International Certification in NDT
(ICN)

SCHEME FOR QUALIFICATION AND CERTIFICATION OF NON-DESTRUCTIVE TESTING PERSONNEL AS PER ISO 9712:2021

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FOREWORD

ICN Scheme document is prepared by National Certification Board of ISNT, meeting the requirements of International Standard ISO 9712:2021

The effectiveness of any application of Non-Destructive Testing (NDT) depends upon the capabilities of the persons who perform and are responsible for the test. This scheme has been developed to provide a means for evaluating and documenting the competence of the personnel whose duties require adequate theoretical and practical knowledge and skill of the NDT tests they perform witness, monitor or evaluate.

Most of the fabrication and inspection codes insist on only qualified and certified personnel to be employed to carry out mandatory NDT inspection jobs at various levels. Therefore, it is the responsibility of the manufacturer and /or the employer to ensure the competency of the NDT personnel employed by him/her by proper training, qualification & certification.

This scheme has been developed considering the current international practices and industrial scenario and accordingly aligned with International Standard ISO 9712:2021.

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1.0 SCOPE

1.1 This scheme establishes a system for the qualification and certification of personnel to perform industrial nondestructive testing using any of the following methods:

NDT Methods	*Abbreviations*
Eddy Current Testing	ET
Leak Testing	LT
Magnetic Testing	MT
Penetrant Testing	PT
Radiographic Testing[1]	RT [1]
Thermographic Testing	TT
Ultrasonic Testing	UT
Visual Testing	VT

Details of certification as per this standard in various NDT Methods and sectors are given in Annex -A

1 All the national and international regulatory requirements applicable at the place of use should be complied with for handling and operating radiation sources.

2.0 REFERENCES

2.1 **ISO 9712:2021** 'Non-destructive testing, qualification and certification of NDT personnel' issued by the International Organization for Standardization

2.2 **IAEA-TECDOC-628** (2013), Training guidelines in non-destructive testing techniques, published by the International Atomic Energy Agency (IAEA), Vienna, Austria

2.3 **ISO 17024:2012** - General requirements for Bodies operating Certification of Persons

2.4 **ISO TR 25107: 2019** -Non Destructive Testing- Guidelines for NDT Training Syllabuses

2.5 **IS 13805:2004-**General Standard for Qualification and Certification of Non-Destructive Testing Personnel

2.6 Quality Manual NCB-ISNT/QMSD/01 Revision 2

3 TERMS AND DEFINITIONS

For the purposes of this document, the following terms and definitions apply.
ISO and IEC maintain terminology databases for use in standardization at the following addresses:
— ISO Online browsing platform: available at https:// www.iso.org/ obp
— IEC Electropedia: available at https:// www.electropedia .org/

3.1 Applicant
Person who has submitted an application to be admitted into the certification process (3.8)

3.2 Authorized Qualification Body
Body, independent of the employer (3.11), authorized by the NCB-ISNT (3.6) to prepare and administer examinations (3.12)

3.3 Basic Examination Element
Written examination (3.12), at Level 3, which demonstrates the candidate's (3.4) knowledge of the materials science and process technology and types of discontinuities, the specific qualification (3.33) and certification system, and the basic principles of NDT methods (3.25) as required for Level 2
Note 1 to entry: For an explanation of the three levels of qualification, see Clause 6.
Note 2 to entry: The qualification and certification system is specified in this document.

3.4 Candidate
Applicant (3.1) who has fulfilled specified prerequisites and has been admitted to the certification process (3.8).

3.5 Certificate
Document in the form of a letter, card or other medium (e.g. digital certificate), issued by NCB-ISNT (3.6) under the provisions of this document, indicating that the named person has fulfilled the certification requirements (3.9).

3.6 NCB-ISNT (National Certification Board of ISNT)
Body that administers procedures for certification according to specified requirements

3.7 Certification Cycle
Maximum period of time permitted from the date of certification to the date of recertification (3.34) inclusive of the renewal (3.36) period.

3.8 Certification Process
Activities by which a NCB-ISNT (3.6) determines that a person fulfils certification requirements (3.9), including application, assessment, decision on certification, renewal (3.36), recertification (3.34) and use of certificates (3.5) and logos/marks.

3.9 Certification Requirements
Set of specified requirements, including requirements of the scheme to be fulfilled in order to establish or maintain certification.

3.10 Competence
Ability to apply knowledge and skills to achieve intended results.

3.11 Employer
Legal entity by whom the candidate (3.4) is employed
Note 1 to entry: A candidate may be self-employed.

3.12 Examination
Mechanism that is part of the assessment which measures a candidate's (3.4) competence (3.10) by one or more means.

3.13 Examination Centre
Centre approved by the NCB-ISNT (3.6) where examinations (3.12) are carried out

3.14 Examination Element
Component of an examination (3.12).

3.15 Examiner
Person competent to conduct and score an examination (3.12), where the examination requires professional judgment.

3.16 General Examination Element
Written examination (3.12), at Level 1 or Level 2, concerned with the principles of an NDT method (3.25).

3.17 Higher Education
Formal learning that occurs after completion of secondary education in the field of engineering or Science. For certification as per ICN Scheme, higher education implies atleast a graduate in science or engineering.

3.18 Industrial Experience
Work activities (3.46) performed under supervision (3.45), in the NDT method (3.25) in the sector **(3.37)** concerned, needed to acquire the skill and knowledge to fulfill the provisions of qualification (3.33).

3.19 Invigilator / Proctor / Test Administrator
Person authorized by the NCB-ISNT (3.6) who supervises an examination (3.12), but does not evaluate the competence (3.10) of the candidate (3.4).

3.20 Job-specific Training
Training, provided by the employer (3.11) (or their agent) to the certificate (3.5) holder in aspects of non-destructive testing specific to the employer's products, NDT equipment, NDT procedures (3.27), and applicable codes, standards, specifications (3.40) and procedures, leading to the award of operating authorizations (3.30)

3.21 Main Method Examination Element
Written examination (3.12), at Level 3, which demonstrates the candidate's (3.4) general and specific knowledge, and the ability to write NDT procedures (3.27) for the NDT method (3.25) as applied in the industrial or product sector(s) (3.37) for which certification is sought

3.22 Multiple Choice Examination Question
Wording of a question giving rise to potential replies, only one of which is correct, the remaining being incorrect or incomplete

3.23 NDT Instruction
Written description of the precise steps to be followed in testing to an established standard, code, specification (3.40) or NDT procedure (3.27)

3.24 NDT Media
Testing products used to create visible indications caused by imperfections or flaws
EXAMPLE Magnetic powder, contrast aid paints, colour contrast penetrant, developer.

3.25 NDT Method
Discipline applying a physical principle in non-destructive testing. Example: Ultrasonic testing.

3.26 NDT Personnel
Personnel who perform non-destructive testing

3.27 NDT Procedure
Written description of all essential parameters and precautions to be applied when non-destructively testing products in accordance with standard(s), code(s) or specification(s) (3.40)

3.28 NDT Technique
Specific way of utilizing an NDT method (3.25)

3.29 NDT Training
Process of instruction in theory and practice in the NDT method (3.25) in which certification is sought, which takes the form of training courses to a syllabus approved by the NCB-ISNT (3.6)

3.30 Operating Authorization
Written statement issued by the employer (3.11), based upon the scope of certification, authorizing the individual to carry out specified tasks
Note 1 to entry: Such authorization can be dependent on the provision of job-specific training (3.20).

3.31 Practical Examination Element
Assessment of practical skills, in which the candidate (3.4) demonstrates familiarity with, and the ability to perform, the test

3.32 Psychometric Process
Statistical process to verify examinations (3.12) are fair, reliable and discriminate between a competent and non-competent individual

3.33 Qualification
Demonstrated education, training, and work experience

3.34 Recertification
Process for revalidation of a certificate (3.5) by examination (3.12) or by otherwise satisfying the NCB-ISNT (3.6) that the published criteria for recertification have been met

3.35 Referee
Individual who attests the validity of the candidate's (3.4) industrial experience (3.18)

3.36 Renewal
Process for revalidation of a certification at any time up to five years after success in an initial, supplementary or recertification (3.34) examination (3.12)

3.37 Sector
Section of industry or technology where specialized NDT practices are used, requiring specific product related knowledge, skill, equipment or training
Note 1 to entry: A sector can be interpreted to mean a product (welded products, castings) or an industry (aerospace, in-service testing). See Annex A.

3.38 Significant Interruption
Absence or change of work activity (3.46) which prevents the certified individual from practicing the duties corresponding to the level in the method and the sector(s) (3.37) within the certified scope, for either a continuous period in excess of one year, or two or more periods for a total time exceeding two years
Note 1 to entry: Legal holidays or periods of sickness or training courses of less than 30 days are not taken into account when calculating the interruption**.**

3.39 Specific Examination Element
Written examination (3.12), at Level 1 or Level 2, concerned with testing techniques applied in a particular sector(s) (3.37), including knowledge of the product(s) tested and of codes, standards, specifications (3.40), procedures and acceptance criteria

3.40 Specification
Document stating requirements

3.41 Specimen
Sample used in practical examinations (3.12), possibly including radiographs and data sets, which is representative of products typically tested in the applicable sector (3.37)

Note 1 to entry: A specimen can include more than one area or volume to be tested.

