Liquid Penetrant Testing Course Summary

Training hours minimum		
	Level I	**Level II**
Degree, Diploma or equivalent, in science, engineering or metallurgy:	4	8
Others:	4	8

Note:

- *When qualified to Level II with no time at Level I, the required training time shall be the sum of the time required for Level I and II.*
- *Training Hours maybe adjusted as described in the employer's written practice depending on the candidate's actual education level*

Minimum Experience (Hours)			
Level I		**Level II**	
In Method	Total in NDT	In Method	Total in NDT
70	130	140	270

Note: *While fulfilling total NDT experience requirement, experience may be gained in more than one(1) method, however the minimum hours must be met for each method*

Number of examination questions/Practical Samples		
	Level I	**Level II**
General	40	40
Specific	20	20
Practical	1	1

Notes: *Ten (10) different check point requiring an understanding of test variables and the employer's procedural requirement should be included in this practical examination*

As per SNT-TC-1A - 2016 Recommended Practice for Personal Qualification and Certification in NDT

For More Details:
Contact No: 011-6744 1919 / 011-6292 1919 Email: azri@dnandtech.com Web: www.dnandtech.com

Training Course Outlined

(Notes: Training should be outlined in the employer's written practice)

Level 1

A. Introduction
- Brief history of non-destructive testing and liquid penetrant testing
- Purpose of liquid penetrant testing
- Basic principles of liquid penetrant testing
- Types of liquid penetrant commercially available
- Method of personnel qualification

B. Liquid Penetrant Processing
- Preparation of parts
- Adequate lighting
- Application of penetrant to parts
- Removal of surface penetrant
- Developer application and drying
- Inspection and evaluation
- Post cleaning

C. Various Penetrant Testing Methods
- Current ASTM and ASME standard methods ASTM E1208, E 165
- Characteristics of each method
- General applications of each method

D. Liquid Penetrant Testing Equipment
- Liquid penetrant testing units
- Lighting equipment and light meters
- Materials for liquid penetrant testing
- Precautions in liquid penetrant inspection

Level 2

A. Review
- Basic principles
- Process of various methods
- Equipment

B. Selection of the Appropriate Penetrant Testing Method
- Advantages of various methods
- Disadvantages of various methods

C. Inspection and Evaluation of Indications

General
- Discontinuities inherent in various materials
- Reason for indications
- Appearance of indications
- Time for indications to appear
- Effects of temperature and lighting (white to UV)
- Effects of metal smearing operations (shot peening, machining, etc).
- Preferred sequence for penetrant inspection
- Part preparation (pre cleaning, stripping, etc.)

Factors affecting indications
- Pre-cleaning
- Penetrant used
- Prior processing
- Technique used

Indications from cracks
- Cracks occurring during solidification
- Cracks occurring during processing
- Cracks occurring during service

Indications from porosity

Indications from specific material forms
- Forgings
- Castings
- Plate
- Welds
- Extrusion

Evaluation of indications
- True indications
- False indications
- Relevant indications
- Non relevant indications
- Process control
- Controlling process variables
- Testing and maintenance materials

D. Inspection, Procedures and Standards
- Inspection procedures (minimum requirements)
- Standards/codes
- Applicable methods/processes
- Acceptance criteria