

## Penetrant Course Outline (16hrs)

### 1. Introduction

- a. Brief history of nondestructive testing and liquid penetrant testing
- b. Purpose of liquid penetrant testing
- c. Basic principles of liquid penetrant testing
- d. Types of liquid penetrants commercially available

### 2. Liquid Penetrant Processing

- a. Preparation of parts
- b. Adequate lighting
- c. Application of penetrant to parts
- d. Removal of surface penetrant
- e. Developer application and drying
- f. Inspection and evaluation
- g. Postcleaning

### 3. Various Penetrant Testing Methods

- a. Characteristics of each method
- b. General applications of each method

### 4. Liquid Penetrant Testing Equipment

- a. Liquid penetrant testing units
- b. Lighting for liquid penetrant inspection
- c. Materials for liquid penetrant testing
- d. Precautions in liquid penetrant inspection

## Penetrant Level II Course Outline (16hrs)

### RECOMMENDED TRAINING FOR LEVEL II LIQUID PENETRANT TESTING

#### 1. Review

- a. Basic principles
- b. Process of various methods
- c. Equipment

#### 2. Selection of the Appropriate Penetrant Testing Method

- a. Advantages of various methods
- b. Disadvantages of various methods

#### 3. Inspection and Evaluation of Indications

- a. General
  - (1) Discontinuities inherent in various materials
  - (2) Reason for indications
  - (3) Appearance of indications
  - (4) Time for indications to appear
  - (5) Persistence of indications
- b. Factors affecting indications
  - (1) Penetrant used
  - (2) Prior processing
  - (3) Technique used
- c. Indications from cracks
  - (1) Cracks occurring during solidification

- (2) Cracks occurring during processing
- (3) Cracks occurring during service
- d. Indications from porosity
- e. Indications from specific material forms
  - (1) Forgings
  - (2) Castings
  - (3) Plate
  - (4) Welds
  - (5) Extrusions
- f. Evaluation of indications
  - (1) True indications
  - (2) False indications
  - (3) Relevant indications
  - (4) Nonrelevant indications

#### 4. Inspection Procedures and Standards

- a. Inspection procedures
- b. Standards/codes

*TEST NDT does not have any pre-requisites for attending any of our courses, it is entirely up to the attendee to determine whether the course is suitable for their needs and whether they are capable of achieving the standards. Please study the applicable course outline and decide if the course is suitable for your needs before enrolling, if in doubt, please contact us to discuss. For employer funded attendees, please discuss the suitability of any of the courses with your employers responsible NDT level 3 before enrolling.*