



1. Why you should do NDT at VUT

Nondestructive Testing (NDT) consists of a variety of non-invasive inspection methods used to evaluate material properties, components, or entire process units. The methods can be also utilized to detect, characterize, and measure the presence of damage mechanisms. NDT is also commonly referred to as nondestructive examination (NDE), nondestructive evaluation (NDE) or nondestructive inspection (NDI). Many NDT methods are capable of locating defects and determine the features of the defect such as size, shape, and orientation. The purpose of NDT is to inspect a component in a safe, reliable, and cost-effective manner without causing damage to the equipment or shutting down plant operations. This contrasts with destructive testing where the part being tested is damaged or destroyed during the inspection process.

NDT can be performed during or after manufacture or even on an equipment that is in service. In manufacturing, NDT inspections determine if parts are fit for a desired function, that is, parts are inspected to ensure that they will last a certain amount of time or cycle before failure. During operation, NDT inspections can be used to assess the current state of equipment, monitor damage mechanisms, and make informed decisions for remaining equipment life evaluation.

Nondestructive testing career opportunities are on the rise in today's economy. This field is consistently advancing and there is an ever-growing need for NDT technicians, quality assurance specialists and inspectors as infrastructure continues to age. NDT of materials and structures is one of the most common forms of quality control in the industry.

The good news is that VUT has crafted a special curriculum that allows prospective students to get the training and experience they need with just a three-year Diploma or a one-year Advanced Diploma. VUT is the only South African university that offers an NDT Diploma and NDT Advanced Diploma. A Diploma provides graduates with career-orientated skills that increase their chances of securing a job. Many employers value graduates who can walk into a new job ready to tackle it straight away. A diploma provides students with practical, usable, and employable skills. Therefore, students are more job-ready after they have gained their qualification. The rewards for pursuing a career in NDT are numerous.

As the African infrastructure continues to deteriorate, NDT jobs are estimated to grow, quite literally. These NDT jobs are the jobs of tomorrow. Jobs in NDT influence a wide array of industries such as petrochemical, automotive and defense. Therefore, there is a drastic need for skilled NDT professionals.

What attracts many prospective students to the NDT profession is the hands-on nature of NDT. At VUT, students are taught by highly skilled lecturers and laboratory technicians guiding them through each step of the way to ensure proper learning experience. VUT NDT technicians pay a strong attention to detail. It is important for prospective students to have strong communication skills to be able to properly document their findings. Prospective students must expect to work with their hands, and to observe, explore and monitor materials and structures in industries.

The VUT NDT diploma offers visual inspection, magnetic particle testing, liquid penetrant testing, radiographic testing, Eddy current testing, thermographic testing, and ultrasonic testing methods. After completing the course work, students are placed in the industries for six months for the work integrated learning (WIL).

The VUT NDT diploma curriculum builds a deeper understanding with more in-depth physics and analysis. Completing an NDT diploma at VUT is based upon four objectives: mastering the coursework, passing the University exams/assessments, passing the level certification examination, and completing WIL.

Diploma graduates who are looking for an in-depth NDT education and feel that the Advanced diploma program suits their need, are invited to apply. These students are doing Ultrasonic Testing, Eddy Current testing, Mathematical methods, Fracture Mechanics, Corrosion, Thermographic Testing, Electromagnetic testing, and an NDT project. One of the benefits of the Advanced diploma is that students can get a more targeted and informative method of study. Students improve their NDT skills and knowledge and obtain a different prospect by completing the NDT education. This offers up many more NDT Career opportunities for graduates, including quality assurance, management of engineering design, research, and teaching. The Advanced diploma is also a solid platform for those pursuing Post Graduate Diploma, which is equivalent to an Honors, degree at a traditional University. Another benefit of an Advanced diploma is that it strengthens the advancement potential of our graduates.

If prospective students are looking for a career that does not limit their potential and allows them to continually learn something new each day, they are probably candidates for VUT NDT programs. VUT NDT education (diploma and advanced diploma) is registered with the DHET (Department of Higher Education and Training) and SAQA (South African Qualification Authority) The Diploma has the SAQA ID **101145** and the Advanced diploma SAQA ID: **111439** . The VUT NDT education is also accredited by CHE (Council for Higher Education).

2. Benefits of studying NDT diploma education at VUT

The VUT NDT graduates will be:

Lifelong NDT learners and digitally proficient.

NDT Co-creators of disciplinary knowledge who are critical thinkers and problem-solvers.

Inter-cultural and ethically sensitive NDT citizens who are self-aware and emotionally intelligent.

Skilled NDT entrepreneurs who are innovative, social NDT citizens committed to environmental and social sustainability values.

NDT Team players and skilled NDT communicators.

3. Delivery modes

VUT NDT Diploma and Advanced diploma are offered via contact learning and online learning (blended learning) from Vanderbijlpark.

7. NDT Level Certification

The VUT NDT department is conducting a blended training in NDT Level certification for the students enrolled for the NDT diploma and advanced diploma. This course gives students the advanced understanding of what level Certification is all about and its requirements in the industry. There are three NDT levels of Certification known as NDT level I, level II and Level III. Each NDT level has its own requirements.

7. NDT Level Certification

NDT level I certification teaches the student to perform specific NDT calibrations and evaluations according to written instructions. The instructor will have NDT level I or II certification levels.

NDT level II Certification teaches students to set up, calibrate, perform, and evaluate results with respect to applicable codes, standards, and specifications. The student learns how to organize and report the results of these tests.

It is the student's responsibility to complete the required on-the-job training. At this level, the student qualifies to supervise NDT level I personnel below him/her.

NDT level III teaches the student to develop and approve NDT procedures and methods, establish and qualify techniques. The student learns how to interpret codes, standards, specifications, procedures, assign a specific method to use in specific applications and report all obtained results. The student will be able to train NDT level I and II personnel

This course will be registered for by the VUT NDT students and graduates. Training will be according to the requirements of ISO 9712 and ASTC – 1A. To suite the need of our students and offer flexibility for the students training, the VUT NDT department has designed eLearning and blended learning solutions to support students for level certification training.

Every NDT technician must renew his/her certification every 5 (five) years by showing proof of satisfactory performance examination. He/she must also repeat his/her initial certification examination every 10 (ten) years. Note that NDT level I and II require recertification every 5 years while level III recertification require he/she to retake the initial examinations or earn 24 recertification points.

The types of NDT level certification documents that students may need to include are:

- a. ANSI/ASNT CP – 105 NDT which this is Nondestructive Testing – Qualification and Certification of Personnel.
- b. Recommended Practice NO. SNT-TC-1A, Personnel Qualification and certification in Nondestructive Testing.
- c. ASNT Central Certification Program (ACCP) document ACCP-CP-1, Rev. 6 (8/9/09)
- d. Iso 9712, NDT Qualification and certification of personnel.
- e. EN 473, NDT- Qualification and certification of NDT personnel-general principles.