified Coating Fingerprint Quality Controller Level 1 or Level 2.
Before the end of the 5-year re-certification period, the candidate must sit for the IMM Certified Coating Fingerprint Quality Controller Level 1 or Level 2 certification examination again. Prior to that, the candidate shall attend the Refresher Course for Certified Coating Fingerprint Quality Controller.

Objective

The objective of this refresher course is to review and revise the topics and assess the personnel on the up-to-date knowledge and skills required in conducting quality control and quality assurance on coating/paint systems.

Course topics

- Preparation, review and validation of the Coating Fingerprint Certificate and the compulsory & optional appendices
- IMM FTIR Analysis Standards for protective coatings
- In-house and on-site FTIR testing for protective coatings
- Up-to-date introduction to FTIR hardware and software: desktop, mobile and handheld
- Generation of Reference FTIR spectrum before the qualification for new maintenance painting system and products for offshore application.
- Estimation of degree of similarity for in-house / on-site sample FTIR spectrum with Reference FTIR spectrum
- Rejection and acceptance of samples based on threshold set using different Compare algorithms
- Interpretation of FTIR test results: in-house, 3rd-party laboratory and on-site

Course duration

1 day

IMM CPD points

Participants are entitled for 28 IMM CPD points *(7 activity hours x 1 day x 4 weightage factor)*.

IMM Coating Fingerprint Training Course

Coating Fingerprint Quality Controller Refresher Course

Cont'd.

Examination

The course participants are not required to sit for any exam but shall be eligible to sit for the IMM Certified Coating Fingerprint Quality Controller Level 1 or Level 2 certification examination which will be scheduled at the end of this course.

Candidate's criteria

Candidate shall possess IMM Coating Fingerprint Quality Controller Level 1 or Level 2.

Certificate awarded

Certificate of attendance

Validity period of certificate

The candidate is eligible for re-certification within 1 year of attendance subject to the following conditions being met:

- providing proof to IMM that he/she has been employed in a related profession
- accumulating sufficient CPD points*

The candidate must re-sit the certification examination if he/she has been out of the profession for more than 18 months continuously during the certification/re-certification period.

** The minimum number of CPD Points to be accumulated over a 5-year period shall be 100 points with an annual requirement of at least 10 points.*

IMM Coating Fingerprint Certification Scheme

Certified Coating Fingerprint Trainer

Code: FPT

This is a certification scheme for those who would like to be involved in the training of Coating Fingerprint Quality Controllers for related IMM training/certification programs. Topics include presentation skills, communication skills, and understanding of the subject to be presented. The candidates will be trained on handling quality assurance and quality control aspects of the coating fingerprint tasks since the Coating Fingerprint Quality Controllers are engaged by paint manufacturers, 3rd-party laboratory, (sub-)contractors, auditors and owner for assurance of batch-to-batch paint consistency.

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

- IMM FP01, *Coating Fingerprinting Overall Procedures for Paints Using FTIR and Other Related Methods*
- IMM FP02, *Paint Raw Material Overall Procedures Using FTIR and Other Related Methods*
- IMM FP03, *Dried Coating Fingerprinting Overall Procedures Using FTIR and Other Related Methods*

Who should apply

This certification scheme is for IMM Certified Coating Fingerprint Quality Controller Level 2 who are interested in training candidates for the following courses:

- IMM Coating Fingerprint Foundation Course;
- IMM Certified Coating Fingerprint Quality Controller Level 1;
- IMM Certified Coating Fingerprint Quality Controller Level 2; and
- IMM Coating Fingerprint Quality Controller Refresher Course.

Objective

The objective of this certification scheme is to assess and certify potential trainers on the knowledge and skills required in training persons on coating fingerprint at both foundation and quality controller levels.

Assessment topics

- Role play as trainer for lecture:
  - » non-verbal skills;
  - » verbal and language fluency skills;
  - » presentation content (knowledge and organization); and
  - » handling Q&A session.
- Practical demonstration:
  - » non-verbal skills;
  - » verbal skills;
  - » instrumentation (knowledge and skills); and
  - » handling Q&A session.
- Interview:
  - » knowledge & understanding;
  - » application to practice; and
  - » interpersonal skills.

IMM Coating Fingerprint Certification Scheme

Certified Coating Fingerprint Trainer

Cont'd.

Assessment format & duration

The candidates will be assessed and evaluated by assessor on their techniques in coaching/lecturing, handling practical demonstration and Q&A session on any course of their choice from the following list:

- IMM Coating Fingerprint Foundation Course;
- IMM Certified Coating Fingerprint Quality Controller Level 1; or
- IMM Certified Coating Fingerprint Quality Controller Level 2; or
- IMM Coating Fingerprint Quality Controller Refresher Course

The candidate will then be interviewed on their understanding of the topics taught in the course selected.

Assessment will be based on:

- 30 – 45 min role play as trainer for lecture and handling Q&A session – 25%
- 30 – 45 min practical demonstration – 25%
- 10 – 15 min interview – 50%

Candidate's criteria

Candidate shall possess valid IMM Certified Coating Fingerprint Quality Controller Level 2 certification with at least 6-month working experience on coating fingerprint.

Criteria for competency

Successful in the assessment where the candidate must achieve a minimum pass mark of 70% for each of the components – lecture, practical demonstration and interview.

Certificate awarded

IMM Certified Trainer for

- IMM Coating Fingerprint Foundation Course;
- IMM Certified Coating Fingerprint Quality Controller Level 1; or
- IMM Certified Coating Fingerprint Quality Controller Level 2; or
- IMM Coating Fingerprint Quality Controller Refresher Course

NOTES.

1. The candidate who passes assessment of Foundation can be appointed as examiner/trainer for the foundation course.
2. The candidate who passes assessment of Level 1 can be appointed as examiner/trainer for the foundation and Level 1 courses.
3. The candidate who passes assessment of Level 2 can be appointed as the assessor/examiner/trainer of all the courses under this certification scheme.

Validity period of certificate

5 years

Information on re-certification

6 months prior to expiry of certification (at the end of the 5th year of certification), candidate can apply for re-certification for another 5 years by

- providing proof to IMM that he/she has been employed in a related profession; and
- accumulating sufficient Continuing Professional Development (CPD) points*.

Cont'd.

Prior to the expiry of the 5-year re-certification (at the end of the 10th year of certification), candidate can continue to be certified for a further 5-year period by

- providing proof to IMM that he/she has been employed in a related profession;
- accumulating sufficient CPD points*; and
- attending the relevant Refresher Course for certification (if any).

The candidate must re-sit the certification examination if he/she has been out of the profession for more than 18 months continuously during the 5-year certification or re-certification period.

*The minimum number of CPD Points to be accumulated over a 5-year period shall be 100 points with an annual requirement of at least 10 points.

CORROSION PROGRAMS

IMM Corrosion Certification Scheme

Certified Corrosion Technician Level 1

Code: CT1 *HRDF claimable*

IMM Certified Corrosion Technician Level 1 is a certification scheme for freshly-trained personnel who have undergone training in corrosion monitoring, corrosion inhibition, and cathodic protection. Experienced Corrosion Technicians who have not acquired the IMM Certified Corrosion Technician Level 1 & Level 2 certifications will have to first pass the Level 1 Assessment before being eligible to take the Level 2 Assessment.

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

- ASTM G96-90, *Standard Guide for Online Monitoring of Corrosion in Plant Equipment (Electrical and Electrochemical Methods)*
- ISO-22858, *Corrosion of metals and alloys — Electrochemical measurements — Test method for monitoring atmospheric corrosion*
- ISO-15589-1, *Petroleum, petrochemical and natural gas industries — Cathodic protection of pipeline systems — Part 1: On-land pipelines*
- ISO-15589-2, *Petroleum, petrochemical and natural gas industries — Cathodic protection of pipeline transportation systems — Part 2: Offshore pipelines*
- NACE 3T 199, *Techniques for Monitoring Corrosion and Related Parameters in Field Applications*
- NACE SP0775, *Preparation, Installation, Analysis, and Interpretation of Corrosion Coupons in Oilfield Operations*

Who should apply

This certification scheme is intended for all school-leavers, technicians, scientists, engineers, metallurgists, inspectors and inspection supervisors interested in corrosion monitoring and inspection and who wish to pursue a career as an IMM Certified Corrosion Technician.

Objective

This scheme will enable candidates to be assessed on their understanding of the key-points on corrosion monitoring and process corrosion monitoring; how to retrieve and change-out of coupons and probes; how to carry out measurement and interpretation of corrosion rates; how to use retrieval tools, service valves, back-pressure pumps and surge tubes; how to adopt the cathodic protection monitoring and inspection techniques; how to utilize the corrosion inhibitor monitoring and protective coating surveys.

Exam topics

- Fundamental and forms of corrosion
- Corrosion control techniques
- Glass reinforced polymers and insulation materials
- Coatings-metallic & non-metallic
- Coating application & QC
- Cathodic protection principles
- Corrosion inhibition & preservation
- Corrosion monitoring techniques & scanning verification
- Probes & coupons - what does it monitor
- Equipment set for installation & retrieving
- Safety issues for corrosion technician
- Key points - what does it monitor
- Ultrasonic - effectiveness and usage
- Cathodic protection monitoring systems
- Cathodic protection inspection techniques and surveys

IMM Corrosion Certification Scheme

Certified Corrosion Technician Level 1

Cont'd.

Examination format
Written examination: 100 Multiple Choice Questions (MCQ)

Examination duration
2.5 hours

Candidate's criteria
Candidates should preferably have at least a pass in SPM and 3 months of exposure in corrosion technology.

Pre-requisite training
Candidates are required to attend a 4-day IMM training course (or equivalent such as long-duration corrosion monitoring training programs at vocational training centres or universities exceeding 3 months) which prepares and provides comprehensive guidance and practice aligned to the topics covered in the examination.

IMM CPD points
The candidate is entitled for 112 IMM CPD points if he/she attended the 4-day training course recognized by IMM *(7 activity hours x 4 days x 4 weightage factor)*.

Criteria for certification
Pass the examination with a minimum total mark of 70%

Certificate awarded
IMM Certified Corrosion Technician Level 1

Validity period of certificate
5 years

Information on re-certification
6 months prior to expiry of certification (at the end of the 5th year of certification), candidate can apply for re-certification for another 5 years by

- providing proof to IMM that he/she has been employed in a related profession; and
- accumulating sufficient Continuing Professional Development (CPD) points*.

Prior to the expiry of the 5-year re-certification (at the end of the 10th year of certification), candidate can continue to be certified for a further 5-year period by

- providing proof to IMM that he/she has been employed in a related profession
- accumulating sufficient CPD points*; and
- attending the relevant Refresher Course for certification (if any).

The candidate must re-sit the certification examination if he/she has been out of the profession for more than 18 months continuously during the 5-year certification or re-certification period.

** The minimum number of CPD Points to be accumulated over a 5-year period shall be 100 points with an annual requirement of at least 10 points.*

IMM Corrosion Certification Scheme

Certified Corrosion Technician Level 2

Code: CT2 *HRDF claimable*

IMM Certified Corrosion Technician Level 2 is a certification scheme geared towards personnel involved in corrosion monitoring, corrosion control techniques such as corrosion inhibition and cathodic protection.

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

- ASTM G96-90, *Standard Guide for Online Monitoring of Corrosion in Plant Equipment (Electrical and Electrochemical Methods)*
- ISO-22858, *Corrosion of metals and alloys — Electrochemical measurements — Test method for monitoring atmospheric corrosion*
- ISO-15589-1, *Petroleum, petrochemical and natural gas industries — Cathodic protection of pipeline systems — Part 1: On-land pipelines*
- ISO-15589-2, *Petroleum, petrochemical and natural gas industries — Cathodic protection of pipeline transportation systems — Part 2: Offshore pipelines*
- NACE 3T 199, *Techniques for Monitoring Corrosion and Related Parameters in Field Applications*
- NACE SP0775, *Preparation, Installation, Analysis, and Interpretation of Corrosion Coupons in Oilfield Operations*

Who should apply

This certification scheme is intended for all technicians, engineers, metallurgists, inspectors and inspection supervisors interested in corrosion monitoring and inspection and has been certified with IMM Certified Corrosion Technician Level 1.

