ULTRASONIC TESTING



COURSE INFORMATION

Ultrasonic Testing (UT) is a powerful NDT method that relies on the mechanical vibration of sound waves in the ultrasonic range (frequencies greater than 20 kHz) to uncover volumetric discontinuities within solid materials. In UT, both compression and shear waves play a pivotal role in investigating the internal nature of components. The interaction of these waves with linear, planar, or volumetric anomalies, often referred to as 'vacancies,' enables the characterisation of any detected discontinuities.

The primary inspection medium in UT is the sound beam, and a profound understanding of its qualification (properties) and quantification (calibration) is crucial for accurately interpreting signal responses. If you're someone who enjoys playing pool, possesses a penchant for geometry and trigonometry, and relishes the challenge of deciphering complex structures, then embarking on an Ultrasonic Testing course is a transformative experience. It will revolutionise the way you perceive engineering materials and weldments, offering you a unique perspective into their internal composition.

Within UT, compression and shear waves applications having various angles and frequencies serve as the foundation for determining the techniques used. Additionally, the send-or-receive/send-and-receive capabilities of the sensors, along with scanning methodologies such as the tandem technique, are vital technique parameters. Mastering these parameters empowers you to not only detect defects but also to assess their size, orientation, and position accurately.

Delving into UT opens doors to a fascinating world where science, mathematics, and technology converge to ensure the safety and reliability of critical components in various industries. It's a discipline that empowers you to become a vital guardian of structural integrity, making it a rewarding and intellectually stimulating choice for those passionate about NDT.

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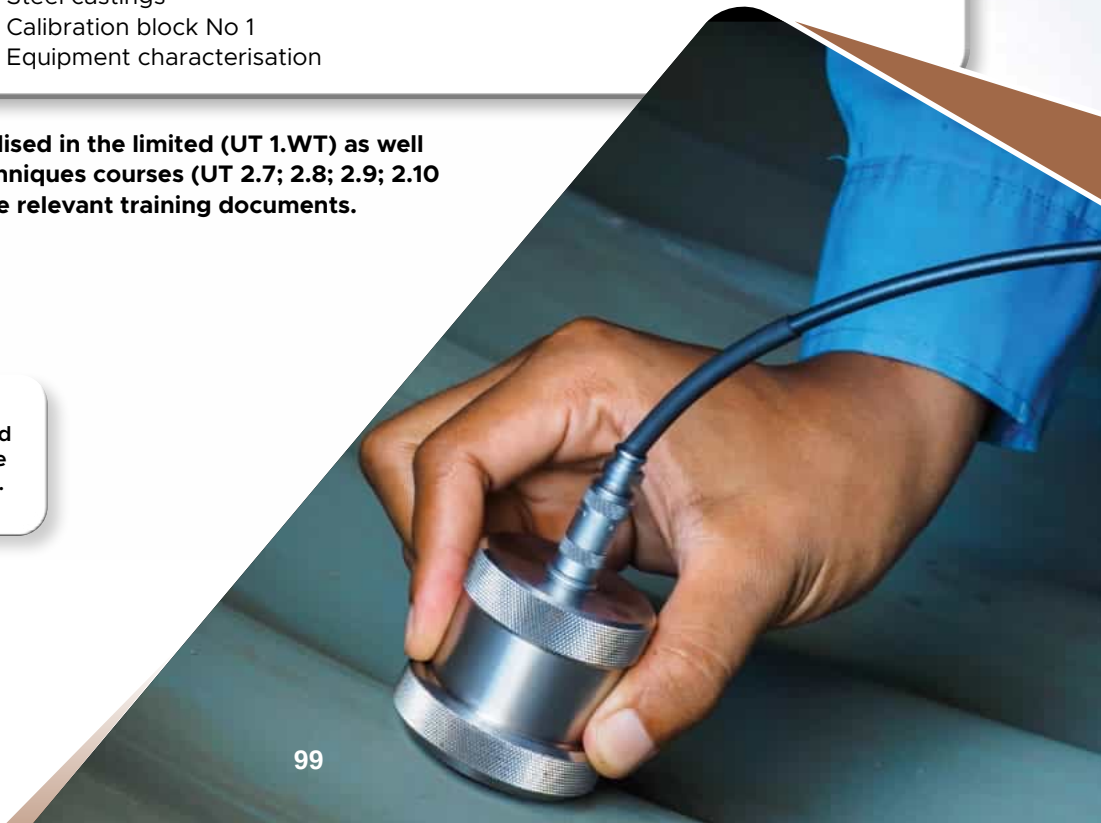
ULTRASONIC TESTING

THE TRAINING COURSE IS BASED ON GENERAL THEORY AS WELL AS SECTOR SPECIFIC APPLICATIONS RELATING, BUT NOT LIMITED TO, THE FOLLOWING STANDARDS AND SPECIFICATIONS:

