



Visual Testing Level II

Course Outline

- 1. Introduction**
 - a. Definition of visual testing
 - b. History of visual testing
 - c. Overview of visual testing applications
- 2. Definitions**

Standard terms and their meanings in the employer's industry
- 3. Fundamentals**
 - a. Vision
 - b. Lighting
 - c. Material attributes
 - d. Environmental factors
 - e. Visual perception
 - f. Direct and indirect methods
- 4. Equipment (as applicable)**
 - a. Mirrors
 - b. Magnifiers
 - c. Borescopes
 - d. Fiberscopes
 - e. Closed-circuit television
 - f. Light sources and special lighting
 - g. Gages, templates, scales, micrometers, calipers, special tools, etc.
 - h. Automated systems
 - i. Computer-enhanced systems
- 5. Employer-Defined Applications**

(Includes a description of inherent, processing and service discontinuities)

 - a. Mineral-based material
 - b. Metallic materials, including welds
 - c. Organic-based materials
 - d. Other materials (employer-defined)
- 6. Visual Testing to Specific Procedures**
 - a. Selection of parameters
 - (1) Inspection objectives
 - (2) Inspection checkpoints
 - (3) Sampling plans
 - (4) Inspection patterns
 - (5) Documented procedures
 - b. Test standards/calibration
 - c. Classification of indications per acceptance criteria
 - d. Reports and documentation



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7. Vision

- a. The eye
- b. Vision limitations
- c. Disorders
- d. Employer's vision examination methods

8. Lighting

- a. Fundamentals of light
- b. Lighting measurements
- c. Recommended lighting levels
- d. Lighting techniques for inspection

9. Material attributes

- a. Cleanliness
- b. Color
- c. Condition
- d. Shape
- e. Size
- f. Temperature
- g. Texture
- h. Type

10. Environmental and Physiological Factors

- a. Atmosphere
- b. Cleanliness
- c. Comfort
- d. Distance
- e. Elevation
- f. Fatigue
- g. Health
- h. Humidity
- i. Mental attitude
- j. Position
- k. Safety
- l. Temperature

11. Visual Perception

- a. What your eyes see
- b. What your mind sees
- c. What others perceive
- d. What the designer, engineer, etc. wants you to see

12. Equipment

- a. Automated systems
- b. Borescopes
- c. Closed-circuit television
- d. Computer-based systems
- e. Fiberscopes
- f. Gages, micrometers, calipers, templates, scales, etc.
- g. Imaging systems
- h. Light sources and special lighting



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- i. Magnifiers
- j. Mirrors
- k. Special optical systems
- l. Standard lighting

13. Employer-Defined Applications

- a. Mineral-based material
- b. Metallic materials (including welds)
- c. Organic-based materials
- d. Other materials and products (employer defined)

14. Acceptance/Rejection Criteria

- a. Subjective basis (qualitative)
- b. Objective basis (quantitative)
- c. Evaluation of results per acceptance criteria

15. Recording and Reports

- a. Subjective method
- b. Objective method
- c. Recording methods