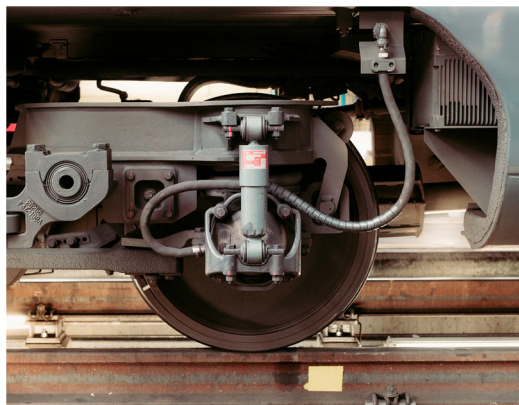
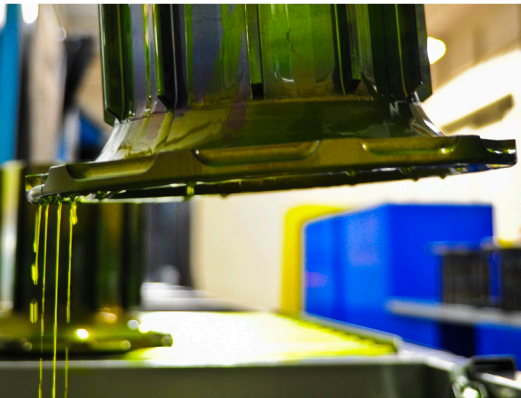
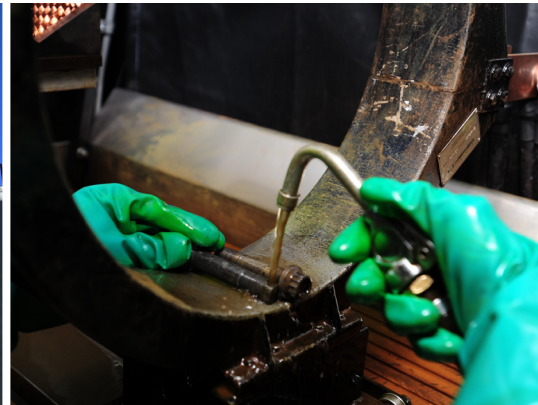


Non-Destructive Testing (NDT) Operator – Assessment Plan

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APPRENTICESHIPS



As of 1 August 2022, the English and maths requirements for on-programme and new apprentices undertaking level 2 apprenticeships have changed and are detailed as part of the [apprenticeship funding rules](#). These requirements supersede the current wording in this apprenticeship standard and EPA plan.



