



CERTIFICATION SCHEME FOR PERSONNEL

DOCUMENT No. CSWIP-EPA-NDT-31-19

Requirements for the Certification of End Point Assessment of Apprentice Non-Destructive Testing (NDT) Operators Level 2 and Non-Destructive Testing (NDT) Engineering Technicians Level 3.

1st Edition, December 2019

Issued under the authority of the TWI CL Governing Board for Certification
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FOREWORD

The Certification Scheme for Personnel (CSWIP) is a comprehensive scheme that provides for the examination and certification of individuals seeking to demonstrate their knowledge and/or competence in their field of operation. The scope of CSWIP includes among others, Welding Inspectors, Welding Supervisors, Welding Instructors, Welding Examiners, Welding Quality Control Co-ordinators, Heat Treatment Operatives, Cathodic Inspection personnel, Plant Inspectors, Underwater Inspectors, Plastics Welders and NDT personnel.

CSWIP is managed by the Certification Management Board, which acts as the Governing Board for Certification, in keeping with the requirements of the industries served by the scheme. The Certification Management Board, in turn, appoints specialist Management Committees to oversee specific parts of the scheme. All CSWIP Boards and Committees comprise member representatives of relevant industrial and other interests. TWI Certification Ltd is accredited by UKAS to BS EN ISO/IEC 17024 for certification of personnel.

TWI Certification Ltd understands the importance of impartiality in carrying out their certification activities, managing conflict of interest and ensuring the objectivity of all its certification activities, in accordance with BS EN ISO/IEC 17024.

The current document covers the Certification of Non-Destructive Testing (NDT) Operators (Level 2) and Non-Destructive Testing (NDT) Engineering Technicians (Level 3). Endorsements to the certificate are provided for additional NDT methods.

Whilst Registration with the Engineering Council as an Engineering Technician remains a personal choice, the requirements governing Registration of NDT Engineering Technician are included in this document.

Registration is strongly recommended as it supports continuing professional development and the certificate renewal requirements, see Clause 4.5.1

ACCESS TO CERTIFICATION

Access to certification schemes is not improperly restricted. The sole criteria for certification are given in the document (and any subsequent amendments) and no other criteria will be applied. Certification is not conditional on the candidate applying for other services or membership from TWI Certification Ltd, its parent, or any other groups or associations.

Definitions

Assessment Organisation – TWI CL is a competent organisation for the theoretical and practical testing of NDT apprentices as defined in the Assessment Plan published at:

<https://www.instituteforapprenticeships.org/media/2795/operator-assessment-plan.pdf>

https://www.instituteforapprenticeships.org/media/1114/non-destructive_testing_engineering_technician.pdf

1. General

1.1 Scope

This document prescribes procedures by which personnel may be examined, and, if successful, certificated for the duties of an NDT Operator or NDT Engineering Technician. The procedures described in this document are in accordance with ISO 9712 for the relevant NDT methods.

1.2 Responsibilities of personnel

Typical areas of work activity of personnel for whom CSWIP NDT Operator and NDT Engineering Technician certification would be suitable are given below:

1.2.1 NDT Operator (Level 2)

- a) Demonstrate health & safety competencies pertinent to the relevant NDT method
 - Working at heights
 - Confined spaces
 - Restricted zones
 - Environmental awareness
 - Safe operation of equipment with capabilities and limitations
- b) Carry out inspections using one NDT method
 - Revealing defects present on the external surface
 - Use minimum levels of interpretation, usually by visual assessment only
 - Confirm results and accurately record findings
 - Clearly marking defective areas for follow-up validation by supervisory staff
 - Preparing and submit clear and concise NDT inspection reports
 - Good practical ability including hand/eye coordination
 - Awareness of other NDT methods of inspection and their general capabilities/limitations
 - Material and product technology associated with specific industry sector
- c) Codes, standards, tests and instructions
 - Work effectively within the limitations of standard tests and measurements
 - Perform NDT inspections in accordance with written NDT instructions
 - Reading technical drawings to assist in the inspection process
 - Demonstrate disciplined approach to industry standards operations and processes
 - Sector-specific technology, quality aspects and working practices (inductions, confidentiality)
- d) Understanding personal limitations
 - Referring inspection results to more skilled or qualified personnel to continue with the inspection process, assessment and interpretation
 - Escalating concerns over frequency of type defects to supervisors
 - Report regularly to technical supervisors on progress
 - Ask for advice and guidance from supervisor where appropriate
 - Consequences of failure and risk to life

1.2.2 NDT Engineering Technician (Level 3)

- a) All of the above, as well as
- b) Health, Safety, Quality and Environment
 - Company specific requirements
 - Permits to work
 - Risk assessments
 - Safety passports
 - Chemical handling
 - Radiation safety
 - Implement quality control and quality assurance of NDT systems and performance
 - Identify, organise and use resources effectively to complete tasks with consideration for cost, quality, safety, security and environmental impact

c) Supervisory Responsibilities

- Ability to manage and organise areas of work that require coordination and supervision of other staff
- Project manage and organise areas of work and reports for compliance and accuracy and through to project completion
- Conduct re-inspection audits of NDT operators work, compare and evaluate results and taking appropriate action as necessary
- Prepare NDT procedures, technique sheets and work instructions for use by NDT operators
- Leading and motivating
- Performance evaluation
- Mentoring
- Delegating

d) Carry out inspections using three NDT methods (including one complex method) to appropriate national and international certification standards

- Apply appropriate solutions to well defined engineering problems
- Demonstrate NDT competencies relevant to the industry sector and appropriate materials using equipment, tools and processes
- Select appropriate methods and techniques and understand their limitations
- Follow written procedures
- Identify problems and apply appropriate NDT methods to identify causes and achieve satisfactory solutions.
- Submit clear and precise NDT instructions
- Interpret engineering/CAD drawings particularly those related to weld/component configuration.
- Need to gather contextual information prior to the inspection required for the assessment of defects against acceptance/rejection criteria.

e) Knowledge

- How to use and apply information from technical literature codes of practice and industry standards
- Limitations of standard tests and measurements relevant to their field of activity
- Industry specific product technology, including material types, defect types, defect mechanisms, growth rates, industry-specific NDT applications and R&D opportunities

2. End Point Assessment

The apprenticeship programme has an expected overall duration of 18 months for Level 2 and 36 months for Level 3. Prior to undertaking the end-point assessment, apprentices will be required to undergo a sustained period of on- and/or off-the-job training.

