



“Exam Syllabus for Ultrasonic Testing Level-I (UT Level-I)”

1. General Knowledge

- 1.1 Non Destructive Testing (NDT)
- 1.2 Materials
- 1.3 Processes and defects

2. Terminology, Physical Principles and Fundamentals of Ultrasonic

- 2.1 Mechanical Wave Propagation
- 2.2 Basic concept mechanicals waves
- 2.3 Acoustic impedance
- 2.4 Ultrasonic waves and their types
- 2.5 Reflection and transmission of ultrasonic waves
- 2.6 Piezoelectric effects, types and characteristics of piezoelectric transducers
- 2.7 Ultrasonic Probes
- 2.8 The ultrasonic beams

3. Testing Techniques and their Limitations

- 3.1 Pulse echo technique
- 3.2 Through transmission method
- 3.3 Methods of coupling
- 3.4 Testing and automatic, ultrasonic testing systems
- 3.5 Times of flight diffraction (TOFD)

4. Ultrasonic Equipments

- 4.1 Components of an ultrasonic flaw detector
- 4.2 Working of the ultrasonic flaw detection system
- 4.3 Scan presentation
- 4.4 Decibel or dB unit
- 4.5 Analog and digital thickness meters
- 4.6 Monitor
- 4.7 Electric distance/amplitude correction

5. Calibration of the Test System

- 5.1 Introduction
- 5.2 Calibration block
- 5.3 Range calibration