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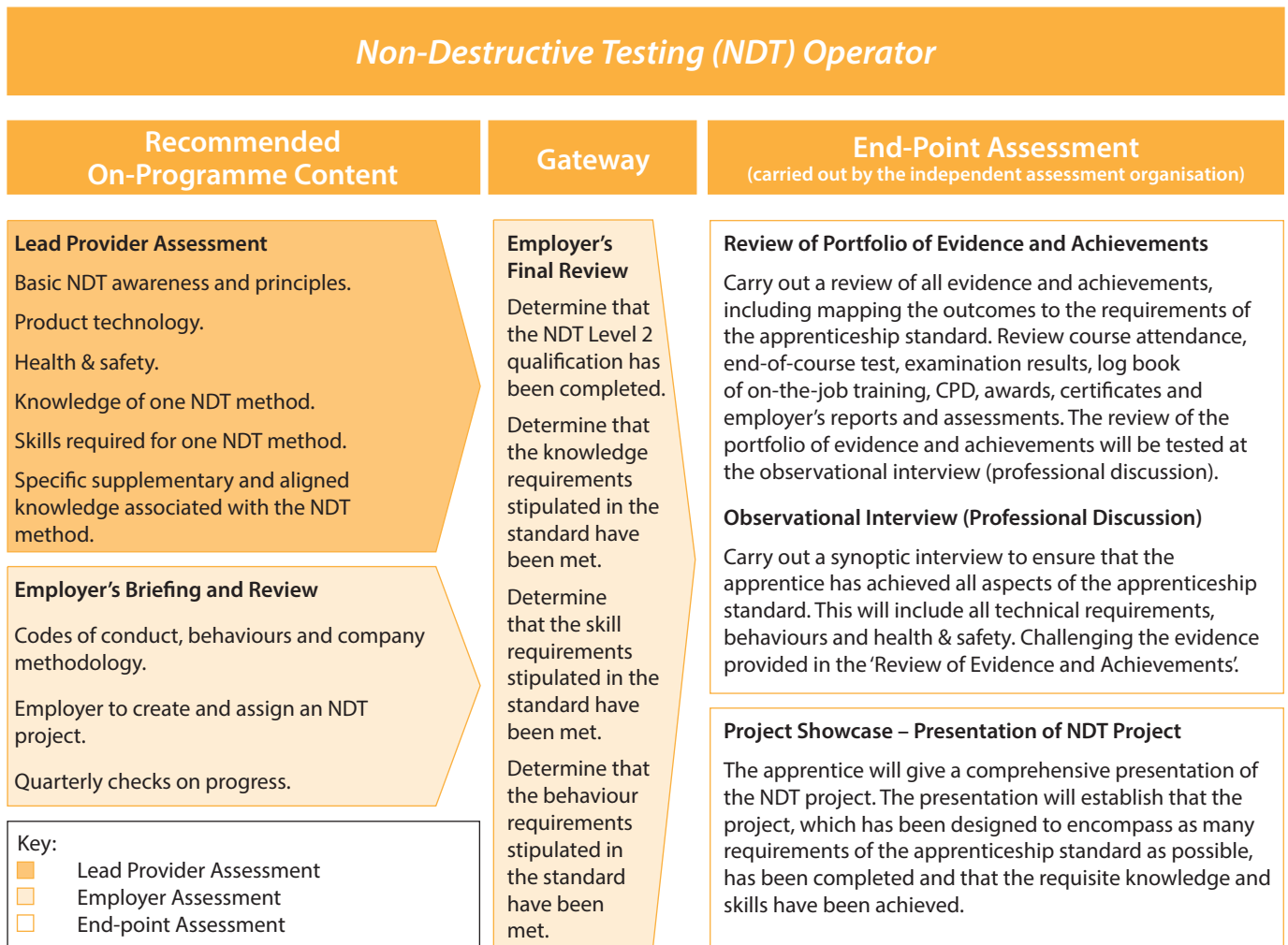
Development Group



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Overview of the Apprenticeship – Schematic



Overview of the Independent Assessment Organisation's Activities

Independent Assessment Organisation's Decision

The independent assessment organisation will have had no involvement in the development of the apprentice.

Based on the documentation review, the project showcase presentation and the observational interview, the independent assessment organisation will make a decision as to whether the apprentice has achieved the required levels of knowledge, skills and behaviour and any other requirements specified in the standard and, if so, whether to award a 'Pass' or a 'Distinction'.

Observational Interview (Professional Discussion)

The end-point assessment will be conducted by the independent assessment organisation and will include an observational interview (professional discussion). The interview panel will include two people who are knowledgeable in engineering and NDT and who are appointed by the independent assessment organisation. The observational interview will enable the apprentice to demonstrate the knowledge, skills and behaviours achieved during the apprenticeship.

Project Showcase – Presentation of NDT Project

The apprentice will give a comprehensive presentation of the 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 the requisite knowledge and skills have been achieved.

Review of Portfolio of Evidence and Achievements

The independent assessment organisation will review the portfolio of evidence provided by the employer, the lead provider and apprentice and make their own assessment against a formal checklist. At this stage, the independent assessment organisation may request additional information and/or evidence. The portfolio of evidence will include certificates of competence, letters of approval, training attendance certificates, log book of on-the-job training (experience) and the employer reports. If the independent assessment organisation is satisfied with the overall evidence, it will arrange the project showcase presentation and the observational interview (professional discussion). The review of the portfolio of evidence and achievements will be tested at the observational interview.

Gateway to the End-Point Assessment

Assessment Overview

The apprentice will undergo an assessment of his/her achievements throughout the apprenticeship programme. The assessment will be holistic and will seek to test the higher-order elements of the knowledge, skills and behaviours of the apprentice. A summary of the assessment method and areas to be assessed is given below.