3.42 Specimen Master Report
Model answer, indicating the optimum result for a practical examination (3.12) given a specified set of conditions (equipment type, settings, technique, specimen (3.41), etc.) against which the candidate's (3.4) test report is graded

3.43 Structured Credit System
Point system based on the NDT activities of the candidate (3.4) used as an alternative to examination (3.12) for renewal (3.36) or recertification (3.34)

3.44 Structured Experience Program SEP
Program approved by the NCB-ISNT (3.6) to reduce industrial experience (3.18)

3.45 Supervision
Act of directing the application of NDT performed by other NDT personnel (3.26), which includes the control of actions involved in the preparation of the test, performance of the test and reporting of the results

3.46 Work Activity
Performance of NDT-related functions and tasks
Note 1 to entry: See Clause 6.

4.0 ABBREVIATED TERMS

For the purposes of this document, the abbreviated terms listed in Table 1 are used to identify NDT methods.

Table 1 — Methods and abbreviated terms

Sl. No	NDT Methods	Abbreviated terms	Additional Techniques and Limited scope	Abbreviated terms
1	Eddy Current Testing	ET	Material Sorting and Coating Thickness	ET-MS & CT
2	Leak Testing	LT	Pressure Method Tracer gas method	LT-P LT-TG
3	Magnetic Testing	MT		
4	Penetrant Testing	PT		
5	Radiographic Testing	RT	Radiographic Testing -Film Interpretation Digital Radiography Radiographic Testing – Digital Image Interpretation Radiographic Testing - Profile &Tangential Radiography	RTFI DR RTDI PR&TR
6	Thermographic Testing	TT		
7	Ultrasonic Testing	UT	Phased Array Ultrasonic Testing Time of Flight Diffraction Thickness Gauging & Lamination Check (Conventional UT). Thickness Gauging & Lamination Check (PAUT).	UT-PAUT UT-TOFD UT-TG & LC PAUT -TG &LC
8	Visual Testing	VT		

5.0 RESPONSIBILITIES

5.1 General:

The certification system, as documented, is controlled and administered by a NCB-ISNT, It includes all procedures necessary to demonstrate the qualification and the competence of an individual to carry out tasks in a specific NDT method and product or industrial sector, leading to certification.

5.2 National Certification Board (NCB):

NCB ISNT has been accredited by National Accreditation Board for Certification Bodies, Quality Council of India (PR005) as per the requirements of ISO/IEC 17024:2012. The

responsibilities of NCB ISNT towards providing certification of NDT Personnel as per this scheme are given in the Annex E.

5.3 Authorized Qualification Body:

Where established, the authorized qualification body shall:

a) work under the control of and apply the specifications issued by NCB-ISNT;
b) be independent of any single predominant interest;
c) ensure that it is impartial with respect to each candidate seeking qualification, bringing to the attention of NCB-ISNT any actual or potential threat to its impartiality;
d) apply a documented quality management system approved by NCB-ISNT;
e) have the resources and expertise necessary to establish, monitor and control examinations centers, including examinations and the verification and control of the equipment;
f) conduct qualification of candidates including review of application and decision on eligibility;
g) prepare, supervise and administer examinations;
h) provide NCB-ISNT with the results of qualification needed to make a decision on certification by NCB-ISNT;
i) maintain appropriate qualification and examination records according to the requirements of NCB-ISNT.

5.4 Examination Centres shall

5.4.1 The Examination Centre :

a) work under the control of NCB-ISNT.
b) apply the documented quality procedure approved by the NCB-ISNT.
c) have the resources needed to prepare and conduct examinations, including the verification and control of equipment;
d) have adequate qualified staff, premises and equipment to ensure satisfactory examinations for the levels, methods, and sectors concerned; the use of external premises is allowed;
e) facilitate conduct of examinations by an examiner or proctor authorized by NCB- ISNT.
f) apply a documented quality procedure outlined in NCB-ISNT/QMSD/01- Revision 2.
g) maintain qualification and examination records as specified by NCB-ISNT

5.4.2 An examination centre may operate within NCB ISNT or be an independent legal entity or part of a legal entity. An examination center can be situated at employer's premises. In this case, NCB-ISNT ensures controls to preserve impartiality and protect confidentiality of the examinations. The examinations will be conducted only in the presence of and under the control of an authorized representative of NCB- ISNT.

5.5 Employer:

5.5.1 The employer shall document the personal information which shall include the declaration of education, training and industrial experience and visual acuity needed to determine the eligibility of the candidate. If the candidate is self-employed, the industrial experience shall be attested to by a referee.
All documentation obtained from the employer shall be verified by the NCB-ISNT.

5.5.2 In respect of certified NDT personnel under their control the employer shall be responsible for:

a) all that concerns the authorization to operate, i.e. providing job-specific training (if necessary);
b) issuing the written authorization to operate;
c) the results of NDT activities;
d) ensuring that the annual vision requirements of 7.5 are met;
e) maintaining documentary evidence confirming the continuous application of the NDT method in the relevant sector(s) without significant interruption; this action shall be done

every 12 months;

f) ensuring that personnel hold valid certification relevant to their tasks within the organization;
g) maintaining appropriate records.
h) authorise personnel certified as per this scheme in RT to handle and operate radiation sources in compliance with country specific regulatory requirements.
i) Employ personnel certified as per this scheme by following the country specific Labour Law

5.5.3 A self-employed individual shall assume all responsibilities ascribed to the employer.

5.5.4 Certification to this document provides an attestation of general competence of the certified NDT personnel. It does not represent an authorization to operate, since this remains the responsibility of the employer; and the certified NDT personnel may require additional specialized knowledge of parameters such as equipment, NDT procedures, materials and products specific for the employer.

Where required by regulatory requirements and codes, the authorization to operate shall be given in writing by the employer in accordance with a quality procedure that specifies any employer-required job-specific training and examinations designed to verify the certificate holder's knowledge of relevant industry code(s), standard(s), NDT procedures, equipment, and acceptance criteria for the tested products.

5.6 Candidate:

Candidates shall:

a) provide documentary evidence of training in accordance with 7.3;
b) provide documentary evidence that the required experience has been gained under supervision;
c) provide documentary evidence of vision satisfying the requirements of 7.5;
d) provide documentary evidence of minimum educational qualification
e) abide by a code of ethics published by NCB ISNT;
f) provide other requisites as demanded by NCB ISNT.

5.7 **Certificate Holders:**

Certificate holders shall:

a) abide by a code of ethics published by the NCB-ISNT;
b) maintain records demonstrating evidence that vision requirements have been fulfilled in accordance with 7.5;
c) notify the NCB-ISNT and the employer if the conditions of certification are not maintained (see 9.3)

5.8 Examiners

5.8.1 Examiners shall:

— be appointed by NCB ISNT to conduct, supervise and grade examinations;
— be certified to Level 3 in the NDT method in the product and/or industrial sector for which they are appointed.

5.8.2 An examiner shall not be permitted to examine any candidate:

— that he/she has been involved in training of any candidate in the preceding two years for the examination for a period of two years from the date of the conclusion of the training;
— who is working (permanently or temporarily) in the same facility as the examiner.

5.8.3 An Examiner shall submit Annually Confidentiality and Impartiality Agreement prepared by NCB- ISNT.

5.9 Referee

A referee shall be

a) certified to Level-2 or 3 in any NDT method or

b) non-certified personnel who, approved and appointed by the NCB-ISNT, possess the knowledge, skill, training and experience required to certify the candidate's industrial experience.

6.0 Levels of certification

6.1 Level 1

6.1.1 An individual certified to Level 1 has demonstrated competence to carry out NDT according to written instructions and under the supervision of Level 2 or Level 3 personnel. Within the scope of the competence specified on the certificate, Level 1 personnel may be authorized by the employer to perform the following in accordance with NDT instructions:

a) set up NDT equipment;
b) perform the tests;
c) record and classify the results of the tests according to written criteria;
d) report the results.

6.1.2 **Level 1** certified personnel shall neither be responsible for the choice of test method or technique to be used, nor for the interpretation of test results.

6.2 Level 2

An individual certified to Level 2 has demonstrated competence to perform NDT according to NDT procedures or NDT instructions. Within the scope of the competence specified on the certificate, Level 2 personnel may be authorized by the employer to:

a) select the NDT technique for the testing method to be used;
b) specify the limitations of application of the testing method;
c) translate NDT codes, standards, specifications, and procedures into NDT instructions adapted to the actual working conditions;
d) set up and verify equipment settings;
e) perform and supervise tests;
f) interpret and evaluate results according to applicable standards, codes, specifications or procedures;
g) carry out and supervise all tasks at or below Level 2;
h) provide guidance and mentoring for personnel at or below Level 2;
i) report the results of NDT.