- ✓ ASME Boiler & Pressure Vessel Code - Section V - Subsection A - Article 1, 4 & 5
- ✓ ASME Boiler & Pressure Vessel Code - Section V - Subsection B - Article 23
- ✓ ISO 16810 UT – General Principles
- ✓ ISO 11666 UT – Acceptance Levels
- ✓ ISO 17640 UT – Techniques, Testing levels and assessment
- ✓ ISO 23279 UT – Characterisation of discontinuities in welds
- ✓ ISO 5577 UT – Vocabulary
- ✓ ISO 18175 UT – Performance characteristics (no electronic instruments)
- ✓ ISO 16827 UT – Characterisation and sizing of discontinuities
- ✓ ISO 16826 UT – Discontinuities perpendicular to the surface
- ✓ ISO 16811 UT – Sensitivity and range
- ✓ ISO 12710 UT – Evaluating electronic characteristics of UT instruments
- ✓ ISO 10375 UT – Characterisation of search unit and sound field
- ✓ ISO 7963 UT – Calibration block No 2
- ✓ ISO 4992 Parts 1 & 2 UT – Steel castings
- ✓ ISO 2400 UT – Calibration block No 1
- ✓ ISO 22232 Parts 1/3 UT – Equipment characterisation

Details of specific codes utilised in the limited (UT 1.WT) as well as derived or advanced techniques courses (UT 2.7; 2.8; 2.9; 2.10 and 2.11) can be found in the relevant training documents.

Scan to download the SAIW Course Prospectus App.



ULTRASONIC TESTING

ULTRASONIC TESTING - SAIW CERTIFICATION NDT SCHEME (ISO 9712) | NON-DESTRUCTIVE TESTING - VOLUMETRIC METHODS

NDT Method and Level	Industrial Sector	Product Sector / Category	Duration 1 day = 8 hours	Prices (Inclusive of VAT)			Course & Initial Exam Dates						
				Training & Initial Examination Non-Corporate Members	Training & Initial Examination Corporate Members	Initial Certification							
LIMITED Ultrasonic Testing Level 1 Limited – Wall Thickness	Pre- and in-service	Limited to wall thickness measurement using compression probe only	Training 4 days Exam 1 day	**R 18 261**	**R 17 013**	**R 2 836**	Course Code	UT 1 WT JHB 01	UT 1 WT JHB 02	UT 1 WT JHB 03	UT 1 WT JHB 04	UT 1 WT JHB 05	UT 1 WT JHB 06
							Training	25-28 Jan	05-08 Apr	31 May - 03 Jun	26-29 Jul	06-09 Sep	01-04 Nov
							Exam	29 Jan	09 Apr	04 Jun	30 Jul	10 Sep	05 Nov
Ultrasonic Testing Level 1	Pre- and in-service	UT 1.1 Wrought Product/Forgings UT 1.2 Castings UT 1.3 Butt Welds in Plate UT 1.4 Butt Welds in Pipe	Training 12 days Exam 3 days	**R 40 704**	**R 37 630**	**R 2 650**	Course Code	UT 1 A JHB 01	UT 1 A JHB 02	UT 1 A JHB 03			
							Training	22 Feb-09 Mar	21 Jun - 06 Jul	11-26 Oct			
							Exam	10-12 Mar	07-09 Jul	27-29 Oct			
Ultrasonic Testing Level 2	Pre- and in-service	UT 2.1 Wrought Product/Forgings UT 2.2 Castings UT 2.3 Butt Welds in Plate UT 2.4 Butt Welds in Pipe UT 2.5 T-joints & other configurations UT 2.6 Nozzles	Training 12 days Exam 3 days	**R 40 704**	**R 37 630**	**R 2 650**	Course Code	UT 2 A JHB 01					
							Training	10-26 May					
							Exam	27-28 May					
AD-VANCED UTPA	Pre- and in-service	UT 2.1 Wrought products/forgings, UT2.2 Casting UT2.3 Butt welds in Plates UT2.4 Butt welds in Pipe UT 2.10 Ultrasonic Phased Array	Training 10 days Exam 3 days	**R 54 500**	**R 50 698**	**R 2 650**	Course Code	UTPA2 JHB 01					
							Training	04-15 Oct					
							Exam	Exam: 18-20 Oct and 25-26 Oct					

PLEASE NOTE: ADVANCED OPTIONS UT 2.8 - CRITICAL FLAW SIZING: UT 2.9 - AUSTENITIC STAINLESS STEEL AND UT 2.11 - TIME OF FLIGHT DIFFRACTION ARE AVAILABLE ON REQUEST AND SUBJECT TO DEMAND. [1] UT 2 A CERTIFICATION IS REQUIRED AS PREREQUISITE

*Prices subject to change

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