Assessment method	Area assessed	Assessed by	Grading	Weighting
Review of portfolio of evidence and achievements	Log book of on-the-job training (experience), employer reports, certificates of achievements. Report writing	Independent assessment organisation	Fail/Pass/Distinction	40%
Observational interview (professional discussion)	Behaviours – team work, communication, common sense and ethics. Health & safety, standards and safe operation	Independent assessment organisation		
Project showcase – NDT project	NDT methods, product technology, materials science	Independent assessment organisation	Fail/Pass/Distinction	60%

Section A – On-Programme Assessment

At the beginning of the apprenticeship, it is recommended that the employer and the apprentice develop a schedule (quality plan), in the form of a Gantt chart, to demonstrate how the desired outcomes will be achieved throughout the apprenticeship. The apprentice is expected to gain the knowledge, skills and behaviours specified in the standard, in particular obtaining the appropriate knowledge and skills to pass examinations for one NDT Level 2 method. The apprentice also needs to gain specific supplementary and aligned knowledge associated with the NDT method to enable him/her to become fully competent and to apply skills to a wide range of components and structures. The employer will undertake quarterly reviews with the apprentice to match progress against the requirements of the standard, assessment plan, Gantt chart or work plan and other documentation. At the end of the apprenticeship, the employer will collate all evidence, including the log book, the portfolio of evidence, certificates, results and quarterly appraisals. The employer will then carry out an assessment of all the accumulated evidence with the apprentice to determine that the on-programme outcomes of the apprenticeship have been achieved and documented.

During the competency development and achievement of NDT certification, the apprentice is required to achieve a minimum of 70% in each module of the NDT method.

Section B – Assessment Gateway

At the end of the apprenticeship, the employer will carry out a final review to determine that the NDT Level 2 qualification has been completed and the knowledge requirements, skill requirements and behaviour requirements stipulated in the standard have been met. If all of the requirements have been met, the employer will arrange for the apprentice to attend the end-point assessment.

If the apprentice does not achieve 70% in each module of the NDT method, he/she will not be allowed through the gateway to the end-point assessment and if retraining does not rectify the shortcomings, then the apprentice will fail the apprenticeship.

Section C – End-Point Assessment

The independent assessment organisation will have had no involvement in the development of the apprentice.

The end-point assessment will be carried out by the independent assessment organisation and will include:

- **Review of the portfolio of evidence and achievements**, including the log book of experience, results, end-of-course tests, certificates and the employer's reports produced during the apprenticeship. The portfolio of evidence will be tested during the observational interview (professional discussion)
- **Project showcase – presentation of the NDT project**
The apprentice will give a comprehensive presentation of the 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
- **An observational interview (professional discussion)** with the apprentice, to ensure that the apprentice has achieved those aspects of the apprenticeship standard. Questions at the interview will include the NDT method, behaviours, Engineering Council registration requirements and health & safety. The interview will also include testing the portfolio of evidence.

The interview panel will comprise two Engineering Council registrants at Incorporated Engineer (IEng) or above, trained as interviewers (this requirement equates to a minimum of five years' experience at a senior level and academic knowledge equivalent to a Bachelor's degree). The panel will be knowledgeable in engineering, NDT and the apprenticeship process. It would also be preferable if the panel had knowledge of the apprentice's industry sector.

After the interview, the independent assessment organisation will make a decision as to whether the apprentice has successfully completed the apprenticeship and, if so, whether to award a 'pass' or a 'distinction'.

C1 Assessment ('What')

The end-point assessment will consider the knowledge, skills and behaviours that have been achieved during the apprenticeship. The assessors will carry out a gap analysis of the outcomes against the requirements of the standard and include appropriate questions in the interview.

A summary of the knowledge, skills and behaviours that will be assessed is listed below.

C1.1 Knowledge

The apprentice will undertake training, both in a classroom environment and on-site, including NDT Level 2 training in one method. The methods are listed below:

- Ultrasonic testing
- Radiographic testing
- Eddy current testing
- Infrared thermography testing
- Magnetic particle testing
- Penetrant testing
- Visual testing.

In addition to the NDT method, it is a requirement that the apprentice obtains sector-/employer-specific knowledge of:

- Health & safety competencies pertinent to the specific requirements of the relevant NDT method
- The capabilities and limitations of one NDT method, to be understood in-depth
- An awareness of other NDT methods of inspection and their general capabilities/limitations
- What is required for the assessment of defects against acceptance/rejection criteria (required by standards)
- Relevant sector-specific technology, quality aspects and working practices, such as inductions and confidentiality
- Material and product technology associated with the specific industry sector
- The consequences of failure and the risk to life.