6.3 Level 3

6.3.1 An individual certified to Level 3 has demonstrated competence to perform and direct NDT operations for which they are certified. Level 3 personnel have demonstrated:

a) the competence to evaluate and interpret results in terms of existing standards, codes, and specifications;
b) sufficient practical knowledge of applicable materials, fabrication, process, and product technology to select NDT methods, establish NDT techniques, and assist in establishing acceptance criteria where none are otherwise available;
c) a general familiarity with other NDT methods listed in Clause 4.

6.3.2 Within the scope of the competence specified on the certificate, Level 3 personnel may be authorized by the employer to:

a) establish, review for editorial and technical correctness, and validate NDT instructions and procedures;
b) interpret standards, codes, specifications, and procedures;
c) designate the particular test methods, procedures, and NDT instructions to be used;
d) carry out and supervise all tasks at all levels;
e) provide guidance and mentoring for NDT personnel at all levels

7.0 ELIGIBILITY

7.1 General

To be eligible for examination, the candidate shall fulfill and provide documented evidence acceptable to NCB-ISNT regarding the minimum education, vision and training requirements. In addition, the candidate shall also fulfill minimum experience requirements, which are specified in this clause prior to certification.

7.2 Educational Qualification:

7.2.1 This clause defines minimum Educational Qualification for certification of personnel to L-1, 2 & 3 as per this scheme. For the purpose of certification as per this scheme Higher education implies atleast a graduate in science or engineering.

7.2.2 The minimum educational requirements for Level 1 and Level 2 is Class X or equivalent with science and mathematics. For Level 3, the minimum educational requirements are Diploma in engineering, or two years of science or engineering study during graduation.

7.2.3 At the discretion of NCB-ISNT, the candidate not meeting the educational requirements for Level 3 may be allowed to seek certification provided the experience gained by the candidate satisfy the criteria mentioned in 7.4.

7.3 Training

7.3.1 The Candidate shall provide documentary evidence acceptable to NCB –ISNT that he or she has satisfactorily completed NDT training. The training requirements for different NDT Methods are given in Table 2A. Additional training requirements for specific NDT technique (advanced) within the method are given in Table 2B. Training requirements for certification in NDT methods with limited scope of application is given in Table 2C.

NCB ISNT will include additional advanced technique and NDT methods with limited scope of applications in future depending on the demand and requirements of various industrial sectors.

7.3.2 For all levels, theoretical training may be delivered in a face-to-face instructor-led format, distance learning format, a self-paced format, or a combination of these formats. Practical training shall be delivered by a face-to-face instructor-led format only. The training for initial certification shall remain valid for a maximum period of ten years from the date of completion.

For Level 3, in addition to the minimum training requirements given in Table 2 (A,B,C), the preparation for qualification can be completed in different ways dependent on the scientific and technical background of the candidate, including attendance at other training courses, conferences or seminars, studying books, periodicals and other specialized printed or electronic materials.

NOTE Guidelines for NDT personnel training organizations are given in ISO/TS 25108.

7.3.3 The minimum duration of training undertaken by the candidate for certification shall impart the skills and knowledge and shall not be less than that specified in 7.3.4 and Table 2 for the applicable NDT method, with the possible reductions specified in 7.3.5.

This duration is based upon candidates possessing mathematical skills and prior knowledge of materials and processes that can be confirmed by appropriately screening of completed prior education. If it is not the case, additional training on this matter may be required by the NCB-ISNT.

Training days include both practical and theoretical courses.

7.3.4 Direct access to Level 2 requires the total days shown in Table 2 for Levels 1 and 2.

Direct access to Level 3 requires the total days shown in Table 2 (A) for Levels 1, 2, and 3. When considering the responsibilities of a certified Level 3 (see 6.3) and the content of item C of the basic examination element for Level 3 (see Table 7), additional training about the other NDT methods may be necessary.

Table 2A— Minimum training requirements for different NDT Methods

NDT method	Level 1 (days[a])	Level 2 (days[a])	Level 3 (days[a)]
ET	5	6	6
LT	5	9	6
MT	3	2	4
PT	3	2	3
RT-FILM	5	10	5
RT-DIGITAL	5	10	5
RT-FILM & DIGITAL	8	10	8
TT	5	6	5
UT	8	10	5
VT	3	2	3

a One day duration is at least seven hours, which can be achieved on a single day or by accumulating hours.
b For RT, training days does not include radiation safety training.

Table 2B — Minimum Additional training requirements for Specific NDT technique within the method

NDT method	Technique	Level 1 (days[a])	Level 2 (days[a])	Level 3 (days[a)]
LT [b]	LT-P	3	4	n/a
	LT-TG	2	5	n/a
RT-FILM to DIGITAL	DR	3	5	3
UT [b]	UT-PAUT	5	5	n/a
	UT-TOFD	5	5	n/a

a. One day duration is at least seven hours, which can be achieved on a single day or by accumulating hours.
b. Candidate must be certified in the main method before seeking certification in the above specific NDT techniques within that method to the corresponding level. For e.g,: to be certified as Level 2 in UT –PAUT : candidate must hold a valid Level 2 certificate in UT (any sector).
c. For RT, training days does not include radiation safety training.
d. Certificate in the above specific technique is valid subject to the validity of certificate in the main method. For e.g. Level 2 certificate in UT –PAUT is valid only when the Level 2 certificate in UT is valid (any sector).

Table 2C - Minimum training requirements for certification in NDT methods with limited scope of application

NDT method	Limited scope	Level 1 (days[a])	Level 2 (days[a])	Level 3 (days[a)]
ET	ET- MS & CT	3	3	n/a
RT[b]	RTFI-Welding	n/a	6	n/a
	RTFI-Casting		6	
	RTDI- Weld	n/a	6	n/a
	RTDI-Casting		6	
	RT - PR & TR	n/a	6	n/a
UT	UT - TG & LC	4	5	n/a
	PAUT- TG & LC	4	5	n/a

a One day duration is at least seven hours, which can be achieved on a single day or by accumulating hours.
b For RT, training days does not include radiation safety training.

7.3.5 The possible reductions in training duration are as described hereafter, provided that, when several reductions are applicable, the total reduction does not exceed 50 % of the training duration. Any reduction requires acceptance by the NCB-ISNT and shall ensure that competence is maintained.

a) For all levels:

— for candidates seeking certification in more than one method (i.e. MT, PT), or for those already certified and seeking certification in another method, when the training syllabus concerned duplicates certain aspects (i.e. product technology), the total number of training days for these methods (i.e. PT, MT, VT) may be reduced by one day in line with the training syllabus;

— for candidates who have graduated in science or engineering in a relevant subjects (e.g. physics, maths in science and mechanical, metallurgical, production, electrical, electronics, instrumentation in engineering) or have completed diploma in engineering in a relevant subjects, the total required training duration may be reduced by up to 50 %.

7.4 Industrial NDT experience

7.4.1 General

The minimum duration of industrial experience to be gained in the method where the candidate is seeking certification shall be as given in Table 3, with the possible reductions given in 7.4.3. When the candidate is seeking certification in more than one method, the total time of experience shall be the sum of the experience in each method.

For Level 1 and Level 2, upto 75% of the experience mentioned in Table 1 may be sought after the certification examination, the candidate may be allowed at the discretion of NCB-ISNT, to appear in the examination. In such case, the result of the examination may be declared to the candidate, but the certificate shall be withheld, until the time the candidate submits documentary evidence of the experience gained as per the requirements of Table 1. The results of examination shall be valid for a period of 5 years. On submission of the documents related to experience and subjected to meeting other requirements of certification, the candidate may be issued the certificate in the applicable NDT method and sector. The validity of the certificate shall start from the date the certificate is issued. The end date of the validity shall be determined from the date of examination and not from the date when the certificate was issued. It is responsibility of the candidate to inform NCB-ISNT with documentary evidence of experience gained for certification at appropriate level

Documentary evidence of experience shall be confirmed by the employer or the referee and submitted to the NCB-ISNT.

Table 3 — Minimum industrial Experience in days[a]

NDT method	Level 1	Level 2		Level 3		
		with Level 1	Direct Access	Higher education with Level 2	with Level 2	direct access with higher education
ET, LT, RT, DR, TT, UT	45	135	180	270	450	540
MT, PT, VT	15	45	60	180	240	360
PAUT, TOFD, LT- P&TG *RT-FILM to DIGITAL	15	35	45	n/a	n/a	n/a
Limited Certification						
ET - MS & CT, RTFI -Weld & Cast RTDI -Weld & Cast RT - PR & TR UT - TG & LC PAUT- TG & LC	25	70	90	n/a	n/a	n/a

[a] One day duration is at least seven hours, which can be achieved on a single day or by accumulating hours. The maximum allowable hours in any one day is 12 hours. Experience in days is achieved by dividing the total accumulated hours by 7.

