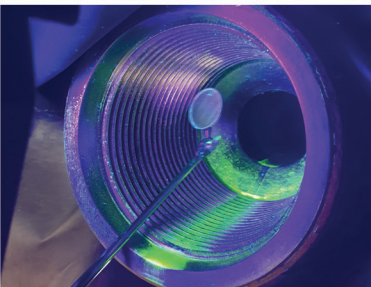
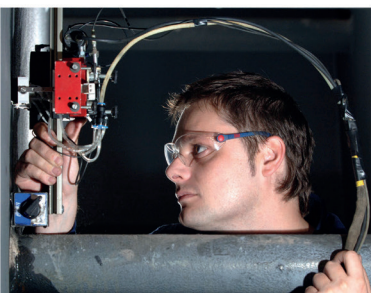


Is non-destructive testing (NDT) the career for me?



BINDT
THE BRITISH INSTITUTE OF
NON-DESTRUCTIVE TESTING



www.bindt.org

Is NDT the career for me?

Are you considering a career in non-destructive testing (NDT)? Perhaps you have come across the term as part of your college or university course, maybe you are considering a career change or have a friend or colleague who already works in this sector and you are interested in learning more?

The following overview gives an insight into this fascinating and rewarding engineering field and may help you to decide if working in NDT could be the right choice for you.

NDT is a sector of engineering concerned with ascertaining the integrity of material components to ensure that they are fit for their intended purpose by detecting the presence of flaws, which may lead to premature failure. The consequence of failure could impact in many ways, including loss of life, personal injury, process safety, environmental damage, mechanical loss or financial cost. Various non-intrusive inspection methods are used to inspect components without rendering them unfit for further use (hence the term NDT).

Underwriting all NDT applications are the people who work in NDT: from the research and development engineers and scientists pushing the boundaries of physics with new technologies to training and certification organisations who ensure that inspection personnel are competent to undertake critical inspections; from the test equipment manufacturers to the inspection personnel themselves who perform these critical inspections, sometimes in arduous and difficult conditions, in all environments across the globe, ensuring that the potential failure of components is reduced to an acceptable level.

NDT's great strength is its people. NDT attracts individuals from all walks of life; indeed, the very nature of attracting individuals from such a diverse range of backgrounds contributes to allowing individuals to excel in inspection activities across a wide range of industries, whether it be in aerospace, oil & gas, power generation, rail, major structural and civil infrastructure projects, food and manufacturing. NDT is professionally carried out in every corner of the globe, underwriting the way our world operates safely and with minimal risk to the environment.

Before considering working in this challenging but rewarding engineering sector, it is worthwhile taking a few moments to consider whether a career in NDT is right for you.

The NDT industry acknowledges that people have different personal needs, opinions and beliefs and, through embracing diversity and inclusion, welcomes individuals into the profession irrespective of personal values. Utilising the unique skillsets that each individual possesses is recognised as a valuable benefit to the industry as a whole.



Personal attributes

Personnel working as NDT inspectors should adopt and apply the following attributes when working in an inspection environment:

Courage

- Show integrity and trust
- Take responsibility for, and stand by, their decisions
- Take the initiative during inspections
- Encourage debate around inspection issues
- Be aware of own limitations/technical competency and not exceed them
- Handle risk and uncertainty

Breadth

- Show knowledge and anticipate future consequences and trends in technology
- Learn quickly when faced with problems and be open to change
- Adopt a broad view towards business, cultural and social issues

Influence

- Establish and maintain effective relationships with internal and external stakeholders
- Build constructive and effective relationships with personnel within their organisation
- Influence and persuade others to achieve an outcome or solution

Delivery

- Delivery of tasks on time and to the required quality
- Set objectives and goals and measure / review performance
- Prioritise work based on appropriate factors

Teamwork

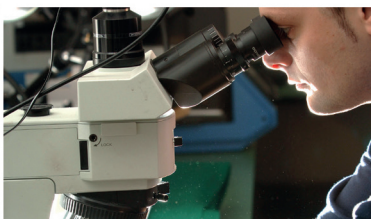
- Work constructively as a member of a team, building trust and mutual respect
- Provide information in a timely manner
- Contribute to a strong moral and sense of belonging within the team
- Motivate and empower others
- Share knowledge and expertise with others to support development

Ethical principles

- Undertake inspections to the best of your ability
- Conduct yourself with honesty and integrity
- Have respect for life, law and the public good
- Respect your fellow workers' views, beliefs and personal characteristics

Environmental awareness

- Organise and use resources effectively when undertaking tasks, with consideration to cost, quality, safety, security and environmental impact
- Operate and act responsibly, considering the need to progress environmental, social and economic outcomes
- Carry out methodical assessment of risk of task and take appropriate actions to minimise risk to society and the environment
- Contribute to environmental impact assessment
- Provide services that maintain and enhance the quality of the environment



PCN inspection personnel lifestyle considerations

There are many opportunities for NDT-qualified technicians; however, it is beneficial to have an awareness of the potential impact of working within the NDT sector as an approved PCN Inspector. The following statements are given to help you make the decision: **Is NDT the career for me?**

NDT inspection activities at manufacturing locations may be permanent with regular working patterns (including staggered shift/night working) with a level of flexibility to meet work/lifestyle expectations. NDT research and development work will often be based at academic facilities or in offices/workshops located on trading estates or science parks with working patterns generally regular with little disruption to work/lifestyle expectations.