Objective

This scheme will enable candidates to be assessed on more advance corrosion reactions in various environments, corrosion management database and how these are related to Asset Integrity and life extension of projects as well as the utilization of corrosion inhibitor monitoring and protective coating surveys.

Exam topics

- Corrosion mechanism and behavior in various environments.
- Site issues during offshore CP, key point and process monitoring surveys.
- Site investigation and rectification of offshore monitoring issues.
- Site issues during onshore CP, key point and process monitoring surveys.
- Site investigation and rectifications of onshore site monitoring issues.
- Site issues with corrosion inhibition and preservation.
- Site investigation and rectification with corrosion inhibition and preservation.
- Site issues and its rectification during manufacture of anodes at the foundry.
- Laboratory corrosion related tests.
- Setting up of a corrosion management database.
- Standard operating procedures for pressurized retrieval and installation of intrusive corrosion monitoring equipment such as probes and coupons.
- Pressurized retrieval and installation of intrusive corrosion monitoring equipment such as probes and coupons.
- Understand the on line non-intrusive corrosion monitoring equipment and its set up
- Health, safety & environment considerations in corrosion monitoring activities

IMM Corrosion Certification Scheme

Certified Corrosion Technician Level 2

Cont'd.

Examination format

Theory: 50 Multiple Choice Questions
Practical Assessment: Hands-on handling of corrosion monitoring equipment and handling of pressurized retrieval tool (on table-top pressurized retrieval unit)

Examination duration

Theory Exam: 2 hours
Practical Assessment: 4 hours

Candidate's criteria

Passed IMM Certified Corrosion Technician Level 1 with a minimum of 3 years field experience

Pre-requisite training

Candidates are required to attend a 4-day IMM training course (or equivalent such as long-duration corrosion monitoring training programs at vocational training centres or universities exceeding 3 months) which prepares and provides comprehensive guidance and practice aligned to the topics covered in the examination.

IMM CPD points

The candidate is entitled for 112 IMM CPD points if he/she attended the 4-day training course recognized by IMM *(7 activity hours x 4 days x 4 weightage factor)*.

Criteria for certification

Pass the examination with a minimum total mark of 70%

Certificate awarded

IMM Certified Corrosion Technician Level 2

Validity period of certificate

5 years

Information on re-certification

6 months prior to expiry of certification (at the end of the 5th year of certification), candidate can apply for re-certification for another 5 years by

- providing proof to IMM that he/she has been employed in a related profession; and
- accumulating sufficient Continuing Professional Development (CPD) points*.

Prior to the expiry of the 5-year re-certification (at the end of the 10th year of certification), candidate can continue to be certified for a further 5-year period by

- providing proof to IMM that he/she has been employed in a related profession
- accumulating sufficient CPD points*; and
- attending the relevant Refresher Course for certification (if any).

The candidate must re-sit the certification examination if he/she has been out of the profession for more than 18 months continuously during the 5-year certification or re-certification period.
** The minimum number of CPD Points to be accumulated over a 5-year period shall be 100 points with an annual requirement of at least 10 points.*

IMM Corrosion Certification Scheme

Certified Cathodic Protection Technician Level 1

Code: CPT1 *HRDF claimable*

This certification scheme covers the technical and practical fundamentals of the theoretical knowledge and practical techniques on cathodic protection. The Cathodic Protection Technician Level 1 certification scheme is established to certify the competency of individuals equipped with the knowledge and skills in cathodic protection, understanding of supervision, installation, testing and commissioning of cathodic protection (CP) systems, have sufficient troubleshooting, inspection and surveying, and data interpretation skills. This Level 1 certified personnel shall assist the Level 2 Certified Cathodic Protection Technician.

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

- ISO-15589-1, *Petroleum, petrochemical and natural gas industries — Cathodic protection of pipeline systems — Part 1: On-land pipelines*
- ISO-15589-2, *Petroleum, petrochemical and natural gas industries — Cathodic protection of pipeline transportation systems — Part 2: Offshore pipelines*
- NACE SP-0169, *Control of External Corrosion on Underground or Submerged Metallic Piping Systems*
- DNV-RP-B401, *Cathodic Protection Design*
- ISO 15257: *Cathodic Protection - Competence Levels of Cathodic Protection Persons - Basis for Certification Scheme*

Who should apply

School-leavers, Technicians, Fresh Graduate Scientists and Engineers having interest or already involved in cathodic protection systems and corrosion management and control, who have undergone sufficient basic training in this field.

Objective

The objective of this certification scheme is to assess and certify potential trainers on the knowledge and skills required in training persons on coating fingerprint at both foundation and quality controller levels.

Exam topics

- Basic corrosion theory
- Fundamentals of cathodic protection
  - » Sacrificial anode cathodic protection system
  - » Impressed current cathodic protection system
  - » CP system for onshore & offshore pipeline
  - » CP system for aboveground tank
  - » CP system for underground tank
  - » CP system for offshore jacket
  - » CP system for jetty
  - » CP system for steel rebar in concrete
- Installation of cathodic protection system
- Field measurement
- Special CP and corrosion survey
- Troubleshooting of cathodic protection system
- Quality assurance and quality control
- Record keeping
- Safety
- Introduction to CP interference

IMM Corrosion Certification Scheme

Certified Cathodic Protection Technician Level 1

Cont'd.

Examination format

Written examination: Section A - 50 Multiple Choice Questions (MCQ).
Section B - 50 True or False Questions (TFQ)

Examination duration

Section A – 2 hours
Section B – 1 hour

Candidate's criteria

Candidates should preferably have at least a pass in SPM or equivalent and 3 months of exposure in cathodic protection technology.

Pre-requisite training

Candidates are required to attend a 3-day IMM training course (or equivalent such as long-duration cathodic protection training programs at vocational training centres or universities exceeding 3 months) which prepares and provides comprehensive guidance and practice aligned to the topics covered in the examination.

IMM CPD points

The candidate is entitled for 84 IMM CPD points if he/she attended the 3-day training course recognized by IMM *(7 activity hours x 3 days x 4 weightage factor)*.

Criteria for certification

Pass the examination with a minimum total mark of 70%

Certificate awarded

IMM Certified Cathodic Protection Technician Level 1

Validity period of certificate

5 years

Information on re-certification

6 months prior to expiry of certification (at the end of the 5th year of certification), candidate can apply for re-certification for another 5 years by

- providing proof to IMM that he/she has been employed in a related profession; and
- accumulating sufficient Continuing Professional Development (CPD) points*.

Prior to the expiry of the 5-year re-certification (at the end of the 10th year of certification), candidate can continue to be certified for a further 5-year period by

- providing proof to IMM that he/she has been employed in a related profession
- accumulating sufficient CPD points*; and
- attending the relevant Refresher Course for certification (if any).

The candidate must re-sit the certification examination if he/she has been out of the profession for more than 18 months continuously during the 5-year certification or re-certification period.

** The minimum number of CPD Points to be accumulated over a 5-year period shall be 100 points with an annual requirement of at least 10 points.*

IMM Corrosion Certification Scheme

Certified Cathodic Protection Technician Level 2

Code: CPT2 *HRDF claimable*

This certification scheme covers more advanced theoretical knowledge and practical techniques on cathodic protection compared to the Cathodic Protection Level 1 certification. The Cathodic Protection Technician Level 2 certification scheme will equip the Level 1 technician with the knowledge and skills in preparing technical reports in cathodic protection in addition to further understanding of CP installations, trouble-shooting, testing & commissioning, and data interpretation skills.

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

- ISO-15589-1, *Petroleum, petrochemical and natural gas industries — Cathodic protection of pipeline systems — Part 1: On-land pipelines*
- ISO-15589-2, *Petroleum, petrochemical and natural gas industries — Cathodic protection of pipeline transportation systems — Part 2: Offshore pipelines*
- NACE SP-0169, *Control of External Corrosion on Underground or Submerged Metallic Piping Systems*
- DNV-RP-B401, *Cathodic Protection Design*
- ISO 15257: *Cathodic Protection - Competence Levels of Cathodic Protection Persons - Basis for Certification Scheme*

Who should apply

Technicians, Scientists, Engineers, or any personnel with related work experience and/or has been certified with IMM Certified Cathodic Protection Technician Level 1 certification.

Objective

This exam is designed to assess the knowledge and skills of IMM Certified Cathodic Protection Technician Level 1 certificate holders on more detailed knowledge of CP systems, electrical measurements, available pipeline survey techniques as well as operation, maintenance and troubleshooting.

Exam topics

- Corrosion fundamental
- Principal of cathodic protection
- Electrical measurements
- Stray current
- Pipeline survey techniques
- Cathodic protection systems
- Operation, maintenance and trouble shootings

Examination format

Theory exam: 50 Multiple Choice Questions
Practical Assessment: Hands-on handling of Cathodic Protection testing and surveying equipment.

Examination duration

Theory Exam: 2 hours
Practical Assessment: 4 hours

IMM Corrosion Certification Scheme

Certified Cathodic Protection Technician Level 2

Cont'd.

Candidate's criteria

- 5 years working experience in Cathodic Protection field without IMM Level 1 Cathodic Protection Technician certificate; or
- IMM Certified Cathodic Protection Technician Level 1 with minimum 1 year of working experience in related field

Pre-requisite training

Candidates are required to attend a 4-day IMM Certified Cathodic Protection Technician Level 2 course (or equivalent such as long-duration cathodic protection training programs at vocational training centres or universities exceeding 3 months) which prepares and provides guidance and practice aligned to the topics covered in the examination.

IMM CPD points

The candidate is entitled for 112 IMM CPD points if he/she attended the 4-day training course recognized by IMM *(7 activity hours x 4 days x 4 weightage factor)*.

Criteria for certification

Pass certification exam with minimum 70% marks for each paper (MCQs and Practical)

Certificate awarded

IMM Certified Cathodic Protection Technician Level 2

Validity period of certificate

5 years

Information on re-certification

6 months prior to expiry of certification (at the end of the 5th year of certification), candidate can apply for re-certification for another 5 years by

- providing proof to IMM that he/she has been employed in a related profession; and
- accumulating sufficient Continuing Professional Development (CPD) points*.

Prior to the expiry of the 5-year re-certification (at the end of the 10th year of certification), candidate can continue to be certified for a further 5-year period by

- providing proof to IMM that he/she has been employed in a related profession
- accumulating sufficient CPD points*; and
- attending the relevant Refresher Course for certification (if any).

The candidate must re-sit the certification examination if he/she has been out of the profession for more than 18 months continuously during the 5-year certification or re-certification period.

** The minimum number of CPD Points to be accumulated over a 5-year period shall be 100 points with an annual requirement of at least 10 points.*

IMM Corrosion Certification Scheme

Certified Cathodic Protection Engineer

Code: CPE *HRDF claimable*

This certification scheme involves a 4-day training course consisting of lectures, classroom practical, case studies and knowledge assessment. It aims to train participants in the understanding of cathodic protection (CP) principles, to be capable to go to field, accomplish periodical survey, have sufficient troubleshooting skills to handle problems within a CP system.

Exam Topics

1. Cathodic protection fundamentals
2. Field measurements
3. Stray current identification
4. Installing cathodic protection components
5. Troubleshooting basic design of cathodic protection system
6. Properties and application of sacrificial anodes & impressed current anode & equipment
7. CP instrumentation & their applications
8. Soil rusticity measurements, pipe & cable locating & current requirement testing
9. CP potential measurement including close interval potential survey (CIPS)
10. Data logging, mapping with GPS & coating defect survey (DCVG/Pearson)
11. Quality assurance & quality control
12. Field testing
13. Record keeping

Course duration

4 days

IMM CPD points

The candidate is entitled for 112 IMM CPD points if he/she attended the 4-day training course recognized by IMM *(7 activity hours x 4 days x 4 weightage factor)*.