***** RT Film to Digital : RT Film Level 2 is required.

7.4.2 Level 3

Level 3 responsibilities require knowledge beyond the technical scope of any specific NDT method. This broad knowledge may be acquired through a variety of combinations of education, training and experience. Table 3 details minimum experience for candidates who have successfully completed higher education, as well as candidates without higher education.

7.4.3 Possible reductions

7.4.3.1 The possible reductions in duration of experience are as described hereafter. Any reduction shall require acceptance by the NCB-ISNT.

7.4.3.2 A certified Level 1, 2 or 3 adding an additional method may be permitted a reduction of required experience of 25 % for that additional method.

7.4.3.3 A certified Level 1, 2 or 3 individual changing sector, adding another sector or technique for the same NDT method shall be required to gain additional experience of at least 25 % of the experience required in Table 3; and this shall never be less than 15 days in duration.

7.4.3.4 Up to 50 % of the industrial experience time may be achieved by a structured experience program (SEP). One day of attendance at the SEP may be equivalent to a maximum of five days industrial experience. The SEP shall include all typical tasks (see Clause 6) of the level, method and sector concerned. The additional intent is to gain specific product and technique knowledge. The SEP shall be approved in advance by the NCB-ISNT and shall be available for audit by the NCB-ISNT.

7.5 Vision requirements — all levels

7.5.1 General

Candidates and certificate holders shall maintain and provide documentary evidence of acceptable vision in accordance 7.5.2 to 7.5.4.

7.5.2 Near vision acuity

Prior to certification, and annually thereafter, near vision acuity shall be verified to be in accordance with the requirements of ISO 18490 or shall permit reading a minimum of Jaeger number 1 or Times Roman N4.5 or equivalent letters at not less than 30 cm with one or both eyes, either corrected or uncorrected.

7.5.3 Colour vision

Prior to certification, recertification or renewal, the candidate/certificate holder shall demonstrate that a colour vision test has been administered within the previous 5 calendar years.
It is required that colour vision and/or grey scale perception be sufficient for the individual to be able to distinguish and differentiate between the colours or shades of grey used in the NDT methods/techniques concerned as specified by the employer.

The colour vision test shall either confirm that the individual has acceptable colour vision without restriction or shall state any limitation(s) on colour perception.
Where any limitation in colour perception exists, the employer shall confirm whether or not this condition results in any limitation(s) to method or application specific techniques.

NOTE The Ishihara 24 plate test is an example of a suitable colour vision test**.**

7.5.4 Personnel administering vision tests

Near vision acuity testing, colour vision and/or grey scale perception verification(s) shall be administered by a licensed physician, nurse, ophthalmologist or optometrist; or by another trained professional who is approved and documented by a Level 3 personnel acting on behalf of the employer.

8 Examinations

8.1 Overview

8.1.1 General

The examination covers an NDT method, technique, industrial sector and/or product sector as appropriate. The syllabus for the examination as per this scheme will be in line with TR25107:2019.

NCB-ISNT has established a documented appropriate methodology and procedures to ensure fairness, validity, reliability, and general performance of examinations to maintain an acceptable pass grade of 70 % for all examinations.

The processes for preparation and conduct of examinations (see 8.4) are further designed to ensure the confidentiality and security of examination questions and examination papers.

The practical specimens are maintained and monitored to ensure consistency and fairness of examinations using processes adopted by the NCB-ISNT. The results of examinations remain valid for up to five years while the candidate completes any remaining certification requirements.

8.1.2 Examination elements

For Level 1 the examination consists of the following examination elements:
— general examination element;
— specific examination element;
— practical examination element.

For Level 2 the examination consist of the following examination elements:
— general examination element;
— specific examination element;
— practical examination element;
—NDT instruction writing element.

For Level 3 the examination shall consist of the following examination elements:
— basic examination element which consists of the following items:
— item A technical knowledge;
— item B NCB-ISNT's document knowledge;
— item C Level 2 knowledge of methods;
— main method examination element which consists of the following items:
— item D general examination;
— item E specific examination;
— item F NDT procedures.

8.1.3 Examination time

Examination Time for Theory and Practical examination in different NDT Methods for different level of certification are given below in Table 4.

Table 4 —Examination time (Hours) for different NDT Methods										
NDT method			**Level 1**			**Level 2**			**Level 3**	
			General	**Specific**	**Practical**	**General**	**Specific**	**Practical**	**General**	**Specific**
ET			1.5	1.5	2	1.5	1.5	3	3	2
LT			1.5	1.5	2	1.5	1.5	3	3	2
MT			1.5	1.5	2	1.5	1.5	3	3	2
PT			1.5	1.5	2	1.5	1.5	3	3	2
RT			1.5	1.5	3	1.5	1.5	5	3	2
RT-DR			1.5	1.5	3	1.5	1.5	4	n/a	n/a
TT			1.5	1.5	2	1.5	1.5	3	3	2
UT			1.5	1.5	3	1.5	1.5	5	3	2
VT			1.5	1.5	2	1.5	1.5	3	3	2
BASIC			n/a						3	n/a
Examination time (Hours) for Specific NDT technique within the method										
NDT method	**Technique**		**Level 1**			**Level 2**				
			General	**Specific**	**Practical**	**General**	**Specific**	**Practical**		
LT	LT-P		1.5	1.5	2	1.5	1.5	3		
	LT-TG		1.5	1.5	2	1.5	1.5	3		
UT	UT-PAUT		1.5	1.5	3	1.5	1.5	4		
	UT-TOFD		1.5	1.5	3	1.5	1.5	4		
Examination time (Hours) for NDT methods with limited scope of Application										
NDT method		**Limited scope**	**Level 1**			**Level 2**				
			General	**Specific**	**Practical**	**General**	**Specific**	**Practical**		
ET		ET- MS & CT	1.5	1.5	2	1.5	1.5	2		
RT		RTFI-Welding	1.5	1.5	2	1.5	1.5	3		
		RTFI-Casting	1.5	1.5	2	1.5	1.5	3		
RT		RTFI –Weld & Cast	1.5	1.5	2	1.5	1.5	3		
		RTDI- Weld	1.5	1.5	2	1.5	1.5	3		
		RTDI-Casting	1.5	1.5	2	1.5	1.5	3		
		RTDI-Weld & Cast	1.5	1.5	2	1.5	1.5	3		
		RT-PR & TR	n/a	n/a	n/a	1.5	1.5	3		
UT		UT –Thickness Gauging & Lamination Check	1.5	1.5	2	1.5	1.5	3		
		PAUT- TG & LC	1.5	1.5	2	1.5	1.5	3		

8.1.4 Examination aids

The use of aids such as codes, standards, specifications, procedures and electronic devices is only permitted if supplied as part of the examination or authorized by NCB-ISNT.

8.2 Examination content and grading for Level 1 and Level 2

8.2.1 General examination element

The general examination element: A minimum of 40 multiple choice examination questions are selected randomly from NCB-ISNT collection of general examination question bank valid at the date of examination.

Where not otherwise addressed by national regulations, there may be an additional examination on radiation safety for the radiographic testing method.

8.2.2 Specific examination element

The specific examination element: A minimum of 20 multiple choice examination questions are selected from NCB-ISNT collection of specific examination element question bank valid at the date of examination. If the specific examination element covers two or more sectors, the minimum number of questions shall be at least 30, taking into account the industrial or product sectors concerned (see Annex A).

Specific examinations are based on NDT Procedures prepared from ISO Standards relevant to NDT methods and sectors.

8.2.3 Practical examination element

8.2.3.1 The practical examination element shall involve applying the test to prescribed specimens, recording (and, for Level 2 candidates, interpreting) the resulting information to the degree required, and reporting the results in the required format. Specimens used for training purposes shall not be used for examination.

8.2.3.2 Each specimen shall be uniquely identified and have a specimen master report, which includes all of the equipment settings (if applicable) used to detect specified discontinuities.

8.2.3.3. The specimen master reports are compiled based upon at least two independent tests, and are verified by a Level 3 certificate holder in that method for use in grading examinations.

8.2.3.4 The minimum number and type of specimens for Level 1 & 2 Practical examination element will be as per Annex B.

8.2.3.5 Specimens shall be sector (one or more) specific, representing field geometries and shall contain discontinuities representative of those likely to occur during manufacturing or in service. They may be natural or artificial. Data sets, digital radiographic images and/or films can be used instead of physical specimens, but at least one physical specimen shall be examined. Specimens used for adjustment or for determination of thickness, coating or material properties do not need to contain discontinuities. For RT, the specimens to be tested do not need to contain discontinuities if these are exhibited in the data sets or radiographic images for Level 2 interpretation.