C1.2 Skills

The apprentice will be able to use their knowledge in order to develop skills and to demonstrate their proficiency by passing the appropriate NDT Level 2 examination, resulting in the award of a certificate or letter of approval. The apprentice could also demonstrate the acquisition of skills by passing end-of-course tests or examinations where appropriate.

In order to demonstrate that skills have been acquired in accordance with national and international standards, the apprentice must:

- Demonstrate health & safety competencies pertinent to the relevant NDT method, such as working at heights, in confined spaces and in restricted zones
- Carry out inspections using one NDT method, which could include:
 - Revealing defects present within the test item/component
 - Using minimum levels of interpretation, usually by visual assessment and/or analysing screen displays
 - Safe operation of the equipment within its capabilities and limitations
 - Working effectively within the limitations of standard tests and measurements relevant to his/her field of activity
 - Performing NDT inspections in accordance with written NDT work instructions
 - Escalating concerns over the frequency of types of defect to his/her supervisor, in addition to confirming results and accurately recording the findings
 - Clearly marking defective areas for other follow-up validation by supervisory staff, such as NDT Engineering Technicians
 - Preparing and submitting clear and concise NDT inspection reports detailing the inspection findings
 - Reading technical drawings to assist in the inspection process.
- Work under technical supervision and report regularly on progress
- Ask the supervisor for advice and guidance where appropriate
- Demonstrate a disciplined approach relating to industry standard operations and processes
- Exhibit environmental awareness and undertake safe working practices for self and others
- Have good practical ability, including hand/eye coordination, in order to apply NDT
- Achieve good time management.

C1.3 Behaviours and Human Factors

Exhibiting good behaviour is essential for the NDT Operator to work responsibly in the workplace. In order to assist the end-point assessment, the employer will carry out quarterly appraisals of the behaviours and prepare reports for the independent assessment organisation's end-point assessment. As part of the end-point assessment, the apprentice will be measured against the following criteria:

- Communication – to communicate effectively with senior NDT staff, such as NDT Engineering Technicians, in order to facilitate timely, accurate completion of the inspection programmes
- Teamwork – to work effectively in a team, show respect to colleagues and support others where appropriate
- Delivery – to consistently see things through to timely completion
- Common sense – to consistently apply knowledge and experience with balance
- Influence – have a positive impact without relying on others
- Ethics – to act with maturity, honesty, integrity and responsibility.

C1.4 Experience (On-the-Job Training)

It is important to understand what is meant by experience in terms of acquiring NDT certification. Experience is mandatory and is defined in the national and international standards as ‘supervised practice’ – in reality it is on-the-job training. The person carrying out the supervision needs to be suitably experienced and qualified in the application of the NDT method undertaken. The end-point assessment will review the extent of experience gained for each NDT method during the apprenticeship. For the purpose of this apprenticeship, experience may include:

- Applying the NDT method under supervision
- Working closely with a suitably experienced inspector who is inspecting a weld, component or material, etc
- Working within a team carrying out the method(s)
- Fast-tracked training at a training centre
- Supervised practice at a training school
- Calibrating equipment
- Checking the parameters of equipment, such as probe angles, beam spread or magnetic flux, etc
- Carrying out any other activities of the method identified in the specified syllabus.

C2 Assessment (‘How’)

The independent assessment organisation will carry out a holistic assessment of the apprenticeship outcomes, which will comprise:

- The assessors will carry out a thorough review of the portfolio of evidence and achievements (submitted by the employer, lead provider and apprentice) and make their own assessment against a formal checklist (Appendix 2). At this stage, the independent assessment organisation may request additional information and/or evidence.
- The apprentice will give a project showcase presentation of the 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.
- The assessors will carry out an observational interview (professional discussion) with the apprentice to observe behaviour and discuss health & safety and safe operations. The discussion will also include report writing and interpretation of international standards as well as testing the portfolio of evidence and achievements.

The apprentice’s skills, knowledge and behaviours will be evaluated at the end-point assessment by the independent assessment organisation; however, the independent assessment organisation will rely on the employer’s assessment of outcomes that are best evaluated in the workplace, such as behaviours and human factors.