Who should attend

Cathodic protection technician, corrosion engineers, managers and all involved in the maintenance, design and
specifications

Pre-requisite(s)

No previous working experience needed.

Certificate awarded

IMM Certified Cathodic Protection Engineer

Information on re-certification

6 months prior to expiry of certification (at the end of the 5th year of certification), candidate can apply for re-certification for another 5 years by

- providing proof to IMM that he/she has been employed in a related profession; and
- accumulating sufficient Continuing Professional Development (CPD) points*.

Prior to the expiry of the 5-year re-certification (at the end of the 10th year of certification), candidate can continue to be certified for a further 5-year period by

- providing proof to IMM that he/she has been employed in a related profession;
- accumulating sufficient CPD points*; and
- attending the relevant Refresher Course for certification (if any).

IMM Corrosion Certification Scheme

Certified Cathodic Protection Engineer

Cont'd.

Information on re-certification *(cont'd.)*

The candidate must re-sit the certification examination if he/she has been out of the profession for more than 18 months continuously during the 5-year certification or re-certification period.

*The minimum number of CPD Points to be accumulated over a 5-year period shall be 100 points with an annual requirement of at least 10 points.

IMM Corrosion Training Course

Corrosion Control by Cathodic Protection Course

Code: CCCP *HRDF claimable*

This is a 2-day course consisting of lectures, classroom practical, case studies and knowledge assessment. It aims to train participants in the understanding of cathodic protection (CP) principles, to be capable to go to the field, accomplish periodical surveys, and have sufficient trouble-shooting skills to handle problems within a CP system.

Course content

1. Introduction to corrosion process
2. The principle of cathodic protection
3. Type of cathodic protection
4. Measurement and monitoring techniques
5. Criteria of cathodic protection
6. Case studies

Course duration

2 days

IMM CPD points

Participants are entitled for 56 IMM CPD points *(7 activity hours x 2 days x 4 weightage factor)*.

Who should attend

Managers, engineers, contractors, site supervisors, specifiers and corrosion consultant. It is recommended for graduates of IMM corrosion and coating certification schemes.

Pre-requisite(s)

No previous working experience needed.

Certificate awarded

Certificate of attendance

MATERIALS PROGRAMS

IMM Materials Training Course

Materials Selection & Corrosion Course

Code: MSC *HRDF claimable*

1. This two-day course aims to equip participants with the knowledge and skills to carry out materials selection and corrosion studies for industrial applications.
2. The course has a focus on the selection and performance of metallic materials within the oil and gas sector.
3. Instruction will be given by lectures, interactive discussion, case studies and software demonstration (time permitting).

Objectives

1. To develop a working knowledge of the materials selection process
2. To identify corrosion and other risks to materials within the specific service environment
3. To evaluate the mitigation options and see how they can be used to expand the range of materials which can be selected

Course content

1. The materials selection process standards used in the oil and gas sector
2. Corrosion and degradation of materials
3. Corrosion modeling
4. Life cycle costing
5. Corrosion mitigation and control

Course duration

2 days

IMM CPD points

Participants are entitled for 56 IMM CPD points *(7 activity hours x 2 days x 4 weightage factor)*.

Who should attend

1. Engineers involved in projects which involve materials selection or corrosion
2. Materials engineers, managers who want to gain an overview of the materials selection and corrosion issues
3. Integrity Engineers
4. Maintenance Engineers

Pre-requisite(s)

No previous working experience required.

Certificate awarded

Certificate of attendance

IMM Materials Training Course

Metallurgical Failure Investigation Course

Code: MFI *HRDF claimable*

1. This two-day course aims to equip participants with a broad background knowledge of failure investigation techniques and procedures
2. The course has an emphasis on metallic materials but in varied industries, e.g. oil & gas, aerospace and railways, so participants and can leverage on parallels
3. Instruction will be given by lectures, interactive discussion, case studies and practical demonstration

Objectives

1. To have an overall view of the techniques and procedures involved in failure investigation
2. To understand site preparation, on-site metallography and sample extraction
3. To illustrate methodologies for analysis of data
4. To identify different failure modes

Course content

1. The standard procedures of an investigation
2. The modes of failure including; the four fracture modes e.g. Dimple Rupture, cleavage, fatigue and cohesiveness rupture and their various mechanisms, corrosion, environmentally assisted cracking, e.g. chloride stress corrosion cracking, nonsensitive, hydrogen embitterment
3. Methodologies of data analysis
4. Case studies
5. On-site metallography and replication

Course duration

2 days

IMM CPD points

Participants are entitled for 56 IMM CPD points *(7 activity hours x 2 days x 4 weightage factor)*.

Who should attend

Engineers from all industries particularly oil & gas, aerospace and railways; material scientists and engineers project engineers and asset integrity engineers.

Pre-requisite(s)

No previous working experience required.

Certificate awarded

Certificate of attendance

IMM Materials Training Course

Basic Course on Operation of Mobile Air Compressor

Code: OMAC *HRDF claimable*

Mobile air compressors are commonly used for maintenance/construction work in oil and gas facilities/site. There is still a lack of knowledge on the safe operation and maintenance of diesel powered air compressor for many Work Leaders, technicians and engineers. The industries need to address this problem urgently to ensure that all mobile air compressors are operated safely and maintained properly to avoid unnecessary downtime due to breakdown of mobile air compressor.

Objectives

This one-day training aims to provide participants with the much needed basic knowledge and skills in the safe operation and maintenance of diesel powered mobile air compressor.

Course content

1. Introduction to basic parts and safety features of diesel powered mobile air compressor.
2. Basic steps in operation of a typical diesel powered air compressor.
3. Duty of a fire watcher (compressor operator).
4. Maintenance of diesel powered air compressor.
5. Procedures required in operating of diesel powered air compressor in oil and gas facilities/site.

Course duration

1 day (i.e. theory – half day, practical – half day)

IMM CPD points

Participants are entitled for 28 IMM CPD points *(7 activity hours x 1 day x 4 weightage factor)*.

Who should attend

Work Leaders, technicians and engineers.

Pre-requisite(s)

No previous working experience required.

Certificate awarded

Certificate of attendance

MECHANICAL JOINT INTEGRITY PROGRAMS

IMM Mechanical Joint Integrity Certification Scheme

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

Code: MJI-SBV

This certification scheme 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 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, Tubings and Valves.

Who should apply

This certification scheme is for those who are in the key roles of installation, assembly and dis-assembly, maintenance and repair, operations and inspection of valve packing and small-bore piping / tubings, such as: -

- Instrument technicians/fitters
- 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

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, tubings 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.

Exam 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 workpack if there is no workpack 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, tubings, fittings, small-bore piping and threaded connections

IMM Mechanical Joint Integrity Certification Scheme

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

Cont'd.

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

Exam format

The exam/assessment consist of the following format:

(a) Examination paper – to complete answering the 25 to 35 multi-choice questions within 45 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

Exam duration

1 day

Candidate's criteria

This certification is for those who have to execute installation, assembly and dis-assembly, maintenance and repair, operations and inspection of valves, packing, tubings, compression fittings, small-bore piping and threaded
connections, such as:

- Instrument technicians/fitters
- 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

Minimum candidate criteria:

- Minimum 5 years working experience at site (offshore or for onshore plant/construction site) in the instrument and process control discipline, hook-up and construction, and maintenance works
- Have used tube benders, cutters and gap inspection gauge
- Fit-for work for offshore or for onshore plant/construction site
- Able to read and understand in English

IMM Mechanical Joint Integrity Certification Scheme

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

Cont'd.

Course duration

There is no mandatory pre-requisite training for this certification program.
However, the candidate is strongly encouraged to also attend the 3-day MJI-SBV training as the training prepares and provide comprehensive guidance and practice to the candidate in depth for the examination and hands-on practical assessments on valves, packing, tubings, compression fittings, small-bore piping and threaded connections.

IMM CPD points

The candidate is entitled for 84 IMM CPD points if he/she attended the 3-day training course recognized by IMM *(7 activity hours x 3 days x 4 weightage factor)*.

Criteria for competency

Successful in all of the following 4 parts:
(a) Examination paper – achieve minimum 60% mark, paper to be marked by the assessor
(b) Practical (hands-on) assessment 1 – Passed as competent by the assessor
(c) Practical (hands-on) assessment 2 – Passed as competent by the assessor

Certificate awarded

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

Validity period of certificate

5 years

Information on re-certification

6 months prior to expiry of certification (at the end of the 5th year of certification), candidate can apply for re-certification for another 3 years by

- sitting for an examination paper;
- providing proof to IMM that he/she has been handling or using tube benders, cutters and gap inspection gauge, as well as hooking up tubing/impulse lines and installing field instruments (testify by project manager or human resource/training/ learning manager of the candidate) for at least 1,000 workhours in the last 5 years*; and
- accumulating sufficient Continuing Professional Development (CPD) points**.

Prior to the expiry of the 3-year re-certification (at the end of the 8th year of certification), candidate can continue to be certified for a further 3-year period by

- going through the full examination (written paper and practical hands-on); and
- accumulating sufficient CPD points**.

The candidate must re-sit the certification examination if he/she has been out of the profession for more than 18 months continuously during the 3-year certification or re-certification period.

* *If the candidate failed to provide proof, he/she will be required to undergo a practical hands-on examination.*
** *The minimum number of CPD Points to be accumulated over a 5-year period shall be 100 points with an annual requirement of at least 10 points.*

IMM Mechanical Joint Integrity Certification Scheme

Certified Technician in Mechanical Joint Integrity for Flange Bolted Connections

Code: MJI-FL

This certification scheme is designed to equip workers with knowledge concerning typical flange/clamp bolted connections, covering supplementary health, safety and environment, fundamental theoretical knowledge, assembly and reinstatement, post assembly checking/testing, and periodic inspection. It covers both theoretical knowledge and hands-on skills relevant to LOPC prevention and repair in flanged bolted connections. It provides the theoretical basis and practical competencies required by a worker to sit for assessment so as to be a certified competent technician in Mechanical Joint Integrity (MJI) for Flange Bolted Connections.

Who should apply

This scheme is for those who have to execute installation, assembly and dis-assembly, maintenance and repair, operations, works supervision and inspection of flange/clamp bolted connections, such as:

- Frontline flange assemblers (for pressure vessels, process equipment, plant piping and pipeline)
- Fitters/riggers
- Site team leaders
- Quality and inspection personnel
- Construction superintendent
- Construction supervisors

Objectives

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

Exam topics

Supplementary health, safety and environmental knowledge when carrying out the works. Grounding knowledge required to carry out the works, covering flanges, gaskets, bolts, torqueing, inspection aspects, testing aspects, manual torque wrench hydraulic torque wrench, clamp connector

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 drawings
- Preparing a simple workpack if there is no workpack provided for the works
- Reading and selecting correct torque value from a torque table
- Disassembly
- Inspection of the tools, flanges, bolts, gaskets, lubricants used
- Assembly and post-assembly inspection and testing
- Periodic inspection

IMM Mechanical Joint Integrity Certification Scheme

Certified Technician in Mechanical Joint Integrity for Flange Bolted Connections

Cont'd.

Exam format

The exam/assessment consist of the following format:

(a) Examination paper – to complete answering the 25 to 35 multi-choice questions within 45 minutes

(b) Practical (hands-on) assessment 1 – using a manual torque wrench, including inspection, set-up, using torquentable, checking the validity of the calibration certificate, setting the wrench, actual disassembly, assembly, post-assembly inspection and testing.