8.2.3.6 NCB-ISNT ensures that the number of specimens to be tested is adequate to the level, NDT method and sector concerned, and that the specimens contain reportable discontinuities. The number of specimens to be tested in the Level 1 and Level 2 practical examinations shall be in accordance with Annex B.

8.2.3.7 The Level 1 candidate shall follow the NDT instruction(s) provided by the examiner.

8.2.3.8 The Level 2 candidate shall select the applicable NDT technique and determine the operating conditions related to a given code, standard or specification.

8.2.3.9 The time allowed for the examination is given in 8.1.3 (Table 4).

8.2.4 NDT instruction writing examination element

8.2.4.1 The NDT instruction writing examination element shall involve the creation of a written NDT instruction by the Level 2 candidate.

8.2.4.2 See Table D.2 for the weighting of the written examination instruction element.

8.2.5 Grading of the Level 1 and Level 2 examination

8.2.5.1 The general, specific, practical and NDT instruction writing examination elements shall be graded separately. When conventional pre-prepared paper-based examinations are used, an examiner shall be responsible for the grading of the examinations by comparison with model answers. E-assessment systems that automatically score candidate responses against stored data and grade the completed written examination according to prepared algorithms may be used. Each correct reply scores 1 point and the mark attributed to the tests is the sum of the points obtained. For the final calculation, the mark of each test is expressed as a percentage.

8.2.5.2 The grading of the practical examination element shall be based on items 1 to 3 in Table 5, with the recommended weighting factors in relation to the level and method as applicable.

Table 5— Subjects and weighting factors for grading — Practical examination element			
Item	**Subject**	**Weightage Factor**	
		Level-1	**Level-2**
1	Knowledge of NDT Equipment and NDT media	20	10
2	Application of NDT method	35	26
3	The detection of indications or discontinuities and reporting	45	64
Total		100	100
Table D.1 provides guidance on additional data on each item to be taken into account, as applicable by the examiner.			

8.2.5.3 For the Level 1 candidates to be eligible for certification, they shall obtain a minimum grade of 70 % on each examination element (general, specific and practical). For the practical examination element, a minimum grade of 70 % shall be obtained for each specimen tested.

8.2.5.4 NCB-ISNT or authorized qualification body may classify some discontinuities as mandatory to be detected.

8.2.5.5 For the Level 2 candidates to be eligible for certification, they shall obtain a minimum grade of 70 % on each examination element (general, specific, practical and NDT instruction writing). For the practical examination element, a minimum grade of 70 % shall be obtained for each specimen tested and NDT instruction writing element, as applicable. The NCB-ISNT or authorized qualification body may classify some discontinuities as mandatory to be detected and evaluated as unacceptable. The NDT instruction writing element shall be graded in accordance with Annex D.

8.3 Examination content and grading for Level 3

8.3.1 General

All candidates for Level 3 certification in any NDT method shall have successfully completed (with a grade of ≥ 70 %) the practical examination element for Level 2 in the relevant sector and method, except for the drafting of NDT instructions for Level 1 (see 8.2.4.1). A candidate who is Level 2 in the same NDT method and product sector or who has successfully passed a Level 2 practical examination element for the NDT method in an industrial sector, as specified in Annex A, is exempt from passing again the Level 2 practical examination element. This exemption is only valid for the product sectors covered by the industrial sector concerned and, in any other circumstances; the relevant sector is the sector in which the candidate seeks Level 3 certification.

8.3.2 Basic examination element

8.3.2.1 This written examination shall assess the candidate's knowledge of the basic subjects using at least the number of multiple choice examination questions shown in Table 6.
Examination questions are selected from NCB-ISNT collection of basic examination element question bank valid at the date of examination.

Table 6 — Minimum required number of basic examination element questions for Level 3		
Item	**Subject**	**Number of questions**
A	Technical knowledge in materials science and process technology	25
B	Knowledge of the NCB-ISNT's qualification and certification systems based on this document. This may be an open book examination	10
C	General knowledge of at least four methods as required for Level-2 and chosen by the candidate from the methods given in Table-1. These four methods shall include at least one volumetric method (UT or RT).	15 For each test method (Total 60)
For item C, NCB-ISNT may adjust the number of questions as per method for methods impacting for evolving technology, increasing methods and techniques being added.		

8.3.2.2 It is recommended that the basic examination element be passed first and remain valid, provided that the first main method examination element is passed within five years after passing the basic examination element. A candidate holding a valid Level 3 certificate is exempt from the need to retake the basic examination element.

8.3.3 Main method examination element

This written examination shall assess the candidate's knowledge of the main method subjects using the minimum required number of multiple choice questions shown in Table 7. Examination questions shall be selected in an unpredictable way from the current collection of questions approved by the NCB-ISNT at the time of the examination.

Table 7 — Minimum required number of main method examination element questions

Item	Subject	Number of questions
D	Level-3 knowledge relating to the NDT test method applied	30
E	Application of NDT method in the sector concerned, including the applicable codes, standards, specifications and procedures. This may be an open-book examination in relation to codes, standards, specifications and procedures.	20
F	Drafting one or more NDT procedures in the relevant sector. The applicable codes, standards, specifications and other procedures shall be available to the candidate. For candidates who have already drafted an NDT procedure in a successfully passed Level-3 examination, NCB-ISNT may replace the drafting of a procedure with the critical analysis of an existing NDT procedure covering the relevant method and sector, and containing errors and / or omissions.	—
Applicable aids (section 8.1.4) shall be specified and communicated to the candidates. These aids may be provided by NCB-ISNT or authorized qualification body for use in open-book examination.		

8.3.4 Grading of Level 3 examinations

8.3.4.1 General

The grading of the basic and main method examination elements shall be done separately. To be eligible for certification, a candidate shall pass both the basic and main method examination elements. For the three items A, B, and C of the basic examination element and items D and E of the main method examination element, the following requirements apply. When conventional pre-prepared paper-based examinations are used, an examiner shall be responsible for the grading of the examinations by comparing the replies given by the candidate against answer keys approved by the NCB-ISNT. Each correct reply scores 1 point and the mark attributed to the tests is the sum of the points obtained. For the final calculation, the mark of each test is expressed as a percentage.

At the option of the NCB-ISNT, e-assessment systems that automatically score candidate responses against stored data and grade the completed written examination according to prepared algorithms may be used.

8.3.4.2 Basic examination element: In order to pass the basic examination, the candidate shall obtain a minimum grade of 70 % in each of parts A, B, and C.

8.3.4.3 Main method examination element :In order to pass the main method examination, the candidate shall obtain a minimum grade of 70 % in each of parts D, E, and F.

See Table D.3 for the recommended weighting of the written NDT procedure.

8.4 Conduct of examinations

8.4.1 All examinations are conducted at examination centres established, approved, and monitored by NCB-ISNT.

8.4.2 At the examination, the candidate shall have in their possession valid proof of identification and an official notification of the examination, which shall be shown to the examiner or invigilator upon demand.

8.4.3 Any candidate who, during the course of the examination, does not abide by the examination rules or who perpetrates, or is an accessory to, fraudulent conduct shall be excluded from all further examinations for a period of at least one year.

8.4.4 Examination questions shall be validated by the NCB-ISNT. When conventional pre-prepared paper-based examinations are used, the examination papers shall be validated and approved by an examiner, and the grading shall be done in accordance with procedures approved by NCB-ISNT (see 8.2.5 and 8.3.4). When e-assessment systems that select questions, present the "written" examination to a candidate on a computer and grade the examinations are used, NCB-ISNT shall validate and approve the e-assessment system.

8.4.5 Written (whether e-assessment or conventional) and practical examinations shall be invigilated by an examiner or by one or more invigilators placed under a NCB-ISNT's responsibility.

8.4.6 With the approval of the NCB-ISNT, a candidate for a practical examination may use their own equipment.

8.4.7 Candidates shall not be permitted to bring into the examination area personal items, unless specifically authorized to do so by the examiner.

8.5 Re-examination

8.5.1 A candidate failing for reasons of unethical behaviour shall wait at least 12 months before reapplying (see 8.4.3).

8.5.2 A candidate who fails one or more elements of an examination (i.e. general, specific, practical etc.) may retake the failed examination no more than twice: a) after a minimum time of one month (which may be reduced if further training acceptable to the NCB-ISNT has been satisfactorily completed); b) no later than two years after the initial examination.

8.5.3 A candidate failing two re-examinations on one or more elements shall complete further training, acceptable to the NCB-ISNT, and be required to retake all examination elements.

8.6 Supplementary examinations

8.6.1 A certified Level 1 or Level 2 individual changing sectors or adding another sector for the same NDT method shall be required to take sector specific and practical examination elements for the new sector. Level 2 shall also be required to write the NDT instruction for the new sector.

8.6.2 A certified Level 3 individual changing sectors or adding another sector for the same NDT method shall be required to take the sector specific items E and F of the main method examination element only (**see Table 7**).

