

Visual Testing

Level I and II – 24 hours
Training Course Outline

SCOPE

This in-depth course prepares a candidate to conduct Visual Examinations.

This course prepares a candidate to

- Identify defects
- Interpret and Evaluate Results with respect to Applicable Codes, Standards and Specifications
- Familiar with the scope and limitations of the methods
- Write test reports

TRAINING

Training material is presented in modules that are followed by quizzes

PERSONNEL CERTIFICATION

ASNT SNT-TC-1A

Training, experience and examination requirements

Training Requirements

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

GENERAL TRAINING

The course curriculum includes:

Module 1: Light, Illumination, and Eye

- Definition of Visual Testing
- Eye and Vision
- Lighting and its measurement - lux
- Machine vision and contrast

Module 2: Optical and Mechanical Aids

- Direct and Remote Inspection
- Videoscopes, fiberscopes and borescopes
- Field of View and Depth of View

Module 3: Processing Discontinuities

- Inherent and Processing Discontinuities
- Casting and its defects
- Forging, rolling, drawing and defects

- Surface Texture

Module 4: Welding Methods

- Expectations of a weld
- Welding terms
- Welding processes: SMAW, GTAW, GMAW, FCAW, Plasma

Module 5: Welding Joints and Symbols

- Welding filler materials (F numbers)
- Base materials (P numbers)
- Weld nomenclature (parts of a weld)
- Welding joints
- Welding symbols

Module 6: Welding Process Control

- WPS
- PQR
- WPQ

Module 7: Welding Discontinuities

- Hi-Lo, Underfill, Undercut, excessive reinforcement, Concavity
- Cracks, LOF, Lack of Penetration, Slag, Porosity, etc
- Undercut, melt-thru, burn thru, arc strikes

Module 8: Weld Inspection and Gauges

- Weld Profile measurements
- Weld inspection tools: Fillet weld gage, high-low gauge, V-Wac gauge

Module 9: Welding Codes & Standards

- AWS D1.1 (steel), D1.2 (aluminum)
- ASME Section I, V, VIII, 31.1, 31.3
- Inspection acceptance criteria: ASME and AWS

Module 10: Service induced Discontinuities

- Damage mechanisms
- Overload and Fatigue
- Corrosion
- Erosion
- Wear

Module 11: Pumps, Valves, Supports and Bolting

- Pumps and valves
- Corrosion
- Cavitation

- Vibration
- Bearing

Module 12: VT of Engineered Materials

- Ropes and Slings
- Composites
- Ceramics
- Coatings

Module 13: Dimensional Measurements

- Rulers
- Calipers
- Go-No Go Gauges
- Thread Gauges

Module 14: Navsea Codes (for navy classes only)

- MIL-STD 248
- MIL-STD 278
- MIL-STD 22D
- MIL-STD 1689A
- MIL-STD 2035A

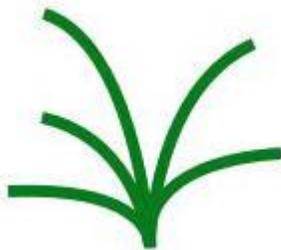
PRACTICAL TRAINING

- Evaluate defects in Weld Samples
- Weld Profile measurements with gauges

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.



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