(c) Practical (hands-on) assessment 2 – using a pneumatic-powered hydraulic torque wrench, including inspection, set-up, using torque table, checking the validity of the calibration certificate, setting the wrench, actual disassembly, assembly, post-assembly inspection and testing.

(d) Practical (hands-on) assessment 3 – using a clamp connector (e.g. Grayloc), including inspection, set-up, referring to the manufacturer's instructions, setting the wrench, actual disassembly, assembly, post-assembly inspection and testing.

Exam duration

1 day

Candidate's criteria

This certification is for those who have to execute installation, assembly and dis-assembly, maintenance and repair, operations and inspection of flange/clamp bolted connections, such as:

- Frontline flange assemblers for pipeline, pipework and process equipment, pressure vessels, towers, rotating machinery
- Fitters/riggers for piping or pipeline
- Mechanical technicians
- Maintenance and construction team leaders, supervisors
- Quality inspection personnel

Minimum candidate criteria:

- Minimum 5 years working experience at site (offshore or for onshore plant/construction site)
- Have used manual torque wrench or supervised workers using manual torque wrench and hydraulic torque wrench for flange bolted connections
- Fit-for work for offshore or for onshore plant/construction site
- Able to read and understand in English

Course duration

There is no mandatory pre-requisite training for this certification program.

However, the candidate is strongly encouraged to also attend the 3-day MJI-FL training as the training prepares and provide comprehensive guidance and practice to the candidate in depth for the examination and hands-on practical assessments on flange bolted connections, manual and hydraulic torque wrenches as well as clamp/hub connectors.

IMM Mechanical Joint Integrity Certification Scheme

Certified Technician in Mechanical Joint Integrity for Flange Bolted Connections

Cont'd.

IMM CPD points

The candidate is entitled for 84 IMM CPD points if he/she attended the 3-day training course recognized by IMM *(7 activity hours x 3 days x 4 weightage factor)*.

Criteria for competency

Successful in all of the following 4 parts:

(b) Examination paper – achieve minimum 60% mark, paper to be marked by the assessor
(c) Practical (hands-on) assessment 1 – Passed as competent by the assessor
(d) Practical (hands-on) assessment 2 – Passed as competent by the assessor
(e) Practical (hands-on) assessment 3 – Passed as competent by the assessor

Certificate awarded

IMM Certified Technician in Mechanical Joint Integrity (MJI) for Flange Bolted Connections

Validity period of certificate

5 years

Information on re-certification

6 months prior to expiry of certification (at the end of the 5th year of certification), candidate can apply for re-certification for another 3 years by

- sitting for an examination paper;
- providing proof to IMM that he/she has been handling hands-on the manual torque wrench as well as the hydraulic torque wrench (testify by project manager or human resource/training/ learning manager of the candidate) for at least 1,000 workhours in the last 5 years*; and
- accumulating sufficient Continuing Professional Development (CPD) points**.

Prior to the expiry of the 3-year re-certification (at the end of the 8th year of certification), candidate can continue to be certified for a further 3-year period by

- going through the full examination (written paper and practical hands-on); and
- accumulating sufficient CPD points**.

The candidate must re-sit the certification examination if he/she has been out of the profession for more than 18 months continuously during the 3-year certification or re-certification period.

* *If the candidate failed to provide proof, he/she will be required to undergo a practical hands-on examination.*

** *The minimum number of CPD Points to be accumulated over a 5-year period shall be 100 points with an annual requirement of at least 10 points.*

IMM Mechanical Joint Integrity Training Course

Valve Operations, Maintenance and Inspection Including Flange Breaking Course

Code: VOMI

To develop the skills and knowledge necessary for various valves includes; Glove Valves, Gate Valves, Check Valves, Safety Valves, identifications, installation, selection, maintenance and testing.

Objectives

- Identify the type of valves used in the process and their functions.
- Understand the valve design and the material use for the correct applications.
- Understand the valves parts and how it works
- Identify causes of and failures and reasons
- Understand and develop skill on valve seat lapping

Course contents

- Type and function of valve
- Fastening devices
- Flanges
- Gasket
- Spiral would
- Non-metallic
- Re-assembly of valve
- Installation of valve to elevated location
- Pressurize system
- Hydrostatic test
- Dismantling of valve
- Testing procedure

Course duration

3 days

IMM CPD points

Participants are entitled for 84 IMM CPD points *(7 activity hours x 3 days x 4 weightage factor)*.

Who should attend

Engineers, Supervisors and Inspectors

Certificate awarded

Certificate of attendance

ROTATING EQUIPMENT PROGRAMS

IMM Rotating Equipment Training Course

Competent Mobile Industrial Compressor Operator Course

Code: MICO *HRDF claimable*

Mobile air compressors are commonly used for maintenance/construction work in oil and gas facilities/site. There is still a lack of knowledge on the safe operation and maintenance of diesel-powered air compressor for many Work Leaders, technicians and engineers. The industries need to address this problem urgently to ensure that all mobile air compressors are operated safely and maintained properly to avoid unnecessary downtime due to breakdown of mobile air compressor.

Objectives

The aims of the IMM MICO - Competent Mobile Industrial Compressor Operator are to ensure that all site personnel that operates a mobile industrial compressor have reached a recognised level of operational knowledge and awareness and to enable them to work on site more efficiently and productively. It is also to ensure to validate existing skills of workers and is an alternative method of affirmation. This one-day training aim to provide participants with the much-needed basic knowledge and skills in the safe operation and maintenance of diesel-powered mobile air compressor.

Course contents

- Introduction to basic parts and safety features of diesel-powered mobile air compressor
- Basic steps in operation of a typical diesel- powered air compressor
- Start system and fuel system
- Engine condition (oil leak) and engine cut off
- shutdown device
- Guard (rotating parts), spark arrestor & exhaust systems
- Pressure relief valve and pressure gauge fitting, couplings, hoses and air vessel condition
- Maintenance's logs
- Lifting pad eyes / tyre condition and earthing / grounding conditions
- Basic maintenance of diesel-powered air compressor
- Procedures required in operating of diesel- powered air compressor in oil and gas facilities / site
- Inspect for frequently found defects in hose, Chicago coupling (quick release and threaded)
- Inspect air filter and needle gun / power brush / Bristle brush / Monti brush

Course duration

1 day

IMM CPD points

Participants are entitled for 28 IMM CPD points *(7 activity hours x 1 day x 4 weightage factor)*.

Who should attend

Work Leaders, Technicians and Engineers

Certificate awarded

Certificate of attendance

IMM Rotating Equipment Training Course

Competent Mobile Industrial Equipment Inspector Course

Code: MIEI *HRDF claimable*

Mobile air compressors are commonly used for maintenance/construction work in oil and gas facilities/site. There is still a lack of knowledge on the safe operation and maintenance of diesel-powered air compressor for many work leaders, technicians and engineers. The industries need to address this problem urgently to ensure that all mobile air compressors are operated safely and maintained properly to avoid unnecessary downtime due to breakdown of mobile air compressor.

Objectives

The aims of the IMM MIEI - Competent Mobile Industrial Equipment Inspector are to ensure that all site personnel that operates mobile industrial equipment have reached a recognised level of operational knowledge and awareness and to enable them to work on site more efficiently and productively. It is also to ensure to validate existing skills of workers and is an alternative method of affirmation. This two-day training aim to provide participants with the much needed basic knowledge and skills in the safe operation and maintenance of several selected frequently used industrial mobile equipment.

Course contents

- Compressor
- Portable pump
- Portable welding set
- Centrifugal pump (engine driven)
- Paint spraying equipment
- Grit blasting equipment
- High pressure water/steam cleaner

Course duration

2 days

IMM CPD points

Participants are entitled for 56 IMM CPD points *(7 activity hours x 2 days x 4 weightage factor)*.

Who should attend

Work leaders, technicians and engineers

Certificate awarded

Certificate of attendance

IMM Rotating Equipment Training Course

Practical Approach to Inspection and Maintenance of Stream Turbine Course

Code: IMST *HRDF claimable*

Proper understanding on the design, operation and maintenance aspects of steam turbines and auxiliaries play an important role in ensuring the success of operating the mentioned machines. Misinterpretation on the inspection or the maintenance procedures will result in bigger damage to its integrated system. Repair or replacement of this equipment is expensive and loss of revenue while machinery is down can spell the difference between continued prosperity or financial disaster. Thus, it is vital for managers, engineers, foreman and trade personnel to equip themselves with sufficient practical understanding of steam turbines and auxiliaries and practising the correct inspection and maintenance methodology adopted worldwide.

Objectives

- To provide participants with practical knowledge of the inspection and maintenance matters related to steam turbines.
- To expose and guide the participants on step-to- step procedure of inspection and maintenance of steam turbines
- To provide participants with knowledge in the latest state of art technology, skills and experience in solving steam turbine problems, both maintenance and inspection.

Course contents

- Basic theory of steam turbine Types of steam turbine Steam turbine blading concept
- Construction and function of major turbine parts associate system
- Governing and control system of steam turbine rotor dynamic behaviour of machinery inspection technique
- Preventive and corrective maintenance
- Breakdown/overhaul maintenance disassembling/assembling activities clearance check/reading Inspection of part (PT/MT) precision alignment

Course duration

4 days

IMM CPD points

Participants are entitled for 112 IMM CPD points *(7 activity hours x 4 days x 4 weightage factor)*.

Who should attend

Engineers, supervisors, operators and senior technician

Certificate awarded

Certificate of attendance

IMM Rotating Equipment Training Course

Practical Approach to Precision Alignment Methods Course

Code: PAM *HRDF claimable*

Misalignment is one of the leading causes of damage to bearings, seals, coupling and other component inside the rotating equipment. Based on record given by rotating equipment experts, a substantial amount of machinery problems is due to misaligned shaft. Machinery that is forced to shut down due to this problem can contribute to loss of extensive revenue and damages that required repair or replacement of internal parts which is extremely expensive. A well-aligned shaft prevents excessive loading of bearings and avoid fatigue failure. Thus, increasing the useful life of machinery. The ultimate aim shall be that the participants are able to practically and confidently carry out the alignment task in the fields.

Objectives

- To provide participants with practical knowledge of accurately align any type of rotating machines in a variety of different ways
- To pose a step-to-step procedure in executing the alignment
- To familiarise and educate participants in using different alignment methods namely Conventional methods (rim & face method, reverse dial indicator methods) and precision laser alignment method
- To assess the experienced craftsmen on their capability and exposure of the latest technology available
- The ultimate aim shall be that the participants are able to practically and confidently carry out the alignment task in the fields

Course contents

- Definition
- Precision alignment check & corrective methods
- Alignment kits/training kits
- Application of laser alignment system
- Alignment consideration for specific of machine & conditions

Course duration

3 days

IMM CPD points

Participants are entitled for 84 IMM CPD points *(7 activity hours x 3 days x 4 weightage factor)*.

Who should attend

Engineer, maintenance and technical support personnel, personnel who direct activities related to alignment and machine reliability, and management personnel whose involve alignment of rotating machinery.

Certificate awarded

Certificate of attendance

IMM Rotating Equipment Training Course

Practical Approach to Precision Balancing Methods Course

Code: PBM *HRDF claimable*

Unbalance is one of the most common cause of machinery vibration and is present to some degree in all machines. Unbalance cause vibration of the entire rotor assembly which is thru, causes excessive wear in bearings, bushing, seals, shafts, gears, couplings etc. Thus, understanding the correct way to counter this unbalance force is important to reduce the unbalance to acceptable limits and improve the overall performance of the machine.

Objectives

- To provide participants with practical knowledge of the unbalance problems in machinery.
- To expose and guide the participants on step- to-step procedure of carrying out unbalance rectification and correction.
- To provide participants with knowledge in the latest state of art technology, skills and experience in solving unbalance problems.

