



INSTITUTE OF MATERIALS, MALAYSIA

CORROSION MONITORING PRACTITIONER

COMPETENCY CERTIFICATION SCHEME

27 July 2022

Approved by Examination and Certification Panel

1. INTRODUCTION

This brochure serves as a guide for obtaining the Institute of Materials, Malaysia (IMM) corrosion monitoring assessment and certification. This scheme will enable candidates to be assessed on their understanding of the key-points on corrosion inhibition and cathodic protection 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 conduct the cathodic protection monitoring and inspection techniques.

This scheme also 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 facilities as well as the utilization of corrosion inhibitor monitoring, cathodic protection monitoring.

It aimed at examining the knowledge and experience of the candidate who is expected to have acquired sufficient skills as a Corrosion Monitoring Practitioner in order for him/her to manage a team of corrosion monitoring technicians and supervisors as well as to communicate with the Stakeholders. He/She shall be examined not only in terms of technical knowledge and technical code-of-conduct and integrity, but also on his/her capabilities to manage a team of personnel under his/her wing.

There are three levels of Corrosion Monitoring Practitioner certification:

- Certified Corrosion Monitoring Practitioner Level 1
- Certified Corrosion Monitoring Practitioner Level 2
- Certified Corrosion Monitoring Practitioner Level 3

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

- ASTM E-797 Standard Practice for Measuring Thickness by Manual Ultrasonic Pulse-Echo Contact Method
- ASTM G96-90 Standard Guide for Online Monitoring of Corrosion in Plant Equipment (Electrical and Electrochemical Methods)
- IMM CM01: Corrosion Monitoring, Competency Levels of Corrosion Monitoring Persons: Basis for Certification Scheme
- 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 3T199 Techniques for Monitoring Corrosion and Related Parameters in Field Applications
- NACE SP0775 Preparation, Installation, Analysis and Interpretation of Corrosion Coupons in Oilfield Operations

2. WHO SHOULD ATTEND

- i. Certified Corrosion Monitoring Practitioner Level 1
 - All school-leavers, technicians, scientists, engineers, metallurgists, inspectors and inspection supervisors interested in corrosion monitoring and inspection.
 - Who wish to pursue a career as an IMM Certified Corrosion Monitoring Practitioner.
- ii. Certified Corrosion Monitoring Practitioner Level 2
 - Holders of the IMM Certified Corrosion Monitoring Practitioner Level 1 Certification.
 - those who meet the pre-requisites recognized by IMM in Tables A.1 & A.2 of Annex A in the IMM CM01 Standard.
- iii. Certified Corrosion Monitoring Practitioner Level 3
 - Holders of the IMM Certified Corrosion Monitoring Practitioner Level 2 Certification with sufficient work experience.
 - Who have met the pre-requisites recognized by IMM in Tables A.1 & A.2 of Annex A in the IMM CM01 Standard.
 - Has achieved the minimum years of corrosion inhibition monitoring and cathodic protection monitoring experience, plus having attended a relevant training course.

3. EXAMINATION AND ASSESSMENT

The candidate will be assessed by IMM on their competency as follows:

Certified Corrosion Monitoring Practitioner Level 1

A 2.5-hour theory examination will be conducted and consist of 100 multiple choice questions.

The criteria for competency is that the candidate must pass the examination with a minimum mark of 70%.

Certified Corrosion Monitoring Practitioner Level 2

The candidate will be assessed on both their practical and knowledge skills *via* a hands-on practical assessment and a classroom paper test.

Theory (1.5-hour): 50 multiple choice questions

Practical Assessment (4-hour):

1. Hands-on handling of corrosion monitoring equipment (probes and coupons)
2. Handling of pressurized retrieval tool
3. Handling of CP monitoring equipment
4. Ultrasonic Testing Thickness Gauge (UTT) calibration and measurement

The criteria for competency is that the candidate must pass the examination with a minimum total mark of 70% for each assessment.

Certified Corrosion Monitoring Practitioner Level 3

A 1-hour writing technical analysis reports of 2 case studies and a 2-hour oral interview will be conducted.

The criteria for competency is that the candidate must pass the examination with a minimum total mark of 70% for each assessment.

The assessment program includes a two-hour pre-assessment briefing covering a quick 'run through' of all the topics to be covered in the assessment, the examination format, the duration allocated and followed by the examination.

