

**Visual Testing  
Level I and II  
Training Course Outline  
24 hours (3 days)**

**SCOPE**

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

This course prepares a candidate to

- Setup and calibrate equipment
- 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**

**GENERAL TRAINING**

The course curriculum includes:

**Vision and Illumination**

- Definition of Visual Testing
- Vision
- Lighting and its measurement – Photometry, lux
- Color

**Optical Tools**

- Magnifiers
- Videoscopes, fiberscopes and borescopes
- Field of View and Depth of View

**Manufacturing Processes**

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

**In-Service Defects**

- Fatigue
- Corrosion
- Wear

**Welding**

- Expectations of a weld
- Welding terms
- Welding processes: SMAW, GTAW, GMAW, & FCAW
- Welding codes: ASME, AWS, API and NBIC
- Welding filler materials (F and A numbers)
- Base materials (P numbers)
- Weld nomenclature (parts of a weld)

- Welding joints
- Welding symbols
- Welding defects: Their causes, detection, repairs, and prevention
- Inspection acceptance criteria: ASME and AWS
- What is the purpose of a visual welding inspector
- Weld inspection tools: Fillet weld gage, high-low gage, stud weld test gage, etc.
- Heat treatments

### **Pumps and Valves**

### **Bolting**

### **SPECIFIC TRAINING**

#### **Visual Inspection Codes**

- AWS D1.1(steel), D1.2 (Aluminum)
- ASME Section I, V, VIII, 31.1, 31.3

### **PRACTICAL TRAINING**

Evaluate defects in Weld Samples

### **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.

# **Birring NDE Center, Inc.**

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