Course contents

- Principle of vibration
- Data acquisition
- Signal processing
- Condition monitoring
- Fault analysis & correct action equipment testing & diagnostics
- Reference standards reporting & documentations fault serenity determination rotor/bearing dynamics

Course duration

3 days

IMM CPD points

Participants are entitled for 84 IMM CPD points *(7 activity hours x 3 days x 4 weightage factor)*.

Who should attend

Engineers, supervisors and senior inspectors

Certificate awarded

Certificate of attendance

IMM Rotating Equipment Training Course

Reciprocating Compressors: Operations, Maintenance, Inspection and Troubleshooting

Code: RCOM *HRDF claimable*

Most process plants will require compressing process where compressors are installed to play this role. Reciprocating compressors are normally classified as critical equipment to these process plants, thus is important to acquire the knowledge related to the operation and maintenance of reciprocating compressors to ensure smooth running and avoid unnecessary production loss due to failure of reciprocating compressor operation.

Objectives

- To provide a strong fundamental and practical knowledge of reciprocating compressors of its major parts and its operational aspects.
- To understand how to carry out maintenance and inspection of reciprocating compressor in the industry.
- To understand troubleshooting techniques for typical problems related to reciprocating compressors.

Course contents

- Fundamental of reciprocating compressor
- Major components of reciprocating compressors
- Auxiliaries
- Comparison of pulsation suppression devices
- Inspection & maintenance of reciprocating compressors
- Continue of overhaul activities
- Troubleshooting techniques on typical problems

Course duration

3 days

IMM CPD points

Participants are entitled for 84 IMM CPD points *(7 activity hours x 3 days x 4 weightage factor)*.

Who should attend

Engineers, supervisors and inspectors

Certificate awarded

Certificate of attendance

IMM Rotating Equipment Training Course

Troubleshooting Techniques for Rotating Equipment Course

Code: TRE *HRDF claimable*

Rotating equipment like turbines, compressors, turboexpanders etc. are very important equipment to any process plants. Normally, there are a lot of machinery problems associate to this equipment such as misalignment unbalance, fluid induces instability etc. which will interrupt the smooth running and effect its efficiency, thus interrupting the production of the plant. There are various established techniques to troubleshoot this machinery problem which are accepted and established internationally and understanding and mastering such knowledge and skills will be of extreme benefits to the operating plants in ensuring a continuous flow of production by minimizing downtime upon knowing the actual problems of the respective machines. At such, this course is tailored to educate the participants on these internationally accepted troubleshooting techniques.

Objectives

- To educate participants with the latest internationally accepted techniques to troubleshoot rotating equipment problem.
- To familiarize participants with the variety of troubleshooting techniques with hands-on practical exercises.

Course contents

- Maintenance philosophies
- Troubleshooting techniques
- Infrared thermography (basic)
- What is vibration
- Vibration detection devices
- Find the root cause of vibration problems
- Simulating vibration source and analysis
- Electrical motor analysis & practical
- Lubrication fundamental
- Identifying root causes with oil analysis
- Lubrication management best practices
- Infrared thermography

Course duration

3 days

IMM CPD points

Participants are entitled for 84 IMM CPD points *(7 activity hours x 3 days x 4 weightage factor)*.

Who should attend

Engineers, supervisors and inspectors

Certificate awarded

Certificate of attendance

THERMAL INSULATION PROGRAMS

IMM Thermal Insulation Training Course

Introduction to Thermal Insulation Course

Code: TI *HRDF claimable*

This objective of this course is to train and upgrade individuals in thermal insulation materials applications as well as the trade of sheet metal shop fabrication plus field installations.

Course content

1. Insulation specifications
2. Insulation materials
3. Hot & cold insulation
4. Corrosion under insulation (CUI)
5. Measurement
6. QA&QC & inspection
7. Insulation installation
8. Cladding (metal & non-metal)
9. Health, safety & environment

Course duration

2 days

IMM CPD points

Participants are entitled for 56 IMM CPD points *(7 activity hours x 2 days x 4 weightage factor)*.

Who should attend

This course is suitable for those who wish to understand the thermal insulation for industries, prevention of corrosion under insulation (CUI), QA&QC & inspection, theoretical background & developments.

Languages

Course will be conducted in English and/or Bahasa Malaysia

Pre-requisite(s)

No previous experience required.

Certificate awarded

Certificate of attendance

IMM Thermal Insulation Certification Scheme

IMM Certified Thermal Insulation Installer

Code: TII *HRDF claimable*

The certified course is meant for training and upgrading individuals in thermal insulation materials applications as well as the trade of sheet metal shop fabrication plus field installations.

Objectives

It aims to provide participants with the knowledge and skills to carry out insulation works efficiently and effectively with the clear understanding of the following:

1. Types of thermal insulation and sheet metal materials specified by the vendors and clients in insulation specifications.
2. Equipment and piping systems components commonly seen in the oil and gas industries.
3. Tools and aids usage during the preparation and field installation of thermal insulation materials.
4. Sheet metal equipment and tools used during the layouts, cutting, fabrication and field installation works.
5. Standard insulation calculation

Exam topics

1. Introduction to insulating and sheet metal trade equipment and piping system components in the petrochemical, oil & gas and energy industries
2. Types of thermal insulation materials for hot, cold and dual temperature services
3. Types of sheet metal materials
4. Equipment and tools used in the insulating and sheet metal trade
5. Basic safety for insulating and sheet metal trade
6. Plan and isometric piping drawings: pattern layout / fabrication / field installation
   - Pipe and elbow
   - Equal and unequal branch and header
   - Concentric and eccentric reducer
   - Valve
   - Flange
   - Strainer
   - Elbow Trunnion

Course duration

6 days

IMM CPD points

The candidate is entitled for 168 IMM CPD points if he/she attended the 6-day training course recognized by IMM *(7 activity hours x 6 days x 4 weightage factor)*.

Who should attend

The course is suitable for those persons who wish to begin a career in this field but have little or no experience and for insulation engineers, specifier, technicians, supervisor and inspector who desire to broader their knowledge in the usage and technique of thermal insulation and sheet metal application.

Languages

Course is conducted in English and/or Bahasa Malaysia

IMM Thermal Insulation Certification Scheme

IMM Certified Thermal Insulation Installer

Cont'd.

Pre-requisite(s)

No previous experience required.

Certificate awarded

IMM Certified Thermal Insulation Installer

Information on re-certification

6 months prior to expiry of certification (at the end of the 5th year of certification), candidate can apply for re-certification for another 5 years by

- providing proof to IMM that he/she has been employed in a related profession; and
- accumulating sufficient Continuing Professional Development (CPD) points*.

Prior to the expiry of the 5-year re-certification (at the end of the 10th year of certification), candidate can continue to be certified for a further 5-year period by

- providing proof to IMM that he/she has been employed in a related profession;
- accumulating sufficient CPD points*; and
- attending the relevant Refresher Course for certification (if any).

The candidate must re-sit the certification examination if he/she has been out of the profession for more than 18 months continuously during the 5-year certification or re-certification period.

*The minimum number of CPD Points to be accumulated over a 5-year period shall be 100 points with an annual requirement of at least 10 points.

VIBRATION PROGRAMS

IMM Vibration Certification Scheme

Certified Vibration Practitioner Category 1

Code: VP1 *HRDF claimable*

The quality of vibration analysis and condition monitoring depends to very large extent on the quality of the people who carries it out. It does not matter how good the monitoring equipment is or even how committed management is, the program will fall unless it is run by capable and dedicated people. What can be done to ensure the availability of capable and dedicated people. Professional certificate with performance objectives will be the answer.

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

- ISO 18436, *Condition monitoring and diagnostics of machines - Requirements for qualification and assessment of personnel*

Who should apply

This certification scheme is intended for engineers, supervisors, inspections and technicians and who wish to pursue a career as a IMM Certified Vibration Practitioner.

Objective

The scheme will enable candidates to be assessed on common vibration problems on machinery and its impact on production, importance of Vibration Technology from the efficiency and productivity perspective and on related health, safety and environment issues.

Exam topics

- Introduction to condition monitoring
- Principles of vibration
- Instrument & data acquisition
- Signal processing
- Basic vibration fault analysis
- Correction action
- Equipment knowledge (incl. lab session)
- Acceptance testing

Examination format

Written examination: 100 Multiple Choice Questions (MCQ)

Examination duration

3 hours

Candidate's criteria

SPM (sciences stream or vocational or equivalent) with at least credit in English and Mathematics

Pre-requisite training

Candidates are required to attend a 4-day IMM training course (or equivalent) which prepares and provides comprehensive guidance and practice aligned to the topics covered in the examination.

IMM CPD points

The candidate is entitled for 112 IMM CPD points if he/she attended the 4-day training course recognized by IMM *(7 activity hours x 4 days x 4 weightage factor)*.

IMM Vibration Certification Scheme

Certified Vibration Practitioner Category 1

Cont'd.

Criteria for certification

Pass the examination with a minimum total mark of 70%

Certificate awarded

IMM Certified Vibration Practitioner Category 1

Validity period of certificate

5 years

Information on re-certification

6 months prior to expiry of certification (at the end of the 5th year of certification), candidate can apply for re-certification for another 5 years by

- providing proof to IMM that he/she has been employed in a related profession; and
- accumulating sufficient Continuing Professional Development (CPD) points*.

Prior to the expiry of the 5-year re-certification (at the end of the 10th year of certification), candidate can continue to be certified for a further 5-year period by

- providing proof to IMM that he/she has been employed in a related profession
- accumulating sufficient CPD points*; and
- attending the relevant Refresher Course for certification (if any).

The candidate must re-sit the certification examination if he/she has been out of the profession for more than 18 months continuously during the 5-year certification or re-certification period.

** The minimum number of CPD Points to be accumulated over a 5-year period shall be 100 points with an annual requirement of at least 10 points.*

IMM Vibration Certification Scheme

Certified Vibration Practitioner Category 2

Code: VP2 *HRDF claimable*

The quality of vibration analysis and condition monitoring depends to very large extent on the quality of the personnel performing the task. What can be done to ensure the availability of capable and dedicated people? Professional certification with performance objectives will be the answer.

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

- ISO 18436, *Condition monitoring and diagnostics of machines - Requirements for qualification and assessment of personnel*

Who should apply

This certification scheme is intended for technicians, engineers, supervisors, etc who are interested to upgrade and pursue a career in vibration conditioned monitoring and analysing as a IMM Certified Vibration Practitioner Category 2.

Objective

The quality of vibration analysis and condition monitoring depends to very large extent on the quality of the personnel performing the task. What can be done to ensure the availability of capable and dedicated people? Professional certification with performance objectives will be the answer.

Exam topics

- Introduction to condition monitoring
- Principles of vibration
- Instrument & data acquisition
- Signal processing
- Vibration fault analysis
- Correction action
- Equipment knowledge
- Acceptance testing
- Equipment testing and diagnostic
- Reference standards
- Reporting and documentation
- Fault severity determination
- Rotor / bearing dynamics

Examination format

Written examination: 100 Multiple Choice Questions (MCQ)

Examination duration

3 hours

Candidate's criteria

IMM Certified Vibration Practitioner Category 1 and with at least 6 months experience in vibration monitoring.

Pre-requisite training

Candidates are required to attend a 5-day IMM Certified Vibration Practitioner Category 2 course (or equivalent) which prepares and provides comprehensive guidance and practice aligned to the topics covered in the examination.

IMM Vibration Certification Scheme

Certified Vibration Practitioner Category 2

Cont'd.

IMM CPD points

The candidate is entitled for 140 IMM CPD points if he/she attended the 5-day training course recognized by IMM *(7 activity hours x 5 days x 4 weightage factor)*.

Criteria for certification

Pass the examination with a minimum total mark of 70%

Certificate awarded

IMM Certified Vibration Practitioner Category 2

Validity period of certificate

5 years

Information on re-certification

6 months prior to expiry of certification (at the end of the 5th year of certification), candidate can apply for re-certification for another 5 years by

- providing proof to IMM that he/she has been employed in a related profession; and
- accumulating sufficient Continuing Professional Development (CPD) points*.