Assessment schedule

Certified Corrosion Monitoring Practitioner Level 1

TIME	DESCRIPTION
8.00AM – 9.00AM	Registration of candidates
9.00AM – 9.15AM	Instructions to candidates and pre-assessment briefing
9.15AM – 11.45AM	Theory paper exam commences <ul style="list-style-type: none"> • Examiner & Invigilator explains each question & answer choice to candidates • 100 multiple choice questions • Open book exam
11.45AM – 12.00PM	Collection of papers
12.00PM – 1.00PM	Marking of the Theory Papers
1.00PM	Collection of marked scripts and submission to the IMM Secretariat.
1.00PM	ADJOURN

Certified Corrosion Monitoring Practitioner Level 2

TIME	DESCRIPTION
8.00AM – 9.00AM	Registration of candidates
8.00AM – 9.00AM	Check of practical assessment equipment set-up in workshop
9.00AM – 9.15AM	Instructions to candidates and pre-assessment briefing
9.15AM – 10.45AM	Theory paper exam commences <ul style="list-style-type: none"> • Examiner & Invigilator explains each question & answer choice to candidates

	<ul style="list-style-type: none"> • 50 multiple choice questions • Open book exam
10.45AM – 11.00AM	Collection of papers
11.00AM – 11.15AM	Safety briefing
11.15AM – 12.30PM	<p>Practical Assessment</p> <p>Key-Point Ultrasonic Thickness measurements</p> <ul style="list-style-type: none"> • Equipment identification • Calibration • Wall thickness measurements <p>Process Corrosion Monitoring Equipment Handling</p> <ul style="list-style-type: none"> • Equipment identification • Retrieval Tool Handling <p>Cathodic Protection measurements</p> <ul style="list-style-type: none"> • Equipment identification • Potential measurements
12.30PM – 2.00PM	Lunch
12.30PM – 2.00PM	Marking of the Theory Papers
2.15PM – 5.15PM	Continuation of Practical Assessment
5.15PM – 5.30PM	Collection of Assessment Papers
5.30PM	ADJOURN

* Level 2 practical assessment maybe extended to 2 days depending on the number of participants.

Certified Corrosion Monitoring Practitioner Level 3

TIME	DESCRIPTION
8.45AM – 9.00AM	Registration of candidate, instructions to candidates and pre-assessment briefing
9.00AM – 10.00AM	Report writing exam Invigilator or Examiner to issue the Report Writing Question Paper to the candidate to complete the Report Writing Test within 1 hour.
10.00AM – 10.15AM	Tea Break
10.15AM – 11.15AM	<p>Oral Interview</p> <p>Candidate will be interviewed by 3 Examiners using the Question Paper provided by IMM over 2 hours.</p> <p>Each Examiner will be provided with 1 copy of the Question Paper.</p> <p>Questions will cover Knowledge Categories K.No.1 – 11</p>

	based on the IMM CM01 plus review of the written report. All Examiners shall issue marks to each question during the interview.
11.15AM – 11.30AM	Tea Break
11.30AM – 12.30PM	Continuation of Oral Interview
12.30PM – 1.00PM.	Examiners to collate their marks and Lead Examiner to prepare final record of the marks and hand to the Invigilator for submission to the IMM Secretariat.
1.00PM	ADJOURN

The above assessments may be held at an Authorised Testing Centre (ATC) or immediately following the related training course conducted by Associate Training Partner (ATP)/Authorised Training Centre (ATB).

4. LANGUAGE

The lectures and assessments will be conducted in English or Bahasa Malaysia or local dialects (where possible).

5. CERTIFICATE OF COMPETENCY AWARDED

The certificate awarded for each category are as follows:

- IMM Certified Corrosion Monitoring Practitioner Level 1.
- IMM Certified Corrosion Monitoring Practitioner Level 2.
- IMM Certified Corrosion Monitoring Practitioner Level 3.

6. VALIDITY OF CERTIFICATION

5 years; qualified candidate must register as an IMM member for the certification period of 5 years.

7. CANDIDATE'S CRITERIA

Certified Corrosion Monitoring Practitioner Level 1

Candidate should have

- Minimum academic qualification - SPM or equivalent* OR

- Attended relevant academic Corrosion Monitoring Practitioner dedicated to the IMM Corrosion Monitoring Practitioner Level 1 Certification with at least 6 months of field experience in Corrosion Monitoring work-scope from employer

NOTE: The applicant must pass the Eye Acuity Examination, with or without corrective lenses, to prove near vision acuity on Jaeger J2 at 12" or greater (≥ 30.5 cm). All applicants shall take a colour perception test.