There are no formal educational entry requirements for entering into the End Point Assessment. However, it is recommended that NDT Operator Apprentices without Level 1 English and Maths achieve this and that they take the test for Level 2 English and Maths prior to attempting the End Point Assessment. For NDT Engineering Technicians, it is advisable that apprentices have a minimum of three GCSEs (or equivalent) at grade C or above, including English and Maths. Those without a Level 2 English and Maths should achieve this before taking the end-point assessment.

The practical skills required are listed in the Assessment Plans (ST0358 and ST0288/AP01, Level 2 and 3 respectively) and are selected by the employer. The Apprentice will be required to demonstrate that they have achieved the skill required to conduct non-destructive test(s) using the specified method(s) in accordance with national and international standards.

Once the employer has conducted their final review and determined that the candidate has completed the ISO 9712 examination(s) – see section 3 for further details– and met the Knowledge, Skills and Behaviour requirements stipulated in the standard, the apprentice can then proceed to their End Point Assessment.

The End Point Assessment consists of three parts:

2.1 Review of Portfolio Evidence and Achievements

The Assessor will review all of the evidence and achievements, including mapping the outcomes to the requirements of the apprenticeship standard. The review will cover course attendance, end-of-course test, examination results, log-book of on-the-job training, CPD awards, certificates and employers reports and assessments.

2.2 Project Showcase – Presentation of NDT Project

The Apprentice will be required to provide a comprehensive presentation of their NDT project. The presentation will establish that the project, which has been designed to encompass as many requirements of the apprenticeship standard as possible, has been completed and that the requisite knowledge and skills have been achieved.

2.3 Observational Interview (Professional Discussion)

The Apprentice will attend a synoptic interview to demonstrate that they have achieved all aspects of the apprenticeship standard. This will include all technical requirements, behaviours and health and safety. It will challenge the evidence provided in the Portfolio in the 'Review of Portfolio Evidence and Achievements' section.

NDT Engineering Technicians will seek to demonstrate, in conjunction with the above, that they have achieved aspects of the apprenticeship standard that were not covered by the project showcase presentation.

The criteria for passing the assessment for Level 3 can be such that successful apprentices will also be eligible for Engineering Technician Registration through The Welding Institute, which is a licenced Professional Engineering Institution of the Engineering Council. An EngTech TechWeldl Apprentice application form will be given to the apprentice to complete, for those wishing to become Registered Technicians and Professional Members of The Welding Institute, which will be forwarded to The Welding Institute. Further details are available upon request.

3. Examination Procedure

Applicants must be enrolled on an approved apprenticeship in accordance with standard ST0358 or ST0288 details are given at <https://www.instituteforapprenticeships.org/apprenticeship-standards/>.

3.1 CSWIP NDT Examination Procedure

The examination procedure for a CSWIP certification in NDT consists of written and practical examinations. The Level 2 NDT Operator must achieve a CSWIP NDT Level 2 certification in one method, while the Level 3 NDT Engineering Technician must achieve certification in three methods. Please refer to the relevant CSWIP NDT Scheme document, on www.cswip.com for details of the examination format and syllabus for the specific method chosen.

3.2 Supplementary tests

3.2.1 Magnetic Particle, Penetrant or Visual Testing

Candidates who have gained the NDT Operator or NDT Engineering Technician certification may, at any time after gaining the requisite 20 hours of training and two months of practical experience, apply to gain the MT, PT or VT method endorsement to their CSWIP NDT certificate. Details of the certification can be found in the relevant scheme documents on www.cswip.com.

3.2.2 Ultrasonic, Radiographic or Eddy Current Testing

Candidates who have gained the NDT Operator or NDT Engineering Technician certification may, at any time after gaining the requisite 60 hours of training and six months of practical experience, apply to

gain the UT, RT or EC method endorsement to their CSWIP NDT Operator or NDT Engineering Technician certificate. Details of the certification can be found in the relevant scheme documents on www.cswip.com.

4. Certification

The employer will provide a statement confirming that the Apprentice has successfully completed an ISO 9712 certificate (or 3 certificates for NDT Engineering Technician) and that the knowledge, skills and behaviours, stipulated in the standard, have been met.

4.1 Categories of Certification

Candidates may apply for one of the following certification categories:

- a) CSWIP NDT Operator
- b) CSWIP NDT Engineering Technician
- c) CSWIP NDT Operator with NDT Endorsement (MT/PT/VT/UT/RT/EC)
- d) CSWIP NDT Engineering Technician with NDT Endorsement (MT/PT/VT/UT/RT/EC)

Details of the certification and certification process for each method can be found on the relevant certification scheme document on www.cswip.com.

5. Records

TWI Certification Ltd maintain records of successful and unsuccessful candidates. These records are accessible to the Governing Boards or their nominee's at all reasonable times.

6. References

1. ISO 9712 Non-destructive testing – Qualification and Certification of NDT personnel
2. ISO 17024 'General criteria for certification bodies operating certification of personnel.'

7. Addresses

For further general information contact:

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