Prior to the expiry of the 5-year re-certification (at the end of the 10th year of certification), candidate can continue to be certified for a further 5-year period by

- providing proof to IMM that he/she has been employed in a related profession
- accumulating sufficient CPD points*; and
- attending the relevant Refresher Course for certification (if any).

The candidate must re-sit the certification examination if he/she has been out of the profession for more than 18 months continuously during the 5-year certification or re-certification period.

** The minimum number of CPD Points to be accumulated over a 5-year period shall be 100 points with an annual requirement of at least 10 points.*

IMM Vibration Certification Scheme

Certified Vibration Specialist Category 3

Code: VS3 *HRDF claimable*

The quality of vibration analysis and condition monitoring depends to very large extent on the quality of the people who carries it out. It does not matter how good the monitoring equipment is or even how committed management is, the program will fall unless it is run by capable and dedicated people. What can be done to ensure the availability of capable and dedicated people. Professional certificate with performance objectives will be the answer.

Exam topics

1. Introduction to condition monitoring
2. Principles of vibration
3. Instrument & data acquisition
4. Signal processing
5. Vibration fault analysis
6. Correction action
7. Equipment knowledge
8. Acceptance testing
9. Equipment testing and diagnostic
10. Reference standards
11. Reporting and documentation
12. Fault severity determination
13. Rotor / bearing dynamics

Course duration

5 days

IMM CPD points

The candidate is entitled for 140 IMM CPD points if he/she attended the 5-day training course recognized by IMM *(7 activity hours x 5 days x 4 weightage factor)*.

Who should attend

Managers, engineers, supervisors, inspections and technicians

Languages

Course is conducted in English and/or Bahasa Malaysia

Pre-requisite(s)

IMM Certified Vibration Practitioner Category 2 and with at least 6 months experience in vibration monitoring

Certificate awarded

IMM Certified Vibration Specialist Category 3

Information on re-certification

6 months prior to expiry of certification (at the end of the 5th year of certification), candidate can apply for re-certification for another 5 years by

- providing proof to IMM that he/she has been employed in a related profession; and
- accumulating sufficient Continuing Professional Development (CPD) points*.

Prior to the expiry of the 5-year re-certification (at the end of the 10th year of certification), candidate can continue to be certified for a further 5-year period by

- providing proof to IMM that he/she has been employed in a related profession;

Cont'd.

- accumulating sufficient CPD points*; and
- attending the relevant Refresher Course for certification (if any).

The candidate must re-sit the certification examination if he/she has been out of the profession for more than 18 months continuously during the 5-year certification or re-certification period.

*The minimum number of CPD Points to be accumulated over a 5-year period shall be 100 points with an annual requirement of at least 10 points.

IMM Vibration Certification Scheme

Certified Vibration Specialist Category 4

Code: VS4 *HRDF claimable*

The quality of vibration analysis and condition monitoring depends to very large extent on the quality of the people who carries it out. It does not matter how good the monitoring equipment is or even how committed management is, the program will fall unless it is run by capable and dedicated people. What can be done to ensure the availability of capable and dedicated people. Professional certificate with performance objectives will be the answer.

Exam topics

1. Introduction to condition monitoring
2. Principles of vibration
3. Instrument & data acquisition
4. Signal processing
5. Vibration fault analysis
6. Correction action
7. Equipment knowledge
8. Acceptance testing
9. Equipment testing and diagnostic
10. Reference standards
11. Reporting and documentation
12. Fault severity determination
13. Rotor / bearing dynamics

Course duration

8 days

IMM CPD points

The candidate is entitled for 224 IMM CPD points if he/she attended the 8-day training course recognized by IMM *(7 activity hours x 8 days x 4 weightage factor)*.

Who should attend

Managers, engineers, supervisors, inspections and technicians

Languages

Course is conducted in English and/or Bahasa Malaysia

Pre-requisite(s)

IMM Certified Vibration Specialist Category 3 and with at least 6 months experience in vibration monitoring

Certificate awarded

IMM Certified Vibration Specialist Category 4

Information on re-certification

6 months prior to expiry of certification (at the end of the 5th year of certification), candidate can apply for re-certification for another 5 years by

- providing proof to IMM that he/she has been employed in a related profession; and
- accumulating sufficient Continuing Professional Development (CPD) points*.

Prior to the expiry of the 5-year re-certification (at the end of the 10th year of certification), candidate can continue to be certified for a further 5-year period by

- providing proof to IMM that he/she has been employed in a related profession;

Cont'd.

- accumulating sufficient CPD points*; and
- attending the relevant Refresher Course for certification (if any).

The candidate must re-sit the certification examination if he/she has been out of the profession for more than 18 months continuously during the 5-year certification or re-certification period.

*The minimum number of CPD Points to be accumulated over a 5-year period shall be 100 points with an annual requirement of at least 10 points.

WELDING PROGRAMS

IMM Welding Certification Scheme

Certified Welding Inspector

Code: CWI *HRDF claimable*

The IMM Certified Welding Inspector course is a 6-day certification program which comprises 5 days of theory & practical class sessions and 1 day of final written and practical assessments. Participants are exposed to different aspects of industrial welding technology and fabrication, such as safety, weld inspection, reporting, joint design, welding processes, welding metallurgy and materials behaviour during welding production. Theoretical and practical aspects of inspection techniques such as visual inspection (VT), weld measurements, magnetic particle examination (MT), penetrant examination technique (PT), ultrasonic examination (UT) and radiographic examination (RT) will be part of the training by qualified welding personnel.

Objectives

1. To improve safe welding practices
2. To understand the welding practices carried out in their industry
3. To implement good welding practices in their industry
4. To select the right welding equipment in their industry
5. To identify common welding defects and ways to overcome them
6. To make the right selection of electrodes & materials
7. To understand WPS, PQR and WQT for the repair of fired & unfired pressure vessels

Exam topics

1. Introduction and safety
2. Duties and responsibilities
3. Inspection test plan
4. Inspection report
5. Welding procedure specification
6. Construction drawings (ISO standards, piping and instrumentation diagrams, detailed drawings)
7. Codes/ standards
8. Joint design
9. Construction and design
10. Welding processes
11. Welding symbols
12. Welding metallurgy
13. Materials strength and testing
14. Materials behavior of metals
15. Welding defects
16. Damage mechanisms
17. Non-destructive examination

Course duration

6 days (i.e. 5-day course + 1-day assessment)

IMM CPD points

The candidate is entitled for 140 IMM CPD points if he/she attended the 5-day training course recognized by IMM *(7 activity hours x 5 days x 4 weightage factor)*.

Who should attend

This course is suitable for professionals with working experience in welding and fabrication, who are willing to upgrade their skills according to International standards. Participants can choose any two of the standards from API 1104, ASME IX, AWS D1.1 and ISO 5817 for their assessment.

IMM Welding Certification Scheme

Certified Welding Inspector

Cont'd.

Pre-requisite(s)

Welding experience required

SPM or equivalent – 5 years, OR
Engineering Diploma in Engineering/Technology – 3 years, OR
Vocational Diploma in Engineering/Technology – 3 years, OR
Degree in Engineering – 1 year

Certificate awarded

IMM Certified Welding Inspector

Information on re-certification

6 months prior to expiry of certification (at the end of the 5th year of certification), candidate can apply for re-certification for another 5 years by

- providing proof to IMM that he/she has been employed in a related profession; and
- accumulating sufficient Continuing Professional Development (CPD) points*.

Prior to the expiry of the 5-year re-certification (at the end of the 10th year of certification), candidate can continue to be certified for a further 5-year period by

- providing proof to IMM that he/she has been employed in a related profession;
- accumulating sufficient CPD points*; and
- attending the relevant Refresher Course for certification (if any).

The candidate must re-sit the certification examination if he/she has been out of the profession for more than 18 months continuously during the 5-year certification or re-certification period.

*The minimum number of CPD Points to be accumulated over a 5-year period shall be 100 points with an annual requirement of at least 10 points.

IMM Welding Certification Scheme

IMM-JWES Certified Associate Welding Engineer/Welding Engineer/Senior Welding Engineer

Code: AWE / WE / SWE *HRDF claimable*

The Institute of Materials, Malaysia (IMM) in collaboration with the Japan Welding Engineering Society (JWES) will conduct courses and examinations required for the certification of ASSOCIATE WELDING ENGINEER (AWE), WELDING ENGINEER (WE) & SENIOR WELDING ENGINEER (SWE).

JWES is an organisation accredited by the Japan National Accreditation Board (JNAB) to certify personnel according to the requirements of ISO/IEC 17024.

Objectives

1. To provide training, knowledge and examination required for the Welding Engineer Certification in accordance to JWE5-WES8013:2008 - Standard of Certification of Welding Coordination Personnel and ISO 14731 - Welding Coordination Tasks and Responsibilities
2. To provide participants with advanced certification of ASSOCIATE WELDING ENGINEER (AWE), WELDING ENGINEER (WE) & SENIOR WELDING ENGINEER (SWE) for aspiring leaders / instructors to produce skilled welding engineers in the future
3. To diversify the participants' capability through exercises in this training course

Course content

ASSOCIATE WELDING ENGINEER (AWE)

1. Welding processes and equipment
2. Materials and their behavior during welding
3. Design and construction
4. Fabrication and application engineering

WELDING ENGINEER (WE)

1. Advanced welding processes and equipment
2. Advanced materials and their behavior during welding
3. Advanced design and construction
4. Advanced fabrication and application engineering

SENIOR WELDING ENGINEER (SWE)

1. Welding processes and equipment
2. Materials and their behavior during welding
3. Design and construction
4. Welding design & fabrication of frame structures
5. Welding design & fabrication of vessels

Course duration

AWE: 6-day theory+ 1-day written exam
WE: 6-day theory + 1-day written exam
SWE: 6-day theory + 1-day written & oral exam

IMM CPD points

The candidate is entitled for 168 IMM CPD points if he/she attended the 6-day training course recognized by IMM *(7 activity hours x 6 days x 4 weightage factor)*.

IMM Welding Certification Scheme

IMM-JWES Certified Associate Welding Engineer/Welding Engineer/Senior Welding Engineer

Cont'd.

Who should attend

This course is suitable for professionals with working experience in welding and fabrication, who are willing to upgrade their skills according to international standards. Participants can choose any two of the standards from API 1104, ASME IX, AWS D1.1 and ISO 5817 for their assessment.

Pre-requisite(s)

ASSOCIATE WELDING ENGINEER (AWE)

1. Welding Engineer, OR
2. Have experience as Welding Instructor, OR
3. Inspector of welded products

WELDING ENGINEER (WE)

1. Have passed the AWE Examination, AND
2. Have attended a previous AWE training course

SENIOR WELDING ENGINEER (SWE)

1. Have passed the WE Examination, AND
2. Have attended a previous WE training

Certificate awarded

IMM-JWES Certified Associate Welding Engineer
IMM-JWES Certified Welding Engineer
IMM-JWES Certified Senior Welding Engineer

IMM Welding Certification Scheme

IMM Certified Thermit Welding Practitioner (Level 1)

Code: TWP

These specialize competency program on Thermit Welding Practitioner Level 1 been developed to fulfill the requirement of competency skills for track worker in performing the maintenance activities for achieving optimum operation.
Upon completion of this competency participants will be able to:

- Identify thermit welding components
- Identify thermit welding equipment and tools to carry out the process.
- Understanding the operational flows in order to carry out the process in a safe and efficient manner
- Prepare thermit welding works
- Enhance in technical maintenance skill
- Perform thermit welding
- Understand the job scope of a practitioner

Who should apply

- Fresh graduates with technical background, trainer, rail technician/operator and supervisor involved in rail maintenance
- Track works maintenance personnel
- Maintenance supervisor
- Engineer

Objectives

Certified personnel should be able to:

- Professionally perform the thermit welding task as required by the industry.
- Monitor and supervise the works related to the thermit welding and has the criteria of a competent practitioner.