Individuals should also be aware that NDT inspections can be carried out on site, both onshore and offshore, either in the UK or overseas. NDT service companies may offer permanent positions, otherwise contracts for engagement may be offered on a short-term or temporary contract basis or short-term inspection contracts offered via recruitment agencies. Working hours may be long and arduous, possibly without days off or weekend days to recover. In extreme cases, disruption to lifestyle expectations due to working patterns can be severe.

Due to the nature of large construction projects, NDT personnel may be required to work away from home for long durations, with varying standards of accommodation dependent on project and location. Lone working may be required. Local security, working conditions and welfare may not always be as would be expected if working in the UK.

Site conditions may present challenges in terms of working at height, confined space working, working from rope access, remote working, working in extremes of temperature and working with hazardous materials/consumables and ionising radiation.

Persons considering undertaking an NDT career should consider the demanding physical and mental challenges of the workplace/environment to satisfy themselves that they can meet these requirements.

General pre-requisites applicable to achieving NDT qualification

Individuals considering a career in NDT should acknowledge that NDT is a technical engineering discipline that often will be referenced to draw upon national and international codes and standards. As a result, a certain level of technical competence, understanding and communication will be required in physics, mathematics and a language applicable to their country of origin for them to be fully effective in the NDT field. It may also be a requirement to be able to understand and communicate at a technical level in English.



In accordance with international standards, it is a pre-requisite before undertaking any inspection activity that inspection personnel will have to take and pass formal accredited technical theoretical and practical examinations to demonstrate competence. Training courses are available from approved training organisations (ATOs) providing dedicated and focused courses in all NDT methods. Upon completing an approved training course in an NDT method, candidates must attempt and pass a series of theory and practical examinations at Level 1 or 2 in each NDT method they are seeking certification for, conducted by an approved qualifying body (AQB). Often, ATOs are also approved to operate as the AQB.

Only inspection personnel who have passed the Personal Certification in NDT (PCN) examinations are qualified and authorised to perform NDT inspections. Ongoing re-qualification (five-yearly cycle) is also a requirement for practising NDT personnel wanting to remain engaged in NDT.

ISO 9712 requirements

You should be aware that in accordance with ISO 9712, in addition to achieving a minimum number of training days at an ATO before attempting a PCN examination, you must also have accrued a minimum number of verifiable industrial experience days. This will depend on several factors, such as the NDT method being studied, level sought and whether single or multiple NDT surface methods are being studied in parallel. Industrial experience varies depending on the method (see Table 1 for current requirements).

Table 1. Work experience required to achieve PCN certification

NDT method	Experience in days		
	Level 1	Level 2	
		With Level 1	Direct access
ET, ACFM, RT, UT, TT	45	135	180
MT, PT, VT	15	45	60
RI (when in isolation)	N/A	N/A	90
NDT method	Level 3		
	Higher education* with Level 2	With Level 2	Direct access, with higher education*
ET, ACFM, RT, UT, TT	270	450	540
MT, PT, VT	180	240	360
RI (when in isolation)	N/A	N/A	N/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 seven.
*Higher education recognised by BINDT is restricted to a recognised degree in non-destructive testing.

If the industrial experience has not been fully reached prior to taking and passing a PCN examination, your PCN approval will not be authorised until industrial experience is achieved. Further advice in this area is available from any ATO/AQB and/or BINDT PCN.

Individuals must meet a minimum standard for eyesight ascertained through a formal eyesight test to include colour blindness assessment. If you wear glasses or contact lenses whilst taking the eyesight test, then these will be required whilst undertaking inspections. In most cases, colour blindness can also be accommodated through supplementary tests.

Closing summary

To work in the challenging and exacting NDT sector whilst applying a high degree of personal integrity can be demanding on the individual, not only from a technical perspective but also from a wellbeing and lifestyle standpoint.

However, the positive aspects of working in NDT must equally be emphasised. NDT will often lead to a high degree of technical achievement and personal satisfaction. NDT will appeal to those adventurous individuals wanting to test themselves outside of the norm; to have the opportunity to work throughout the world on inspiring and new sustainable engineering projects knowing that you have constructively contributed to the safety of society and the environment.

If you are still enthused after reading this, then NDT is waiting for you to become part of this great engineering profession!



...engineering safety, integrity & reliability

PCN Certification
Developed by BINDT for industry



Issued by the British Institute of Non-Destructive Testing
Midsummer House, Riverside Way, Bedford Road,
Northampton NN1 5NX, UK
Tel: +44 (0)1604 438300 | Email: info@bindt.org