

Non-Destructive Testing Courses by TCR Arabia (1/6)

Ultrasonic Testing – Level II

Prerequisite for this Class is Level I Ultrasonic Testing Course

SCOPE

This course introduces the basic principles of ultrasonics and prepares the candidate for Angle Beam Inspections. This course prepares a candidate to:

- Perform Specific Calibrations
- Specific NDT
- Interpretation of Codes
- Evaluations for Accept or Reject Determinations according to written Instructions
- Record Results

TRAINING

Training Material is presented in Module that are followed by Quizzes

CERTIFICATION MODULE (Covered in Level I Training)

MODULE 1: MANUFACTURING DISCONTINUITIES (Covered in Level I Training)

Non-Destructive Testing Courses by TCR Arabia (2/6)

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MODULE 2: WAVE MODES (Covered in Level I Training)

MODULE 3: ACOUSTIC IMPEDANCE (Covered in Level I Training)

MODULE 4: REFRACTION AND REFLECTION (Covered in Level I and II)

- Reflection and Refraction
- Snell's Law
- Mode Conversion
- First and Second Critical Angle
- Creeping Waves
- Problems on Mode Conversion

MODULE 5: PIEZOELECTRIC TRANSDUCER (Covered in Level I Training)

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Ultrasonic Testing – Level II

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MODULE 6: PULSER RECEIVER

- Calibration of Ultrasonic Equipment - Time and Amplitude Linearity
- All other Topics Covered in Level I Training

MODULE 7: ATTENUATION (Covered in Level I Training)

MODULE 8: THICKNESS MEASUREMENT (Covered in Level I Training)

MODULE 9: IMMERSION TESTING (Covered in Level I Training)

MODULE 10: FLAW DETECTION - 0 DEGREE (Covered in Level I Training)

MODULE 11: CALIBRATION BLOCKS

- IIW Block Type I
- IIW Block Type II

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Ultrasonic Testing – Level II

Prerequisite for this Class is Level I Ultrasonic Testing Course

- Miniature Angle Beam / Rompass Block
- DSC Block
- AWS Resolution Block
- Step Wedge
- Area- Amplitude Block
- Distance- Amplitude Block

MODULE 12: ANGLE BEAM INSPECTION

- Selection of Screen Range
- Measurement of Beam Exit Point
- Measurement of Actual Refracted Angle
- Calibration using IIW, Rompass and DSC Block
- Sensitivity and Resolution
- Reference Amplitude
- Distance Amplitude Correction Curve
- Distance Gain Size
- Discontinuity Length Sizing using 6 dB and 20 dB drop method

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Ultrasonic Testing – Level II

Prerequisite for this Class is Level I Ultrasonic Testing Course

- Discontinuity Evaluation
- Angle Selection
- Surface Distance, Skip Distance, Depth, Full V Path
- Plotting of Discontinuities like Crack, Lack of Fusion, Lack of Penetration, Slag, Porosity in welds
- Worksheet: Plotting of discontinuities for butt welds

MODULE 13: WRITING AN ULTRASONIC PROCEDURE

- ASME Section V
- Essential Variables
- Non Essential Variables

MODULE 14: CODES AND STANDARDS

- ASME Section V, Article 4, 2004 Edition
- ASME Section VIII
- Additional Codes Standards as per student's requirements (please discuss this at the time of registration)

Non-Destructive Testing Courses by TCR Arabia (6/6)

Ultrasonic Testing – Level II

Prerequisite for this Class is Level I Ultrasonic Testing Course

INTRODUCTION TO ADVANCED TECHNIQUES

- Time of Flight Diffraction
- Phased Arrays

PRACTICALS

Shear Wave Testing on API Pipe Samples with Weld defects – ID Cracks, OD Cracks, Slag, Porosity, Lack of Fusion, and Lack of Penetration

EXAMINATIONS

- General
- Specific
- Practical

Candidates must score a minimum of 70 % in each test and a minimum of 80% average for all the three tests.

The duration of this course is for 5 days and it is conducted by NDT experts from TCR Arabia. Students will be given an ASNT Level II certificate at the end of this course.