Exam topics

- Introduction to thermit welding
  - » Equipment (familiarization)
  - » General usage
- Safety awareness
  - » Safety precautions
  - » Safe work practices (do n don't)
  - » Safety with gases
  - » Safety apparel and equipment
- Rail cutting setting
  - » Dismantle old rail and insert new rail
  - » Rail fixing
- Rail end preparation and rail alignment
- Installation
  - » Install universal mounting
  - » Fixing the mould
  - » Luting the mould
  - » Install slag bowl
- Pre heat
  - » Preheat rail end and mould
  - » Placing crucible
  - » Ignition
  - » Shearing

IMM Welding Certification Scheme

IMM Certified Thermit Welding Practitioner (Level 1)

Cont'd.

Exam topics *(cont'd.)*

- Clearing
  - » 7.1 Clearing the riser
  - » 7.2 Grind smooth the welding
  - » 7.3 Finishing

Exam format

The exam/assessment consist of the following format:

a) Theory paper – to complete answering knowledge assessment (includes 13 multiple choice and seven subjective question) within 1.5 hours.
b) Practical (hands-on) assessment 1 – Rail alignment- demonstrate the correct procedure for rail alignment using Steel Wedges and A Frames Shearing Machine
c) Practical (hands-on) assessment 2 – Cutting and welding gap process – using gas or saw
d) Practical (hands-on) assessment 3 – General welds set up procedures - Demonstrate weld set up procedures.
e) Practical (hands-on) assessment 4 – Rail end preparation - identify oxygen/fuel gas cylinders safety precautions, using oxygen/ fuel gas and rail disc saw, cutting rail cleaning the rail ends and demonstrate the four uses of weld setting gauge.
f) Practical (hands-on) assessment 5 – Complete weld set up working steps – Carry our preheating process and set up crucible components and loading of the Thermit Welding portion.
g) Practical (hands-on) assessment 6 – Demonstrate Instruction Preliminary and Final grinding -install Thermit cast weld metal and implement correct procedures for removal of equipment
h) Practical (hands-on) assessment 7 – Profile grinding & weld finish - Carry out weld profile grinding operations to specified tolerances

Exam duration

Theory examination - 1.5 hours
Practical assessment - 1 day

Candidate's criteria

Minimum candidate criteria:

- Minimum 5 years working experience at site in job that related to rail changing/joining.
- Fit-for work for Track network site
- Able to read and understand in English

Pre-requisite training

Candidates are required to attend a 10-day training course which prepares and provides comprehensive guidance and practice aligned to the topics covered in the examination.

- Track and component inspection
- Track component - rails
- Track inspection – rail defect inspection
- Track maintenance – beater packing

IMM Welding Certification Scheme

IMM Certified Thermit Welding Practitioner (Level 1)

Cont'd.

IMM CPD points

The candidate is entitled for 280 IMM CPD points if he/she attended the 10-day training course recognized by IMM *(7 activity hours x 10 days x 4 weightage factor)*.

Criteria for competency

Successful in all the following below parts,

a) Theory test – achieve minimum 80% mark, paper to be marked by the assessor.
b) Practical (hands-on) assessment – passed as competent.
c) Practical on-site job – complete 15 times joining job performing without fail (passed as competent by the assessor)

Certificate awarded

IMM Certified Thermit Welding Practitioner (Level 1)

Validity period of certificate

3 years

Information on re-certification

6 months prior to expiry of certification (at the end of the 3rd year of certification), candidate can apply for re-certification for another 3 years by

- sitting for an examination
- providing proof to IMM that he/she has been employed in handling the thermit welding job routine (testified by project manager or human resource/training/learning manager of the candidate) for at least 15 times joining without fail in the last 3 years; and

Prior to the expiry of the 3-year re-certification (at the end of the 6th year of certification), candidate can continue to be certified for a further 3-year period by

- sitting for the exam/assessment, as follows;
  (a) Examination paper – achieve minimum 80% mark
  (b) Practical (hands-on) assessment - Passed as competent

The candidate must re-sit the certification examination if he/she has been out of the profession for more than 12 months continuously during the 3-year certification or re-certification period.

IMM Welding Certification Scheme

IMM Certified Thermit Welding Senior Practitioner (Level 2)

Code: TWSP

These specialize competency program on Thermit Welding Senior Practitioner Level 2 has been developed to fulfill the requirement of competency skills for track worker in performing and supervise the maintenance activities for achieving optimum operation.
Upon completion of this competency participants will be able to:

- Identify, advise and assemble welding components
- Identify and Understand the thermit welding equipment and able to give instruction on the tools to carry out the process
- Understand, identify and can advise the operational flows in order to carry out the process in a safe and efficient manner
- Effectively and quality in preparation and also can give good advice or instruction on Thermit welding works to subordinated
- Enhance in technical maintenance skill and knowledge as a supervisor
- Perform the best practice of thermit welding
- Understand and able to perform the job scope of a supervisor
- Justify the quality of joining and job that related to thermit welding.

Who should apply

Supervisors, professional practitioners or any personnel with related work experience and/or has been certified with IMM Certified Thermit Welding Practitioner Level 1 certification.

Objectives

Certified personnel should be able to:

- Professionally perform the thermit welding task as required by the industry.
- Monitor and supervise the works related to the thermit welding and has the criteria of a supervisor.

Course duration

5 days (theory & practical class)

IMM CPD points

The candidate is entitled for 140 IMM CPD points if he/she attended the 5-day training course recognized by IMM *(7 activity hours x 5 days x 4 weightage factor)*.

Exam topics

- Identify thermit welding components
  - » General usage
  - » Advice and assemble welding components
- Safety awareness
  - » Safety precautions
  - » Safe work practices (do n don't)
  - » Safety with gases
  - » Safety apparel and equipment
- Identifying and understanding the thermit welding equipment
  - » Tools used to carry out the process
  - » Instruction on the usage of the tools
- Rail cutting setting
  - » Dismantle old rail and insert new rail
  - » Rail fixing
- Rail end preparation and rail alignment

IMM Welding Certification Scheme

IMM Certified Thermit Welding Senior Practitioner (Level 2)

Cont'd.

Exam topics *(cont'd.)*

- Installation
  - » Install universal mounting
  - » Fixing the mould
  - » Luting the mould
  - » Install slag bowl
- Pre Heat
  - » Preheat rail end and mould
  - » Placing crucible
  - » Ignition
  - » Shearing
- Clearing
  - » Clearing the riser
  - » Grind smooth the welding
  - » Finishing

Exam format

The exam/assessment consists of the following format:

- Theory (Written): 13 multiple choice and 7 subjective questions.
- Practical (hands-on) assessment: Prepare rail to be welded by setting the weld gap, applying mould and pour thermit portion into the crucible, pre-heat end of the rails, ignite and pour steel, demolding and grinding process.

Exam duration

Theory examination - 2.5 hours
Practical assessment - 2 days

Candidate's criteria

Minimum candidate criteria:

- Valid Thermit Welding Practitioner – Level 1
- Minimum 5 years on site working experience related to rail changing/joining.
- Fit-for work for Track network site
- Able to read and understand in English

Pre-requisite training

Candidates are required to attend a 5-day training course which prepares and provides comprehensive guidance and practice aligned to the topics covered in the examination.

- Track and component inspection
- Track component - rails
- Track inspection – rail defect inspection
- Track maintenance – beater packing

Criteria for competency

Successful in all of the following:

- Passing criteria for Theory Test Min: 70%
- Passing criteria for Practical Test Min: 80%

IMM Welding Certification Scheme

IMM Certified Thermit Welding Senior Practitioner (Level 2)

Cont'd.

Certificate awarded

IMM Certified Thermit Welding Senior Practitioner (Level 2)

Validity period of certificate

3 years

Information on re-certification

6 months prior to expiry of certification (at the end of the 3rd year of certification), the candidate can apply for re-certification for another 3 years by

- sitting for an examination
- providing proof to IMM that he/she has been employed in handling the thermit welding job routine (testified by project manager or human resource/training/learning manager of the candidate) for at least 15 times joining without fail in the last 3 years.;

Prior to the expiry of the 3-year re-certification (at the end of the 6th year of certification), candidate can continue to be certified for a further 3-year period by

- sitting for the exam/assessment, as follows:
  (a) Examination paper – achieve minimum 70% mark
- (b) Practical (hands-on) assessment - Passed as competent

The candidate must re-sit the certification examination if he/she has been out of the profession for more than 18 months continuously during the 5-year certification or re-certification period.

IMM Welding Training Course

Repair Welding of Pressure Equipment in Refineries & Chemical Plants Course

Code: RWPE *HRDF claimable*

Plant facilities and equipment will degrade after installation and commissioning due to service and environmental conditions. Damage by corrosion, erosion, wear, and cracking may occur while the plant and equipment are in service. The repair of damaged parts of plant facilities and equipment by welding, using special welding process, specified welding consumables and specified procedures is a widely accepted method of preserving the integrity of plant facilities and equipment. Asset owners' overall replacement costs can be minimised by repair welding.

Objectives

This course is about the repair welding for the wear and erosion (thinning) of pressure and process equipment and also includes the repair of cracks.

Course content

1. Design and fabrication of pressure equipment
2. Metallic materials degradation in pressure equipment and their countermeasures
3. Post-construction codes
4. Guidelines the for repair welding of pressure equipment
5. Repair welding methods
6. Repair welding for carbon steels and Cr-Mo steels
7. Repair welding for stainless steels and nickel alloys
8. Corrosion problems and repair welding
9. Aged metallic materials and repair welding

Course duration

2 days

IMM CPD points

Participants are entitled for 56 IMM CPD points *(7 activity hours x 2 days x 4 weightage factor)*.

Who should attend

This course should be of great interest to owners of process plants, pressurized equipment, pressure pipelines, and similar facilities who need to maintain the functional integrity of their plant and equipment during the life-time of the plant and equipment post-installation.
This course is specifically targeted at asset integrity and quality assurance staff/personnel involved in the maintenance, repair and overhaul of welded plant facilities and equipment. It is recommended to participants from petroleum refineries, petrochemical and chemical and related industries, including:

- Welding engineers
- Welding NDT personnel
- Welding supervisors
- Welding lecturers and trainers
- Welding inspectors
- IIW/JWES welding engineers

Pre-requisite(s)

No previous working experience needed.

Certificate awarded

Certificate of attendance

IMM Welding Training Course

Welding & Joining Technology for Non-Welding Personnel Course

Code: WJT *HRDF claimable*

This is a one-day Welding Technology Course for Engineering Management Personnel, designed for both practicing engineers and technical managers as well as those interested in keeping abreast with the current welding technologies.

The course is beneficial for those who wish to gain an understanding of how a Welding Procedure Specification (WPS) and a welder, through the Welder Qualification Test (WQT), are qualified and certified in the oil and gas industry, and also addresses the effectiveness of current non-destructive examination techniques as quality control tools to ascertain that quality welds are consistently produced/maintained.

Through this course, managers and engineers who wish to gain an appreciation on managing WPS/WQT will be able to broaden their technical knowledge on welding technology related to the maintenance, inspection, alteration and repair of in-service metallic systems in order to avoid unplanned shutdown and reduce expenses. This knowledge will enable them to make informed decisions on the acceptance of WPS/WQT during welding production and metallic fabrication work.

Objectives

To understand and acquire an appreciation of the following topics:

1. Welding technologies and the requirements necessary for safe design and construction
2. Key activities in quality control of welding and the key welding coordination activities
3. Responsibilities of welding co-ordination and the application of ISO 3834 "Quality Requirements for Welding".