9 Certification

9.1 Administration

A candidate fulfilling all certification requirements shall be certified; and evidence of this certification shall be made available by NCB-ISNT. This can be achieved with the issue of hard/soft copy certificate(s) and displaying the relevant information on a database on the NCB-ISNT's website. NCB-ISNT may also issue a wallet card that shall include a measure(s) to prevent falsification.

9.2 Certificates

Certificates shall include the following information as a minimum:

a) the name of the certified individual, and (optional) date of birth of the certified individual;
b) a unique identification (e.g. a photo, or reference to a photo identification by number);
c) the name of the NCB-ISNT;
d) the scope of the certification, including reference to this document, the NDT method(s) and level of certification, and/or applicable techniques and sector(s), including issue date;
e) any limitations to the certification, if applicable;
f) the effective date of certification and date of expiry;
g) the signature and/ or authorization of a designated representative of the NCB-ISNT;
h) contact information and website address to issuing NCB-ISNT database for verification purposes.

Where the data listed above can be printed directly from the NCB-ISNT's website, the printed output shall include a date of print and a statement that the current certification status can be verified at the relevant website.

9.3 Conditions of certification

9.3.1 General

Certification is granted, extended, suspended, withdrawn or revalidated by the NCB-ISNT. The maximum period of validity of the certificate is 5 years. To be valid, certificates shall be supported by a current annual verification of acceptable vision as per 7.5.

9.3.2 Granting

Certification shall be granted by the NCB-ISNT when all certification requirements are fulfilled. The period of validity shall commence upon the decision of certification by the NCB-ISNT.

9.3.3 Scope extension

NCB-ISNT shall specify requirements for scope extension for situations where an individual seeks extension of their scope of certification for an existing certification (i.e. additional product sector).

At the discretion of the NCB-ISNT:

a) the additional scope may be added to the existing certification and the original period of validity maintained; or
b) a new certificate with a new period of validity may be issued for the extension to scope only.

9.3.4 Suspension of certification

Certification may be suspended by NCB-ISNT:

a) if the individual becomes temporarily physically incapable of performing their duties;
b) if the individual fails to provide evidence of meeting the visual acuity requirements of this document annually;
c) if a significant interruption takes place in the method for which the individual is certified;
d) at the discretion of the NCB-ISNT for any other situations where the certified individual is not in a position to perform duties as specified Cl.6.1, 6.2, & 6.3.

e) Under the following conditions the suspended certificates will be revalidated by NCB-ISNT.
- For Level I&II : If the candidate passes practical exams (if the certificates is suspended because of Cl.9.3.4: a, c, & d).
- For L-III : If the candidate passes item D & E as per Table 7 (if the certificates is suspended because of Cl.9.3.4: a, c, & d).
- For All Levels : If the certified individual provides evidence meeting the vision acuity requirements as per this document (if the certificate is suspended because of Cl.9.3.4: b).

9.3.5 Withdrawal of certification

Certification shall be withdrawn by NCB-ISNT:

a) at the discretion of the NCB-ISNT, i.e. after reviewing evidence of behaviour incompatible with the certification scheme or failure to abide by a code of ethics;

b) if the individual fails to meet the requirements of renewal, until such time as the individual meets the requirements for renewal;

c) if the individual fails recertification, until such time as the individual meets the requirements for recertification or certification;

d) at the discretion of the NCB-ISNT, when verifiable evidence is received from the employer stating that the individual has become physically incapable of performing their duties.

9.3.6 Certification after withdrawal

NCB-ISNT shall specify the conditions for certification where an individual's certification has been withdrawn in the case of 9.3.5 a) and d).

If the certification is withdrawn in case of 9.3.5 a): such candidates will have to wait for a period of 3 years before they can apply to NCB ISNT for certification and such candidates will be treated as fresh candidates.

If the certification is withdrawn in case of 9.3.5 d): NCB ISNT may re-issue the certificate after verifiable evidence received from the employer stating that the individual is now physically capable of performing his/her duties.

9.4 Certificates issued by other certification bodies

9.4.1 NCB-ISNT may consider certification issued by another certifying body. If so, NCB-ISNT shall do so in accordance with a documented process. Where the NCB-ISNT takes into account work performed by another body, it shall have appropriate reports, data and records to demonstrate that the results are equivalent and conform to the requirements established by the certification scheme.

9.4.2 This process shall consider the granting of credit for valid certification including a review of education, training, experience, vision and examination requirements of the originating NCB-ISNT. The review may allow the NCB-ISNT to recognize the general theory part of a method examination. The review may also allow the NCB-ISNT to recognize the specific and/or practical examination elements but only when the method/technique, industry/product sector are appropriate.

9.4.3 Where the prior certification is accepted without any additional examination, the expiry of the new certification shall not extend beyond that of the prior certification nor shall extend the scope of certification.

10 Renewal

10.1 Prior to the completion of the period of validity following certification and recertification, certification shall be renewed by the NCB-ISNT for a new period of validity on production of:

a) documentary evidence of a satisfactory near vision acuity examination taken within the preceding 12 months; and
b) documentary evidence of a satisfactory colour vision and/or grey scale perception examination taken within the preceding 60 months; and
c) verifiable documentary evidence of continued satisfactory work activity without significant interruption in the method and sector for which certificate renewal is sought; and either:
d) successful completion of a practical examination element in accordance with 11.2.2 except that it shall consist of a minimum of 50 % of the examination specimens required by 11.2.2; or
e) successfully meeting the requirements of the structured credit system as given in 10.2 and Annex C. If the criterion c) for renewal is not met, the individual shall complete the practical examination elements required by 11.2.2.

10.2 Where a candidate elects to use the structured credit system, they shall provide evidence to the NCB-ISNT to demonstrate achievement of a minimum of 100 points in the 5 year renewal period based on the requirements of Table C.1.

10.2.1 For candidates seeking renewal of Level 1 certificates, a minimum of 75 of the 100 points is required for any combination of activities listed in part A of Table C.1.

10.2.2 For candidates seeking renewal of Level 2 or 3 certificates, a minimum of 50 of the 100 points is required for any combination of activities listed in part A of Table C.1.

10.2.3 Where a NCB-ISNT has opted to implement a renewal period of less than 5 years, the minimum points required may be prorated accordingly [i.e. a 4 year renewal period would require a minimum of 80 points (100 × 4/5)].

10.2.4 Where a candidate is seeking renewal for more than one certificate, points granted for a specific activity can be applied to the total points required for each certificate for those activities not specific to a particular method (e.g. “Current individual membership in NDT or NDT related society”). However, candidates shall meet the total number of points required (i.e. 100 points) for each certificate for which renewal is being sought.

10.3 It is the responsibility of the certificate holder to initiate the procedure required for renewal.

10.3.1 The renewal application should be made to the NCB-ISNT before the date of the expiration of the certification and shall be no later than 12 months after the date of expiration of the certificate.

10.3.2 If the renewal application is received prior to or on the date of expiration of the certificate, the renewal date of the new certificate shall be the same as the date of expiration of the certificate (i.e. no interruption in certification). The date of expiration of the new certificate shall be no more than 5 years from the date of expiration of the original certificate.

10.3.3 If the renewal application is received after the date of expiration of the certificate, the renewal date of the new certificate shall be the date on which all requirements for renewal are met. In this case, there shall have been an interruption in the certification period. The date of expiration of the new certificate shall be no more than 5 years from the date of expiration of the original certificate.

10.4 The maximum period of validity of the certificate at renewal is 5 years.

10.5 Certificate holders at Level 1 and Level 2 not meeting the requirements for renewal shall fulfill the requirements for recertification as specified in 11.2.2. Certificate holders at Level 3 not meeting the requirements for renewal shall fulfill the requirements for recertification, as specified in 11.3.1.

11 Recertification

11.1 General

Prior to the completion of each second period of validity, the certified individual shall be recertified by the NCB-ISNT for a new period of five years or less, provided the individual meets the criterion for renewal specified in 10.1 a) and 10.1 b) and meets the applicable conditions described in the following. It is the responsibility of certificate holders to initiate the procedures required to obtain recertification. If the recertification is applied for more than 12 months after expiry of the period of validity, a complete examination (general, specific, and practical) for Level 1 and Level 2 and a main method examination element (Table 7, items D, E and F) for Level 3 shall again be passed successfully.

11.2 Levels 1 and 2

11.2.1 Levels 1 and 2 certificate holders seeking recertification shall provide a confirmation issued by the employer of continued satisfactory work activity without significant interruption in the method and sector for which recertification is sought and satisfy 11.2.2.

11.2.2 The individual shall successfully complete the practical examination element which demonstrates continued competence to carry out work within the scope specified on the certificate. This shall include testing specimens (see Annex B) appropriate to the scope of recertification and in addition, for Level 2, the production of a written instruction suitable for the use of Level 1 personnel (see 8.2.4.1). If the individual fails to achieve a grade of at least 70 % for each specimen tested (weighted according to the guidance in Table 5), and, for Level 2, for the instruction, two re-examinations of the recertification examination shall be allowed after at least 7 days and within 12 months of the first attempt at the recertification examination.

