

Eddy Current Testing Level I

Level I - 40 hours

Training Course Outline

SCOPE

This course prepares a candidate to Perform Surface Eddy Current Calibration and Inspections

TRAINING

Training material is presented in modules that are followed by quizzes

PERSONNEL CERTIFICATION

ASNT SNT-TC-1A 2024

NAS 410 Rev 5

Training, experience and examination requirements

Training Requirements

- Recommended Course Outline
- Training Hours
- Practicals
- Quizzes and examinations

Module 1: Electricity

- Voltage, Current and Resistance
- Ohm's Law
- Inductance
- Impedance

Module 2: Magnetism

- Magnetism
- B-H Curve
- Permeability

Module 3: Electromagnetism

- Faraday's Law
- Lenz's Law
- Mutual Inductance

Module 4: Introduction to Eddy Current Generation

- Generation of Eddy Currents
- Impedance changes by Eddy Currents

Module 5: Generation of Eddy Currents

- Standard Depth of Penetration
- Effect of frequency, conductivity and Permeability

Module 6 – Impedance Plane

- Conductivity Curve

- Lift Off Curve
- Permeability

Module 7: ECT Instrumentation

- Impedance Displays
- Strip Charts
- Absolute and Differential Modes
- Portable Surface Inspection Equipment
 - Phasec
- Setting up the instrument
 - frequency
 - gain
 - phase angle

Module 8: Eddy Current Probes

- Surface Probes
- Spot Probes
- Weld Probes
- Encircling Probes
- Tubing Probes

Module 9A: Surface Inspection and Applications

- Calibration Blocks with notches
- Probe Selection
- Frequency Selection
- Setting the Display
- Edge Effect
- Applications

Module 9B: Inspection of Carbon Steel Welds

- Weld Probes
- Scan Plans
- Equipment Settings

Module 10: Test Parameters

- Frequency
- Filtering
- Suppression of Permeability variations

SPECIFIC TRAINING

- Surface ECT Procedure
- ASTM E-426

PRACTICAL TRAINING

- Setting up the Instrument

- Selection of Frequency
- Calibrations
- Exercises
 - Conductivity curves
 - Lift Off Curves
 - Thickness Curves
 - Clad thickness curves
 - Notch standard curves
- Prepare test Reports

TRAINING EXAMINATIONS (Not Applicable towards Certification)

- General
- Specific
- Practical Tests

Candidates must score a minimum of 70% in General and Specific tests and 80% in practical test to achieve a minimum average of 80% for all the three tests.



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