If the independent assessment organisation is not satisfied with the overall evidence, it will either fail the apprentice (because the apprentice has fallen well below the required standard) or invite the employer to allow more time (to be specified) for the apprentice to reach the required standard. If the employer declines the offer of more time, the apprentice has failed; if the employer agrees to more time, then the apprentice will be reassessed at the end of the specified time period.

The assessment will be carried out at the independent assessment organisation’s premises or at a location mutually agreed by the assessors, employer and the apprentice. The assessment process will be carried out in exactly the same way for SMEs as it will for large organisations.

C3 Assessment (‘Who’)

With regards to the assessors, the independent assessment organisation will not include anyone involved in an active apprenticeship from the same company or one of its subsidiaries.

The end-point assessment will be carried out by an independent assessment organisation, which will be selected by the employer from the Register of Apprentice Assessment Organisations (RoAAO).

The assessment panel will comprise two assessors; one will ask questions whilst the other observes. At the end of the assessment process, the two assessors will agree on the outcome of the assessment and, if the apprentice has passed, agree on whether to award a 'Pass' or a 'Distinction'.

Because non-destructive testing is considered to be a highly-specialised engineering profession and is inextricably linked to international standards, UKAS accreditation, Engineering Council registration and certification, it is necessary that the independent assessment organisation assessors should have extensive knowledge of engineering, NDT and the apprenticeship standard. The assessors will also be registered with the Engineering Council at IEng or above and will be trained as interviewers.

Section D – End-Point – Final Judgement

One of the assessors will be designated 'Lead Assessor'. It is very unlikely that the two assessors will disagree on the assessment outcome; however, in the event that the two assessors cannot agree on the outcome, then the lead assessor will make the final judgement on whether the apprentice has passed or not.

Section E – Independence

Independence is achieved through the final end-point assessment being undertaken by an independent assessment organisation listed on the 'Register of Apprentice Assessment Organisations' (RoAAO).

The independent assessment organisation will have had no involvement in the development of the apprentice. With regards to the assessors, the independent assessment organisation will not appoint anyone involved in an active apprenticeship from the same company or one of its subsidiaries.

Section F – End-Point Assessment – Summary of Roles and Responsibilities

The following table defines the roles and responsibilities for anyone who is involved in, or contributes to, the end-point assessment:

Assessor	Role
Employer	<ul style="list-style-type: none"> ■ Carries out three-monthly appraisals throughout the apprenticeship and measures progress against a work plan ■ Judges whether the apprentice should pass through the gateway to the end-point assessment ■ Prepares the final report for the end-point assessment ■ Where appropriate, issues a letter of approval
Training provider	<ul style="list-style-type: none"> ■ Provides training programmes ■ Facilitates end-of-course tests and examinations ■ Where appropriate, arranges qualification and certification
Assessment organisation	<ul style="list-style-type: none"> ■ Facilitates the end-point assessment ■ Reviews the portfolio of evidence and achievements ■ Facilitates the discussion with the project showcase presentation ■ Carries out the observational interview (professional discussion) ■ Judges the outcome of the assessment

Section G – Quality Assurance

The requirement for quality assurance is split between internal and external quality assurance.

G1 Internal Quality Assurance

The independent assessment organisation is responsible for organising internal quality assurance – this is otherwise known as an internal audit. The internal audit will be carried out by, or on behalf of, the assessment organisation.

It involves auditing the assessment process by making sure that process documentation is up-to-date, individual assessments are run correctly and assuring others that it is running, marking, standardising and reporting the outcome of the assessments properly. The internal audit will include sampling a percentage of the previous year’s apprenticeship assessments.

G2 External Quality Assurance

Options are currently being considered for external quality assurance with the Department for Business, Innovation and Skills (BIS). The final arrangements will be included in the assessment plan once confirmed.

Section H – Weighting and Grading

The apprentice will be scored against the knowledge, skills and behaviours gained within the apprenticeship, as well as the document review, the project showcase presentation and the observational interview.