11.2.3 In the event of failure in the two allowable re-examinations, the certificate shall be withdrawn. In order to reinstate certification, a candidate shall:
— complete further training, acceptable to the NCB-ISNT; and
— retake all examination elements required for initial certification.

The date of expiration of the reinstated certificate shall be no more than 5 years from the date of expiration of the original certificate.

11.2.4 If the criterion in 11.2.1 for recertification is not met, the individual shall complete the general, specific and practical examinations required by 11.1.

11.3 Level 3

11.3.1 Level 3 certificate holders seeking recertification shall provide a confirmation issued by the employer of continued satisfactory work activity without significant interruption in the method and sector for which recertification is sought and:
a) satisfy the Level 3 requirements of 11.3.3 for a written examination; or
b) meet the requirements for a structured credit system, as given in 11.3.2 and Table C.1.

The individual shall decide between the examination or credit system for recertification. If the credit system is chosen and requires submission of employer's documents or access to an employer's premises, the individual shall provide to the NCB-ISNT a written statement of approval from the employer.

In both cases (written examination or credit system), the individual shall either provide appropriate documented evidence, acceptable to the NCB-ISNT, of their continued practical competence in the method or pass a Level 2 practical examination, as specified in 11.2.2, except for the drafting of NDT instructions.

11.3.2 Where a certificate holder elects to take the written examination or does not meet the structured credit system requirements, they shall successfully complete an examination that includes:

a) a minimum of 20 multiple-choice questions on the application of the test method in the sector(s) concerned which demonstrates an understanding of current NDT techniques, standards, codes or specifications, and applied technology; and

b) a minimum of 10 multiple-choice questions on the requirements of the NCB-ISNT's certification scheme.

11.3.3 If the individual fails to achieve a grade of at least 70 % in the recertification examination, a maximum of two retests of the recertification examination shall be allowed. The time period within which all tests are to be taken shall be 12 months, unless otherwise extended by NCB-ISNTNCB-ISNT.

11.3.4 In the event of failure in the two allowable re-examinations, the certificate shall be withdrawn. In order to reinstate certification, a candidate shall:
— complete further training, acceptable to the NCB-ISNT; and
— retake all main method examination items as required for initial certification.
The date of expiration of the reinstated certificate shall be no more than 5 years from the date of expiration of the original certificate.

11.3.5 A candidate who applies for and does not meet the requirements of the credit system shall be recertified in accordance with 11.3.3. In the event of failure at the first attempt at recertification by examination, only one retest of the recertification examination shall be allowed within 12 months of the date of application for recertification via the structured credit system.

12 Files

The NCB-ISNT shall be responsible for the maintenance of:

a) an actual list or database of all certified individuals classified according to level, NDT method and sector;

b) an individual file for each candidate who has not been certified, for at least five years from the date of application;

c) an individual file(s) for each certified individual and for each individual whose certification has lapsed containing:

1) a unique personal identifier (e.g. a photo or reference to a photo identification by number);
2) application forms;
3) examination records, such as questionnaires, answers, description of specimens, records, results of test, NDT procedures, and grade sheets;
4) renewal and recertification documents, including evidence of visual acuity and continuous work activity;
5) reason(s) for any withdrawal of certification.

Individual files shall be kept under suitable conditions of safety and confidentiality for as long as the certificate remains valid and for at least one full certification cycle after the certification has lapsed.

NOTE The archiving of specimen, data sets or radiographs is not required.

13 Transition period

13.1 The aim of this clause is to permit the initiation of the system when a NCB-ISNT applies the certification scheme to an NDT method, which is not yet covered within its scheme or when a new sector is created. The NCB-ISNT may temporarily appoint, for a period not exceeding five years from the date of implementation of the new method or sector, duly qualified personnel as examiners for the purpose of conducting, supervising and grading the examinations. The five year implementation period is not to be used by the NCB-ISNT as a means to certify candidates who do not meet all the qualification and certification requirements of this document. When new/additional training requirements of the new method or sector are adopted, currently certified personnel shall provide documented evidence of full compliance at the next recertification cycle.

13.2 Duly qualified personnel means that such personnel:

a) have the knowledge of the principles of NDT and the specific knowledge in relation to the sector;
b) have industrial experience of the application of the NDT method;
c) have the ability to conduct examinations;
d) be able to interpret the questionnaire and results of examinations

13.3 Within two years of the date of appointment, these examiners shall have gained certification by satisfying the requirements for recertification as described in 11.3.1.

Annex A

Details of certification as per this standard in various NDT Methods and sectors			
Sr. No.	**NDT Method**	**Sector**	**Level of certification**
1	ULTRASONIC TESTING	Butt Weld Joint in plates and vessels	1, 2, 3
		Butt Weld Joint in pipes	1, 2, 3
		Casting	1, 2, 3
		Forging	1, 2, 3
		Tubes/Pipes	1, 2, 3
		Wrought products	1, 2, 3
		Thickness Gauging & Lamination Check (Limited certification)	1, 2
	ULTRASONIC TESTING – PHASED ARRAY ULTRASONIC TESTING	Butt Weld Joint in plates and vessels	1, 2
		Butt Weld Joint in pipes	1, 2
		Forging	1, 2
		Wrought products (plates, Bars & Rods)	1, 2
		Thickness Gauging & Lamination Check (Limited certification)	1,2
	ULTRASONIC TESTING - TIME OF FLIGHT DIFFRACTION	Butt Weld Joint in plates and vessels	1,2
2	PENETRANT TESTING	Weld	1, 2, 3
		Casting	1, 2, 3
		Forging	1, 2, 3
		Tubes/Pipes	1, 2, 3
		Wrought products (Plates, Bars & Rods)	1, 2, 3
3	MAGNETIC TESTING	Weld	1, 2, 3
		Casting	1, 2, 3
		Forging	1, 2, 3
		Tubes/Pipes	1, 2, 3
		Wrought products (Plates, Bars & Rods)	1, 2, 3
4	VISUAL TESTING	Weld	1, 2, 3
		Casting	1, 2, 3
		Forging	1, 2, 3
		Tubes/pipes	1, 2, 3
		(Wrought products (Plates, Bars & Rods)	1, 2, 3
5	EDDY CURRENT TESTING	Tube /Pipes	1, 2, 3
		Wrought products (Bars / Rods)	1, 2, 3
		Material Sorting & Coating Thickness (Limited certification)	1, 2
6	RADIOGRAPHIC TESTING	Weld	1, 2, 3
		Casting	1, 2, 3
	RADIOGRAPHIC TESTING - FILM INTERPRETATION	Weld	2
		Casting	2
	RADIOGRAPHIC TESTING - DIGITAL IMAGE INTERPRETATION	Weld	2
		Casting	2
	DIGITAL RADIOGRAPHY	Weld	1, 2, 3
		Casting	1, 2, 3
		Profile and Tangential Radiography (Limited certification)	2
7	THERMOGRAPHIC TESTING	In-service Inspection	1, 2, 3
8	LEAK TESTING	Weld	1, 2, 3
		Tubes/Pipes	1, 2, 3
	LEAK TESTING - PRESSURE METHOD	Weld	1, 2
		Tubes/Pipes	1, 2
	LEAK TESTING - TRACER GAS METHOD	Weld	1, 2
		Tubes/Pipes	1, 2

Note1: Sectors combining two or more product sectors will constitute to manufacturing or pre-service inspection sector.

Note2: NCB offers certification in the above method and specific techniques (including techniques with limited application) for in-service inspection in oil and gas, power, shipping and other industries. The practical examination samples for certification in in-service inspection shall be as per the requirements of the concerned industries.
The specific examination for certification in in-service inspection shall be addressing industry specific requirements.

Annex B

Minimum number and type of specimens for the Level 1 and Level 2 practical examination element

a) For all practical examination elements, candidates shall be required to test one or more sector specific specimen.

b) If the candidate is required to test more than one specimen, each specimen shall be different in character, i.e. in product form, material specification, shape, size, or discontinuity type.

c) The evaluation and interpretation of a data set shall be considered as equivalent to testing one specimen.

d) For a product sector related practical examination elements:
Candidates shall be required to test a minimum of two specimens and for multiple product sectors, a minimum of one from each product sector.

e) For an industrial sector related practical examination elements:
Candidates shall be required to test at least two specimens, representative of products typically tested in the industrial sector.

f) For RT candidates:

Level 1 and Level 2 candidates shall radiograph at least two specimens. Level 2 candidates, already certified as Level 1, shall radiograph at least one specimen.
In addition to taking radiographs, Level 2 candidates shall interpret a set of at least 10 film images or 10 digital radiographic images. This set shall be considered as one specimen.

g) For LT candidates:

An examination involving both pressure change and tracer gas technique shall include at least one specimen for each technique.

h) When the certification sought is limited in application, for example, thickness measurement, radiographic interpretation, the minimum number of specimens may be reduced by up to 50 % to one per sector.