*Candidate fulfils the minimum academic qualification but without field experience in Corrosion Monitoring work-scope is considered as candidate without experience.

Certified Corrosion Monitoring Practitioner Level 2

Candidate should have

- Passed IMM Certified Corrosion Monitoring Practitioner Level 1 with a minimum of 1 year field experience in corrosion inhibition monitoring, cathodic protection monitoring and coating defect surveys or meet the pre-requisites recognized by IMM in Tables A.1 & A.2 of Annex A in the IMM CM01 Standard AND
- The applicant must pass the Eye Acuity Examination, with or without corrective lenses, to prove near vision acuity on Jaeger J2 at 12" or greater (≥ 30.5 cm). All applicants shall take a colour perception test.

Certified Corrosion Monitoring Practitioner Level 3

Candidate should have

- Passed IMM Certified Corrosion Monitoring Practitioner Level 2 and shall show proof of having attended a minimum total of 5 days of IMM approved/recognized training course in corrosion monitoring within the last 3 years prior to this application OR
- Passed IMM Certified Corrosion Monitoring Practitioner Level 2 who has achieved the minimum years of corrosion monitoring experiences listed in Tables A.2 of Annex A in the IMM CM01 Standard OR
- Submit (with application in advance) his/her latest record of work experience with copies of actual work done in the field of process corrosion monitoring, key-point corrosion monitoring and cathodic protection monitoring, endorsed by candidate's superiors or clients. Number of years for the work record experience as per Table A.2 of Annex A in the IMM CM01 Standard OR
- Submit a testimonial of their total work experience in corrosion monitoring with details of employment dates, scope of work performed, and proof of continuous corrosion monitoring work without any lapse of more than 18 months. The testimonial must be endorsed by their latest employer or a representative from their client

NOTE: The applicant must pass the Eye Acuity Examination, with or without corrective lenses, to prove near vision acuity on Jaeger J2 at 12" or greater (≥ 30.5 cm). All applicants shall take a colour perception test.

Candidate without experience is required to attend IMM approved/recognized training courses which prepares and provides comprehensive guidance and practice aligned to the

topics covered in the examination.

Candidate with experience is encouraged to attend IMM approved/recognized training courses.

Eye Acuity Test

Corrosion Monitoring Persons should have an annual vision test to ensure natural or corrected near distance acuity in at least one eye such that the applicant is capable of reading a minimum Jaeger Number 2 or equivalent type and size letter at the distance designated on the chart but not less than 12in. (30.5cm) on a standard Jaeger test chart. The ability to perceive an Ortho-Rater minimum of 8 or similar test pattern is also acceptable. For colour contrast differentiation, the examination should demonstrate the capability of distinguishing and differentiating contrast among colours or shades of grey used in the method as determined by the employer. This should be conducted upon initial certification and at five-year intervals thereafter. Vision examinations expire on the last day of the month of expiration.

Eye examinations shall be administered by an Ophthalmologist, Optometrist, Medical Doctor, Registered Nurse or Certified Physician's Assistant or by other ophthalmic medical personnel and must include the Examiner's License/Registration/Certification number. Eye Acuity Examinations shall be performed not more than one (1) year prior to the date of the certification examination or the expiration date for renewals and recertifications. New visual acuity records do not need to be supplied for retests occurring within one (1) year from the original examination date.

All applicants must pass the Eye Acuity Examination, with or without corrective lenses, to prove near vision acuity on Jaeger J2 at 12 in. or greater (≥ 30.5 cm). All applicants shall take a colour perception test.

Eye examination results must be documented on the IMM Visual Acuity Examination Record Form (see below) and submitted with the exam application form.

8. RESIT OF EXAMINATION

A candidate who had failed in one or more of the examination parts can apply to re-sit for the failed component(s) of the examination within a year from the date of the last

examination. The candidate shall have to pay the full examination fee for the re-sit and without the need to attend any pre-requisite training course.

9. RE-CERTIFICATION

All certified IMM Corrosion Monitoring Practitioner can apply for re-certification before the expiry of their certification period.

6 months prior to the expiry of certification (at the end of the 5th year of certification), the 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), the 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.