Course content

1. Introduction and welding quality
2. Welding procedure qualification
3. Welding processes and inspection
4. Materials and weldability
5. Welder qualification

Course duration

1 day

IMM CPD points

Participants are entitled for 28 IMM CPD points *(7 activity hours x 1 day x 4 weightage factor)*.

Who should attend

This course is most beneficial to administrative staff, technical management personnel of all levels including junior and senior engineers, inspectors, designers, manufactures, fabricators, technical managers and practising engineers who are involved in the management and planning of welding and inspection related activities as well as maintenance activities in upstream oil & gas

Pre-requisite(s)

No previous working experience needed.

Certificate awarded

Certificate of attendance

IMM Welding Training Course

Steel Technology for Non-Technical Personnel Course

Code: STNT *HRDF claimable*

Steel finds application in many diverse industries such as automotive, shipbuilding, fabrication, pipelines, structural buildings and even surgical instruments. The types of steel used have properties that meet the specific functions and purposes of a product. A good understanding and appreciation of steel will provide learners with higher confidence, preparedness and ability to more accurately resolve matters that relate to the end product. Participants in this 2-day program will benefit much from the fundamental concepts of steels and the selection process including the adequate protection of materials of construction and the fundamental concepts of corrosion control.

Objectives

1. Identify & select correct steel materials for building components for specific tasks based on the requirements, constraints and material properties
2. Interpret materials data (specification sheets) to determine their suitability
3. Identify the properties of materials for specific tasks within given parameters

Course content

1. Introduction of engineering materials
2. Designations and specification of metals
3. Heat treatment of steels
4. High-strength steels
5. Impact of welding parameters
6. Weld defects
7. Weldability and welding cracks
8. Ferritic, super ferritic, martensitic, austenitic, super austenitic, duplex, super duplex, precipitation hardenable stainless steels
9. Welding of stainless steels
10. Corrosion resistance of stainless steels

Course duration

2 days

IMM CPD points

Participants are entitled for 56 IMM CPD points *(7 activity hours x 2 days x 4 weightage factor)*.

Who should attend

This appreciation course is most beneficial to technical management personnel of all levels including junior and senior engineers, inspectors, designers, manufacturers, fabricators, technical managers and practicing engineers who are involved in the management and planning of welding and inspection-related activities as well as maintenance activities in upstream oil & gas facilities, refineries, process plants and petrochemical facilities.

Pre-requisite(s)

No previous working experience needed.

Certificate awarded

Certificate of attendance

TRAINER PROGRAMS

IMM Train-The-Trainer Certification Scheme

Certified Trainer

Code: CTRA

This is a certification scheme to qualify trainers for the IMM Training/Certification programs. The certification scheme is specially designed to assess trainers and would-be trainers on their skills for training others.

Who should apply

This certification scheme is for trainers and subject matter experts who are interested in training candidates for IMM Training/Certification programs. This scheme will particularly benefit managers, subject matter experts including those with no training experience who need to understand the soft skills required for training to complement their technical expertise.

Objective

The objective of this certification scheme is to assess and certify potential trainers on the knowledge and skills required in training persons related IMM certification program(s).

Assessment topics

- Role play as trainer for lecture:
  - » non-verbal skills;
  - » verbal and language fluency skills;
  - » presentation content (knowledge and organization); and
  - » handling Q&A session.
- Practical demonstration:
  - » non-verbal skills;
  - » verbal skills;
  - » instrumentation (knowledge and skills); and
  - » handling Q&A session.
- Interview:
  - » knowledge & understanding;
  - » application to practice; and
  - » interpersonal skills.

Assessment format and duration

The candidates will be assessed and evaluated by assessor on their techniques in coaching/lecturing, handling practical demonstration and Q&A session on related course of their choice and expertise.
The candidate will then be interviewed on their understanding of the topics taught in the course selected.

Assessment will be based on:

- 30 – 45 min role play as trainer for lecture and handling Q&A session – 25%
- 30 – 45 min practical demonstration (can be in the form of physical classroom, mixed reality, simulation, video etc)– 25%
- 10 – 15 min interview – 50%

Candidate's criteria

Candidate shall possess valid IMM certification or equivalent (such as NACE/SSPC) in the specific certification program and with at least 5-year working experience in the relevant field.

IMM Train-The-Trainer Certification Scheme

Certified Trainer

Cont'd.

Criteria for certification

Successful in the assessment where the candidate must achieve a minimum pass mark of 70% for each of the components – lecture, practical demonstration, and interview.

Certificate awarded

IMM Certified Trainer for …… (Certification Scheme)

Validity period of certificate

5 years

Information on re-certification

6 months prior to expiry of certification (at the end of the 5th year of certification), candidate can apply for re-certification for another 5 years by providing proof to IMM that he/she

- has been conducting training in a related certification program; and
- has accumulated sufficient Continuing Professional Development (CPD) points*.

Prior to the expiry of the 5-year re-certification (at the end of the 10th year of certification), candidate can continue to be certified for a further 5-year period by

- providing proof to IMM that he/she has been employed in a related profession;
- accumulating sufficient CPD points*; and
- attending the relevant Refresher Course for certification (if any).

The candidate must re-sit the certification examination if he/she has been out of the profession for more than 18 months continuously during the 5-year certification or re-certification period.

** The minimum number of CPD Points to be accumulated over a 5-year period shall be 100 points with an annual requirement of at least 10 points*

TESTIMONIALS FROM IMM CERTIFIED AND TRAINED PERSONNELS

IMM Protective Coating Technician Level 2

"This course taught me how to properly perform the surface preparation and painting job application. My advice to others who have not yet gone for this training and get your competency certificate, please do so as it will tell you on how to your work professionally and improve your hourly rate of salary"

Freelance Blaster and Painter

IMM Coating Inspector Level 1

"This program really helped me in clearing my questions and doubts whenever I have in mind when I do my QA&QC job at worksite. After getting my certificate, my salary also increased"

Freelance QAQC Inspector

IMM Certified Coating Fingerprint Quality Controller Level 1

"The training program was incredibly good in gain my skills and knowledge especially on coating fingerprint. I think I will promote this program to my friends in Indonesia"

PT PPG Coating Indonesia

"Overall, this course provides a platform for me to meet people from various area. From here, I can get opinions and see from different perspective about the Coating Fingerprinting. The outcomes of this course are well presented"

Universiti Teknologi MARA

IMM Corrosion Technician Level 1

"I have work experience for few years, but I never had any competency certificate before. Then, I went to take the IMM Corrosion Technician course and I found it very interesting and helped me to understand more about my role and responsibility. It also gave more value to me as I can now demand higher salary for any employer want to hire certified personnel."

Freelance Corrosion Technician

IMM Certified Cathodic Protection Technician Level 1

"I am very grateful to the trainer. His explanation very clear and easy to understand. I hope we will improve our self-skill and knowledge in Cathodic Protection"

Velosi (M) Sdn Bhd

"Attended IMM Certified Cathodic Protection Technician Level 1. It was excellent session with highly knowledgeable trainer"

PT Natgas Indonesia

IMM Vibration Practitioner Category 1

"This program exposes and helps me in improving my knowledge on how to operate the and use the related equipment as well as data monitoring and analysing. I would encourage new or fresh graduates to enrol for this Cat 1 program"

Serba Dinamik Group Berhad

IMM Certified Welding Inspector

"Thank you for organizing such a great training. The trainer was truly knowledgeable. It helps me to understand well about welding inspection"

PETRONAS Carigali Turkmenistan

FREQUENTLTY ASKED QUESTIONS ABOUT IMM TRAINING & CERTIFICATION SCHEMES

What is IMM?

The Institute of Materials, Malaysia (IMM) is a non-profit professional society (registered with the Registrar of Societies since 1987) that promotes honorable practice, professional ethics and encourages education in materials science, technology and engineering. Engineers, academicians, technicians, skilled workers and professionals are amongst its members exceeding 5,000.

One of the key objectives of IMM include the training and development of individuals and companies in Malaysia to attain certification and professional recognition in materials science, technology and engineering covering various disciplines such as coatings, corrosion, welding, vibration, asset integrity, insulation, polymers and materials fingerprinting. IMM also promotes research and development in these fields in addition to facilitating and encouraging collaboration between the industrial sectors, research institutes and universities.

IMM is administered by a council of 30 members with volunteers who are experts in various fields leading 23 expert committees, and 4 regional chapters, supported by a secretariat staff.

IMM's certification courses are well recognized and endorsed in the oil and gas, shipbuilding and construction industries. Over the years, personnel from these industries have been trained and certified. They include, amongst others, blasters and painters, coating inspectors, welding engineers, welding inspectors, corrosion technicians, cathodic protection technologists, vibration practitioners and coating fingerprint quality controllers. These courses are organised by authorised training bodies (ATBs) and associate training partner (ATP).

What are the IMM certification programs?

IMM offers various certification schemes and training courses ranging from Coating to Welding. Full complete list can be found at https://www.iomm.org.my/list-of-training-certification-programs/.

Why do I require to be a IMM certified personnel?

IMM-approved training courses and the related certification programs are designed to equip workers with the skills and knowledge for entry into the industrial sector. The IMM certification provides proof and assurance to prospective employers that the certified persons have reached a given level of proficiency in a particular field.

Is IMM certification scheme a requirement in the Oil & Gas industry?

IMM's competency training and certification programs are well recognised in the Oil & Gas industry and IMM certification have been listed as a requirement in the technical/work specifications by leading Oil & Gas companies such as PETRONAS and Shell.

If my current IMM certification has expired or is about to expire, can I still be recertified?

All IMM certified personnel are required to be recertified before the expiry date of their competency certificates and can apply for re-certification for another cycle of certification. Period of certification and re-certification vary from each certification scheme. Please refer to each certification scheme document for more information on re-certification.

What are the minimum requirements to obtain IMM certification?

Each certification requires different sets of candidate's criteria and pre-requisite training. Please refer to each certification scheme document for more information.

How do I register myself for IMM course and assessment?

Those interested can contact the IMM Secretariat or the ATBs in your region or ATP or authorize testing centre (ATC) to get the registration form and further guidelines and information, if required. You may visit the IMM website www.iomm.org.my for a listing of the ATB/ATP/ATC and the related courses.

Are IMM courses available in two languages English and Bahasa Malaysia?

The courses in Malaysia will be conducted in dual languages, English & Bahasa Malaysia.

If I have already been certified by IMM, how long will my certification still be valid?

Validity of IMM competency certificates varies among the certification programs. Please refer to each certification scheme document for more information.

Can I be certified in multiple competencies?

Yes, a person can be certified as competent person in multiple IMM certification programs.

How much does the IMM certification program cost?

The training fees charged by the ATBs/ATPs will not exceed the maximum of RM1,000 per course-day and may vary with the ATBs/ATPs. For details, please contact the training bodies. List of the training bodies can be found here https://www.iomm.org.my/imm-authorised-training-bodies-atbs-authorised-testing-centre-atc-and-associate-training-partner-atp/.

The assessment/examination fee vary in each certification programs. Please refer to each certification scheme document for more information.

If I fail in the Assessment, can I re-sit? If yes, how many times can I re-sit the Assessment?

Candidates who had failed the examination can apply and re-sit for the failed component (blaster or painter or both) within 12 months from the date of their last examination. The full examination fee shall be payable to re-sit the examination, and without the need to attend any training course. The candidate can re-sit as many times as he wishes.

What society membership do I get with the IMM certification?

Included in the certification is a corresponding IMM membership.

Who should I contact to register for IMM Certification Program?

Interested candidates can contact the IMM Secretariat as follows:

Institute of Materials, Malaysia
Suite 515, Level 5, Block A,
Kelana Centre Point
No.3, Jalan SS 7/19,
Kelana Jaya, Petaling Jaya,
47301 Selangor

Tel: +603 7661 1591
Email: secretariat@iomm.org.my
Website: www.iomm.org.my
WhatsApp: +6018 9113 480

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