Annex C

Structured credit system for renewal Level 1, 2 and 3 and for Level 3 recertification

Table C.1 Structured credit system for Level-1, 2 and 3 and for Level-3 recertification

	Level-1			Level-2			Level-3		
Activity	**Points granted per activity**	**Maximum number of points per year of activity**	**Maximum number of points over 5 year of activity**	**Points granted per activity**	**Maximum number of points per year of activity**	**Maximum number of points over 5 year of activity**	**Points granted per activity**	**Maximum number of points per year of activity**	**Maximum number of points over 5 year of activity**
Part A									
Performance of NDT activities	2/day	25	95	2/day	25	95	2/day	25	95
Completion of theoretical training in the method	1/day	5	15	1/day	5	15	1/day	5	15
Completion of practical training in the method	2/day	10	25	2/day	10	25	2/day	10	25
Delivery of practical or theoretical training in NDT in the method considered	NA	NA	NA	1/day	15	75	1/day	15	75
Participation in research activities in NDT field or for engineering of NDT (see Annex F)	1/week	15	60	1/week	15	60	1/week	15	60
Part B									
Participation to a technical seminar/paper in the field of the method	1/day	2	10	1/day	2	10	1/day	2	10
Presenting a technical seminar/paper in the field of the method or technique	1/presentation	3	15	1/presentation	3	15	1/presentation	3	15
Current individual membership in NDT or NDT related society	1 / membership	2	5	1 / membership	2	5	1 / membership	2	5
Technical oversight and mentoring of NDT personnel/ trainee in the relevant method	NA	NA	NA	2/mentee	10	30	2/mentee	10	40
Participation or convenorship in standardization and technical committees	NA	NA	NA	1 per committee	3	15	1 per committee	4	20
Performing a technical NDT role within a certification body	NA	NA	NA	2/activity	10	30	2/activity	10	40

C.2 Performance of NDT activities

C.2.1 In assessing this activity type, the certification body should consider the responsibilities of employers as specified in 5.5 and the duties specified in Clause 6. The following work activities may be considered as acceptable:

a) knowledge and understanding of the customer's specifications and the inspection standards;

b) verification of operating conditions or setting up of the test equipment, successful performance of NDT, satisfactory reporting;

c) performance as a Level 3 examiner.

C.2.2 In order to assess the activities specified in C.2.1, the certification body may request from the individual seeking renewal or Level 3 recertification documentation and/or evidence to demonstrate compliance including, but not limited to, the following:

a) confirmation of the candidates work activities by a certified individual or referee;

b) confirmation of the level of activity of the individual in the given method;

c) confirmation of formal documented competency or proficiency test(s) in the given method;

d) dates and protocol numbers of reports;

a) details of any job specific training received;

b) confirmation of employer's authorization to operate;

c) summary of activities and outputs;

d) job/position description;

e) annual/regular employer assessments of performance/competence;

f) sample NDT reports;

g) sample procedure(s) developed (Level 3 only);

h) customer feedback;

i) confirmation of adherence to code of ethics from employer;

j) confirmation of compliance with additional national requirements (i.e. radiation safety).

Other evidence may be deemed acceptable or be requested by the certification body. The certification body may require that some or all of the submitted evidence be confirmed by the employer.

Annex D

Grading practical examination elements

D.1 Grading of Level 1 and Level 2 practical examination element —percentile weighting

Table D.1 — Percentile weighting for practical examination element for Levels 1 and 2

Subject	Maximum % (Level-1)	Maximum % (Level-2)
Item 1 — Knowledge of the NDT equipment and/or NDT media:		
a) system and/or media knowledge and control;	10	5
b) validity of verifications and/or media.	10	5
Total	**20**	**10**
Item 2 — Application of the NDT method:		
a) preparation of the specimen (i.e. surface condition), including visual examination;	5	2
b) for Level 2, the selection of the NDT technique and determination of operating conditions;	na	10
c) setting up of the NDT apparatus and performance of the test;	25	12
d) post test procedures (i.e. demagnetization, cleaning, preservation).	5	2
Total	**35**	**26**
Item 3 — Detection of discontinuities and reporting:		
a) detection of mandatory reportable indications;	20	18
b) characterization of indications (if applicable with respect to the test method: type, position, orientation, apparent dimension etc.);	15	18
c) Level 2 evaluation against code, standard, specification or procedure criteria;	na	18
d) production of the test report.	10	10
Total	**45**	**64**
Total of Items 1, 2, and 3.	**100**	**100**

D.2 Grading of Level 2 writing examination elements

Table D.2 — Percentile weighting for NDT instruction writing examination element for Level 2

NDT instruction writing (Level 2 candidates)	% maximum
a) foreword (scope, reference documents)	5
b) personnel	5
c) equipment/media to be used	5
d) product (description or drawing, including area of interest and purpose of the test)	10
e) test conditions, including preparation for testing	10
f) detailed instructions for application of the test, including settings	40
g) recording and classifying of the test results	20
h) reporting the results	5
Total	**100**

D.3 Weighting of Level 3 main method examination element item F

Table D.3 — Percentile weighting for the Level 3 NDT procedure examination

Subject	% Maximum
Item 1 — General:	
a) scope (field of application, product);	2
b) document control;	2
c) normative references and complementary information.	4
Sub-total	**8**
Item 2 — NDT personnel	**2**
Item 3 — Materials and equipment:	
a) main NDT equipment (including defining verification status and pre-test serviceability checks;	10
b) ancillary equipment (reference and calibration blocks, consumables, measuring equipment, viewing aids, etc.).	10
Sub-total	**20**
Item 4 — Test piece:	
a) physical condition and surface preparation (temperature, access, removal of protective coatings, roughness, etc.);	1
b) description of area or volume to be tested, including reference datum;	1
c) discontinuities sought.	3
Sub-total	**5**
Item 5 — Performance of the test:	
a) NDT method(s) and technique(s) to be used;	10
b) setting up the apparatus;	10
c) conducting the test (including reference to NDT instructions);	10
d) characterization of discontinuities.	10
Sub-total	**40**
Item 6 — Acceptance criteria	**7**
Item 7 — Post-test procedure:	
a) disposition of non-conforming product (labelling, segregation);	2
b) restoration of protective coatings (where required).	1
Sub-total	**3**
Item 8 — Production of the test report	**5**
Item 9--Overall presentation	**10**
Total	**100**

Annex E

RESPONSIBILITIES

The responsibilities of NCB ISNT towards providing certification of NDT Personnel:

Point	Responsibilities	Actions
a	shall initiate, maintain and promote the certification according to this scheme;	NCB has drafted this scheme and has adequate steps to promote it.
b	shall administer the procedures and operation for certification in accordance with the Quality Manual System Document;	NCB has documented procedures.
c	shall prescribe an obligatory code of ethics, which shall apply to committee members and certificate holders;	NCB has prescribed Code of Ethics for Members and certificate holders.
d	shall conduct an initial audit and subsequent periodic surveillance audits of the authorized examination centers to ensure their conformity to this standard;	NCB has documented procedure for conducting Internal Audits and has the check list to ensure the requirements of an Examination Centre.
e	shall take the ultimate responsibility for the certification scheme including technical and administrative requirements;	NCB takes the complete responsibility for the certification scheme including technical and administrative requirements.
f	shall approve, properly staffed and equipped examination centers, which it shall monitor on a periodic basis;	NCB has the check list to ensure the requirements of an Examination Centre
g	shall keep all appropriate records related to certification for at least 10 years;	NCB maintains the records related to certification for 10 years.
h	shall identify and train the examiners for administrating the NDT examinations;	NCB has a panel of Examiners and train them through Examiner Workshop for administering the Exams.
i	shall be responsible for ensuring the security of all examination materials (specimens, master reports, question banks, examination papers, etc.) and shall ensure the examination specimens are not used for training purposes;	NCB takes the responsibility of maintaining the confidentiality and security of examination materials (specimens, master reports, question banks, examination papers, etc). These specimens are not used for Training purpose.
j	shall require all candidates and certificate holders to give a signed undertaking to abide by code of ethics;	NCB ensure that the candidate submits signed undertaking to abide code of ethics. Code of the Ethics is the part of Exam Application Form.
k	shall prepare and update syllabus, question bank for examinations and also maintain the samples for practical examination; and	NCB has question bank for examinations and also maintain the samples for practical examination.
l	shall develop and maintain a quality manual which shall outline the quality policy and objectives of NCB-ISNT and also the procedures, work instructions and check-list for its implementation.	NCB has a quality manual with the quality policy, confidentiality policy, impartiality policy, objectives of NCB, procedures, work instructions, check-list and forms for its implementation.