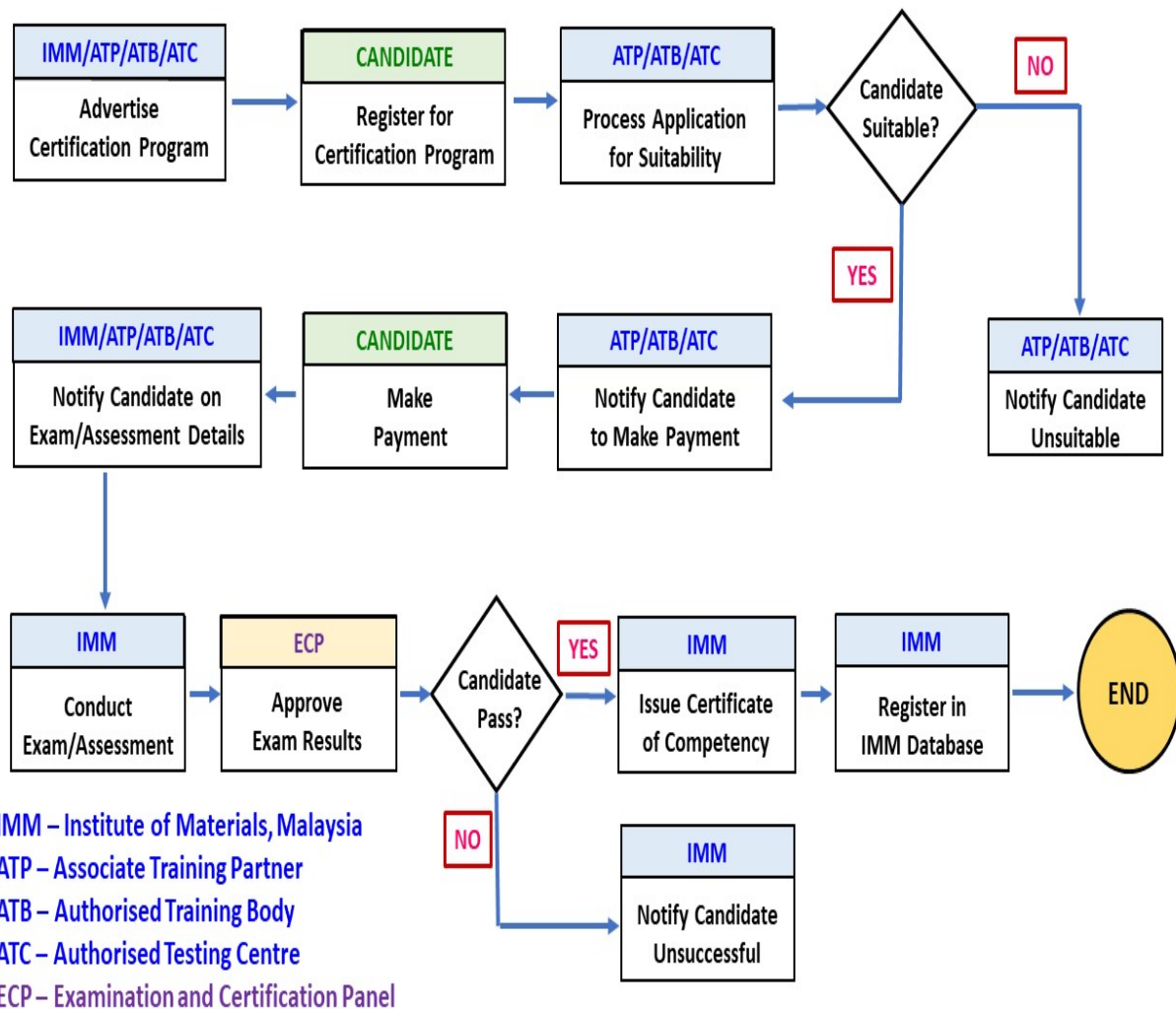
** The minimum number of CPD Points to be accumulated over a 5-year period shall be 100 points with an annual requirement of at least 10 points.*

10. TRAINING

Although this assessment program is intended for only experienced corrosion monitoring practitioner, the candidate is strongly encouraged to attend IMM approved/recognized training courses of 2 - 5 more days to refresh themselves before attending the examination program by IMM. The IMM approved training courses are conducted by IMM certified trainers through IMM Authorised Training Body (ATB) or Associate Training Partner (ATP). Nevertheless, a prior training program for experienced corrosion monitoring practitioner is not compulsory.

The **theory examination and practical assessment** will be conducted by IMM certified trainers/examiners through IMM ATP(s), ATB(s) or ATC(s) throughout Malaysia. Each session will be limited to 20 candidates.

11. FLOW CHART FOR THE CERTIFICATION PROCESS



Note: more details on ATB(s), ATP(s) and ATC(s) can be extracted from IMM website, <https://www.iomm.org.my>.