	Knowledge and skill sets	Subtotals		Totals	
		Minimum	Maximum	Minimum	Maximum
Project showcase – presentation of NDT project	Core knowledge and skills – NDT	25.2%	36%	42%	60%
	Other knowledge and skills, including health & safety	10.5%	15%		
	Behaviours and human factors	6.3%	9%		
Observational end-point interview	Core knowledge and skills – NDT	10.5%	15%	28%	40%
	Other knowledge and skills, including health & safety	3.5%	5%		
	Behaviours and human factors	3.5%	5%		
Portfolio of evidence and achievement	Core knowledge and skills – NDT	6.3%	9%		
	Other knowledge and skills, including health & safety	2.1%	3%		
	Behaviours and human factors	2.1%	3%		
Totals		70%	100%	70%	100%

H1 Weighting

The table above shows the minimum scores required and the maximum scores achievable for the apprenticeship and demonstrates how weighting has been applied. Although the table above displays minimum requirements for ‘Other knowledge and skills, including health & safety’ and ‘Behaviours and human factors’, the minimum scores are based on composite grading, which means that the high-level category requires a minimum average score, whereas individual components within the category could be a lesser percentage.

For example, in ‘Behaviours and human factors’ the apprentice is required to score 10.5%, but in the individual components, such as ‘Influence’ or ‘Teamwork’, the apprentice could score less than 10.5% provided that he/she scored higher in other components to bring the average score back up to 10.5%.

The sections for ‘Core knowledge and skills’ are treated differently, in as much as the apprentice is required to achieve a minimum score in each module of the NDT method qualification (see H2 Grading below).

H2 Grading

During the end-point assessment the apprentice is required to achieve:

- a minimum of 70% for core knowledge and skills of the NDT method;
- a minimum of 70% composite grading for other knowledge and skills, including health & safety;
- a minimum of 70% composite grading for knowledge of behaviours and human factors.

NOTE: Composite grading in this context means an average across the category.

If the apprentice achieves the above minimums, he/she will have passed the apprenticeship.

There are two levels of pass: 'Pass' and 'Distinction'. If the apprentice satisfies the above criteria and achieves 70% or over but less than 80%, they will receive a 'Pass' designation; if the apprentice satisfies the above criteria and achieves 80% or over, they will receive a 'Distinction' designation.

Section I – Implementation/Delivery

I1 Affordability

The costs and practicality of assessment have been key considerations in the development of this apprenticeship, not least because of the number of smaller businesses who would find it extremely difficult, if not impossible, to develop and run an apprenticeship scheme without assistance from government, an independent assessment organisation and the professional body.

The cost of the end-point assessment as a percentage of the training costs is approximately 10% to 12%.

I2 Professional Body Recognition

Professional registration is the process whereby an individual is admitted to the Engineering Council's register as an Engineering Technician, Incorporated Engineer or Chartered Engineer, based on the individual demonstration, via a peer review process by a licenced professional engineering institute, that he/she has met the professional standards of commitment and competence.

At the end of the apprenticeship, the apprentice will have achieved the knowledge and skills required for professional recognition at EngTech grade. However, he/she will fall short on experience but will qualify for registration once he/she has gained a further 18 months' experience.

I3 Consistency

Other documents that will be of interest to the apprentice, employer, lead provider and independent assessment organisation can be found on the British Institute of NDT website at www.bindt.org. These include the approved standard [Ref: 4], approved Assessment Plan [Ref: 5], Apprentice's Guidance Document [Ref: 6], On-Programme Competency Development [Ref: 7] and Employer's Units of Competence [Ref: 8]. These documents ensure that assessments will be conducted consistently whilst maintaining incentives for those organisations to be innovative and cost-effective. It will also ensure that there is capacity to meet immediate and future demands. It is also anticipated that the turnaround of assessments will not unduly delay the award of the apprenticeship to successful candidates.

I4 Volumes

It is anticipated that there will be 20 starts during 2016/17, rising to 130 from 2017/18 onwards.

Section J – References

- Ref: 1** BS EN ISO 9712:2012 – Non-destructive testing – Qualification and certification of NDT personnel
- Ref: 2** BS EN 4179 – Aerospace series – Qualification and approval of personnel for non-destructive testing
- Ref: 3** UK-SPEC – The UK Standard for Professional Engineering Competence
- Ref: 4** Non-Destructive Testing (NDT) Operator Standard
- Ref: 5** Non-Destructive Testing (NDT) Operator Assessment Plan
- Ref: 6** Apprentice’s Guidance Document (located on the British Institute of NDT website at www.bindt.org)
- Ref: 7** On-Programme Competency Development document (located on the British Institute of NDT website at www.bindt.org)
- Ref: 8** Employer’s Units of Competence

Section K – Glossary

Apart from the acronyms mentioned in this document, other acronyms have been added to provide the reader with useful information they may come across when reading other NDT documentation.

