ROYAL TECH TRAINING & CONSULTANCY

Method & Level	**PCN Level 1- Ultrasonic Testing**
Course Duration - Days & Hours	5 days & 40 Hours
Revision & Updated on	Rev 0- Updated on 29-4-2023

PCN Level 1 Ultrasonic Testing

Course Duration: 5 days (40 Hours) minimum duration

Course Overview:

This course provides comprehensive knowledge of the theory and practice of ultrasonic testing of welds for technicians to reach the Level I standard. Training accredited to PCN Level 1. This course is suitable for NDT personnel, inspectors, testers and engineers who require a thorough introduction to ultrasonic testing of plates and pipe welded joints.

Course Content:

1. Basics of NDT, classifications of NDT
2. History of ultrasonics' & Physics of Sound, classification of sounds
3. Parameters-Modes of Ultrasound, - reflection & refraction, snells law, ciritical angles. Mode conversion
4. Characteristics of the beam of a circular transducer, Influence of transducer frequency and diameter, Near field (Fresnel zone), Far field (Fraunhofer zone), Beam divergence
5. Generation of Ultrasound-Piezo-electric effect, Piezo-electric effect , magnetostriction , electrostriction
6. Probe-Properties- Piezo Electrical Crystals- Factors Affecting Selection of a piezoelectric transducer
7. Equipment- control systems- Data Display- A, B, C Scan, PRF
8. Techniques- Pulse echo- straight, Delay, focussed, Dual, angle beam, tandem, Pitch catch, straddle, immersion
9. Reference blocks- Equipment, probe performance checks, DAC, Transferer correction
10. Inspection – Parent metal, sizing techniques- mathematics, weld inspection, sizing techniques
11. Implementation of the testing techniques according to products and to expected discontinuities, Influence of geometry and structure (spurious echoes, sound attenuation)
12. Product technology- welding process and its associate defects
13. Inspection & reporting of welds using Pulse echo UT for various types of weld joints
14. Application of a written instruction
15. Practical exercise and Daily assessment

Course Objectives:

1. Understand the basic concept of ultrasonic's, technique selection, equipment's and probes
2. Calibrate ultrasonic equipment using calibration blocks
3. Determine attenuation levels, Measure the thickness of steel plates, parent metal inspection
4. Locate and determine size of laminations in steel plates
5. Select correct type of probe to examine butt welded joints
6. Inspect, Detect and report the location and size of defects in butt welds
7. Follow and apply the instructions
8. Meet the syllabus requirements for PCN Level 1 as per PCN GEN Appendix Z1 &C1.

Experience: **3** months experience required in order to gain full qualification.