12. EXAMINATION TOPICS

The topics for assessment in terms of the knowledge and skills needed by candidate include the following:

Certified Corrosion Monitoring Practitioner Level 1

- Fundamental of corrosion
- Forms of corrosion
- Corrosion inhibition & preservation
- Corrosion control techniques (includes coatings)

- Corrosion monitoring techniques
- Corrosion monitoring probes & coupons
- Equipment installation & retrieval process
- Key points monitoring
- Ultrasonic thickness measurement - effectiveness and usage
- Cathodic protection principles
- Cathodic protection inspection techniques and surveys
- Standards and Codes of Practice
- Health, Safety & Environment considerations in corrosion monitoring activities
- Ethical and Professional Conduct
- Interpersonal skills

Certified Corrosion Monitoring Practitioner Level 2

- Corrosion mechanism and behavior in various environments.
- Site issues during offshore/onshore Ultrasonic Testing (UT) key point and process monitoring surveys.
- Laboratory tests (coupon weight loss measurement) related to corrosion monitoring.
- Pressurized retrieval and installation of probes and coupons.
- Understand the on-line non-intrusive corrosion monitoring equipment and set up.
- Site issues relating to cathodic protection (CP) inspection and survey techniques.
- Interpretation of CP/process/key-point corrosion monitoring results.
- Standards and Codes of Practice.
- Health, Safety & Environment considerations in corrosion monitoring activities.
- Ethical and Professional Conduct.
- Interpersonal skills.

Certified Corrosion Monitoring Practitioner Level 3

- Corrosion and electrochemistry relevant to corrosion monitoring.
- Principles of corrosion inhibition and preservation.
- Corrosion monitoring techniques and measurements.
- Key-point corrosion monitoring techniques and measurements such as Ultrasonic Testing Thickness Gauge and other specialized corrosion monitoring methods.
- Corrosion and electrochemistry relevant to cathodic protection.
- Principles of cathodic protection and coatings relevant to corrosion monitoring.
- Monitoring techniques for cathodic protection systems, including AC and DC techniques.
- Standards and Codes of Practice in the relevant application sector.
- Health, Safety and Environmental issues relating to corrosion monitoring tasks.
- Code of Ethics and Professional Conduct of all corrosion monitoring persons.
- Interpersonal communication skills.
- Report writing and technical analytical skills relating to process corrosion monitoring and cathodic protection monitoring.

VISUAL ACUITY EXAMINATION RECORD FORM

Eye examinations shall be administered by an Ophthalmologist, Optometrist, Medical Doctor, Registered Nurse or Certified Physician's Assistant or by other ophthalmic medical personnel and must include the Examiner's License/Registration/Certification number.

All applicants must pass an eye examination, with or without corrective lenses, to prove near vision acuity on Jaeger J2 at 12 inches or greater (≥ 30.5 cm). All applicants shall take a color perception test. Eye examination results must be documented on this IMM Visual Acuity Examination Record Form.

1. The following must be completed by the Eye Examiner

A. Verify the applicant's close vision acuity to Jaeger J2 specifications at a distance of 12 inches (≥ 30.5 cm)

Right	Left		IMM use
		Requires corrected vision to read Jaeger J2 at 12 inches or greater.	
		No correction is required to read Jaeger J2 at 12 inches or greater.	
		Unable to read Jaeger J2 at 12 inches or greater even with attempt at correction.	

B. Through a color perception examination, is the applicant color-blind?

Right	Left		IMM Use
		Applicant is NOT color-blind	
		Applicant IS color-blind	

APPLICANT'S INFORMATION

NAME			
I.D. No:		H/P Tel:	

EXAMINER'S INFORMATION

NAME			
Office Tel. No.		Email	
Address			

EXAMINER'S PROFESSIONAL STATUS

<input type="checkbox"/>	Ophthalmologist	<input type="checkbox"/>	Optometrist	<input type="checkbox"/>	Medical Doctor	<input type="checkbox"/>	Registered Nurse
License/Registration/Certification no:							
Examiner's Signature						Date of Eye Examination	



INSTITUTE OF MATERIALS, MALAYSIA

REGISTRATION FORM FOR CERTIFICATION EXAMINATION

* PLEASE COMPLETE THE FORM USING CAPITAL LETTERS

DATE OF APPLICATION : _____

CERTIFICATION SCHEME

SCHEME TITLE : _____ SCHEME CODE : _____

PARTICULARS OF CANDIDATE

PERSONAL INFORMATION

FULL NAME : _____

TITLE : _____ NRIC/PASSPORT NO. : _____

DATE OF BIRTH : _____ AGE : _____

CORRESPONDENCE ADDRESS : _____

MOBILE PHONE NO. : _____ HOUSE PHONE NO. : _____

EMAIL ADDRESS : _____

ACADEMIC QUALIFICATIONS

(Please provide complete information on your education background; additional sheet may be used if needed.)