AQB	Authorised qualifying body
ATO	Approved training organisation
BINDT	British Institute of Non-Destructive Testing
CAD	Computer-aided design
CCNSG	Client/Contractor National Safety Group
CEng	Engineering Council, Chartered Engineer registration grade
CPD	Continuing professional development
CSD	BINDT Certification Services Division
ECITB	Engineering Construction Industry Training Board
EngTech	Engineering Council, Engineering Technician registration grade
Gantt	An illustration of a project schedule that was devised by Henry Gantt in 1910
IEng	Engineering Council, Incorporated Engineer registration grade
IOSH	Institute of Occupational Safety and Health
NDT	Non-destructive testing
PEI	Professional engineering institute
SFA	Skills Funding Agency
UKAS	United Kingdom Accreditation Service
UK-SPEC	The UK Standard for Professional Engineering Competence

Appendix 1

Description of NDT Methods

The apprentice will undertake safety-critical and complex training, both in a classroom environment and on-site, which will include NDT Level 2 training in one method. Available methods are described briefly below:

- **Visual testing:** Visual inspection, with or without optical aids, is the original method of NDT. Many defects are surface-breaking and can be detected by careful direct visual inspection. Optical aids include low-power magnifiers, microscopes, telescopes and also specialised devices such as borescopes, endoscopes and other fibre-optic devices for the inspection of restricted-access areas. These devices can also be used with television camera systems. Much of the success of visual inspection depends on the surface condition and the lighting arrangements. Surface preparation, such as cleaning and etching, is often used.

- **Ultrasonic testing:** Ultrasonic methods of NDT use beams of mechanical waves (vibrations) of short wavelength and high frequency, transmitted from a small probe and detected by the same or other probes. Such mechanical waves can travel large distances in fine-grain metal, in the form of a divergent wave with progressive attenuation. The frequency is in the range from 0.1 to 20 MHz and the wavelength is in the range from 1 to 10 mm. The velocity depends on the material and is in the range from 1000-6000 m/s. The technique detects internal, hidden discontinuities that may be deep below the surface. Transducers and coupling wedges are available to generate waves of several types, including longitudinal, shear and surface waves. Applications range from thickness measurements of thin steel plate to internal testing of large turbine rotors.
- **Radiographic testing:** Radiography uses X-rays or gamma rays to produce an image of an object on film. The image is usually natural size. X-rays and gamma rays are very short wavelength electromagnetic radiation that can pass through solid material, being partly absorbed during transmission. Thus, if an X-ray source is placed on one side of a specimen and a photographic film on the other side, an image is obtained on the film of the thickness variations in the specimen, whether these are surface or internal. This is a well-established technique that gives a permanent record and is widely used to detect internal flaws in weldments and castings and to check for misconstructions in assemblies. The source of radiation is either an X-ray tube or a pellet of radioactive material emitting gamma radiation.
- **Eddy current testing:** In eddy current testing, a coil carrying an AC current is placed close to the specimen surface or around the specimen. The current in the coil generates circulating eddy currents in the specimen, close to the surface, and these in turn affect the current in the coil by mutual induction. Flaws and material variations in the specimen affect the strength of the eddy currents. The presence of flaws and so on is therefore measured by electrical changes in the exciting coil. Both voltage and phase changes can be measured, but some simpler instruments measure only the voltage changes. The strength of the eddy currents produced depends on the electrical conductivity of the specimen, the magnetic permeability (for a ferromagnetic specimen), the stand-off distance between the specimen and coil, the AC frequency used in the exciting coil and the dimensions of the coil and specimen.
- **Magnetic particle testing:** This method is used for the detection of surface and near-surface flaws in ferromagnetic materials and is primarily used for crack detection. The specimen is magnetised either locally or overall and, if the material is sound, the magnetic flux is predominantly inside the material. If, however, there is a surface-breaking flaw, the magnetic field is distorted, causing local magnetic flux leakage around the flaw. This leakage flux is displayed by covering the surface with very fine iron particles, applied either dry or suspended in a liquid. The particles accumulate at the regions of flux leakage, producing a build-up that can be seen visually, even when the crack opening is very narrow. Thus, a crack is indicated as a line of iron powder particles on the surface.
- **Penetrant testing:** This is a simple, low-cost method of detecting surface-breaking flaws such as cracks, laps, porosity, etc. To be detected, the flaw must reach the surface to be tested. Penetrant testing is one step up from visual inspection and offers many advantages, such as speed, large-area coverage and low cost. It is usually a six-stage process:

 - surface cleaning (degreasing, etc)
 - application of a penetrant liquid (dipping, spray, brush)
 - removal of excess penetrant (solvent, water)
 - application of a developer
 - inspection of the test surface (visual, television camera)
 - post-inspection cleaning (anti-corrosion solutions).
- **Infrared thermography testing:** Thermography is a technique of obtaining an image of the heat distribution over the surface of an object. The usual method is to use a special television camera with an infrared-sensitive detector and a lens that transmits infrared radiation. Such cameras can operate at normal video rates. Temperature variations in the subject are then displayed as shades of grey or can be converted into a pseudo-colour image. Temperature variations as small as 0.1°C can be detected. The two main fields of application are:

 - to look at the heat distribution in hot specimens, such as furnace walls, insulated structures, electronic circuits, etc, in a steady-state – generally known as passive thermography;
 - to provide a pulsed source of heat on one side of a specimen and examine the other side for non-uniformities in infrared emission that would correspond to internal inhomogeneities or large flaws – generally known as active thermography.

Appendix 2

Independent Assessment Organisation's Assessment Checklist

Candidate's name:		Candidate reference:	
Place of interview:		Date and time:	
Independent assessors	1.	2.	
Observer for training purposes:			

Chair of Independent Assessment Organisation:			
Module for review	Yes	No	Assessment Comments
Was the apprentice issued with a start-up pack?			
Was the quality plan submitted to the independent assessment organisation?			
In the first three months, did the apprentice register as an Affiliate Member of the professional body?			
In the first three months, did the apprentice initiate a CPD record online?			
Have the apprenticeship manager's three-monthly reports been received?			
Has the completed log book been submitted?			
Has the completed portfolio of evidence been submitted?			
Has the completed project report been submitted?			

Reporting Considerations for Observational End-Point Interview

- You should consider passing the candidate if the following conditions are met:
 - The total score is not less than 70%; and
 - The block mean score in any section is not less than 70%; and
 - There is no score of less than 40% in any of the subcategories across the whole form; and (where applicable)
 - Any special requirements of the apprenticeship have been satisfied, such as achieving a minimum score of 70% in each module of the NDT method.

2. Where these conditions are not met by a small margin but the interviewers wish to recommend a pass, they may argue a case for dispensation from normal guidelines. This must not be out of misplaced kindness but because there is evidence that cannot properly be accounted for on the form. This concession does not apply to the requirements for the NDT method.
3. Where the guidelines are not met and there is no exceptional case to be made under paragraph 2, the candidate is not yet ready to pass his or her apprenticeship; it may be possible to re-test the evidence against the criteria at a later date, provided both the candidate and employer agree to that course of action and the timescales.

Appendix 3

End-Point Assessment Assessor's Score Sheet

Category	Subcategory	Subcategory Score	Minimum totals for a 'Pass'	Minimum totals for a 'Distinction'	Percentage of Apprenticeship	Actual
Section 1 – Portfolio of evidence			70%	80%	10%	
Section 2 – Project showcase – Presentation of NDT project			70%	80%	60%	
Section 3 – Observational interview (professional discussion)	Defect assessment		70%	80%	15%	
	Product technology					
	Materials science					
	Environmental awareness					
	Practical ability					
	Interaction with supervisor					
	Health & safety					
Section 4 – Behaviours and human factors	Communication		70%	80%	15%	
	Teamwork					
	Delivery					
	Common sense					
	Influence					
	Ethics					
Minimum totals to pass the apprenticeship			70% (Pass)	80% (Distinction)	100%	

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Issued by the British Institute of Non-Destructive Testing
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