QUALIFICATION	INSTITUTION	FIELD OF STUDY	GRADUATION YEAR

INFORMATION RELATING TO CURRENT IMM CERTIFICATION (IF ANY)

CERTIFICATION SCHEME : _____

COMPETENCY CERTIFICATE NO. : _____

CURRENT JOB INFORMATION

NAME OF COMPANY : _____
 DESIGNATION/POSITION : _____
 ADDRESS OF COMPANY : _____
 OFFICE PHONE NO. : _____ WORK EMAIL : _____

WORKING EXPERIENCE

(Please provide complete information on the employment records in the related field; additional sheet may be used if needed.)

NAME OF COMPANY	POSITION	DURATION	JOB DESCRIPTION

FOR CANDIDATES WITH SPECIAL NEEDS

Do you require any assistance to accommodate your special needs during the examination session?

Yes Please specify the required assistance and reason for the request:

No

IMM MEMBERSHIP APPLICATION

MEMBERSHIP GRADE : Ordinary Others (Please specify): _____
 SUBSCRIPTION PERIOD :

- 5 years Others (Please specify): _____ years
 Current member (Please specify IMM membership no.): _____

Note: Membership subscription will cover period of certification.

SUBMISSION OF SUPPORTING DOCUMENTS

- Copy of Identity Card/Passport
- Latest curriculum vitae (CV)
- Copy of certificate of highest academic qualification
- Copy of relevant competency certificate (if any)
- Copy of certificate of attendance to any relevant training course(s)
- Proof of payment
- Original letter from physician/relevant authority (for candidates with special needs)
- Others
Please specify : (1) _____
(2) _____

DECLARATION BY CANDIDATE

I, the undersigned, hereby:

- declare that, to the best of my knowledge, the information provided on this form is correct and complete and that all documents appended to this form for the submission of my application are genuine and the actual copy of the original documents;
- give my permission for my personal data to be processed by the Institute of Materials, Malaysia for personnel, administration and/or management purposes in accordance to the Personal Data Protection Act 2010 (Act 709) under the Laws of Malaysia and for my contact details to be made available to the public if required to due to legal matters upon a formal request by legal personnel;
- consent that the Institute of Materials, Malaysia may disclose any information obtained during the certification process, or from sources other than the applicant, candidate or certified person, to an unauthorized party for the purpose deemed necessary by the Institute of Materials, Malaysia and where the law requires such information to be disclosed;
- agree and understand that the Institute of Materials, Malaysia does not need to provide prior notification to me when there is a request or inquiry made about the status of my certification;
- agree to comply with the certification requirements and to supply any supplementary documents or further information required based on the request made by personnel of the Institute of Materials, Malaysia for assessment purposes; and
- understand that the remitted fee is non-refundable if I withdraw after my application has been accepted.

SIGNATURE : _____
FULL NAME : _____
NRIC/PASSPORT NO. : _____ DATE : _____

FOR OFFICE USE

SUITABILITY CHECKLIST

- Highest academic qualification
- Work experience in related field
- IMM's competency certification or equivalent
- Attended training or revision course(s)

DECISION ON SUITABILITY

YES NO (Please specify:) _____
Examination Date : _____
Examination Venue : _____

Reviewed by (on behalf of ECP),

Approved by (on behalf of ECP),

Name : _____
Date : _____

Name : _____
Date : _____

IMM Certification Number : _____

IMM Membership Number : _____



INSTITUTE OF MATERIALS, MALAYSIA

CONTINUING PROFESSIONAL DEVELOPMENT REPORT

NAME: YEAR:.....
 IMM MEMBERSHIP NO:..... CERTIFICATION NO:.....
 IMM CERTIFICATION:.....

CONTINUING PROFESSIONAL DEVELOPMENT (CPD) LOG (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
TOTAL					

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

CPD Points per year : **10 points minimum.**
 CPD Points per 5 year for re-certification : **100 points.**

Year						Total CPD Points
CPD Points						

I hereby declare that the information and particulars provided by me in this form is true and correct.

.....
 (Signature)

.....
 (Date)