

**COURSE OVERVIEW FE0731-2D**  
**Liquid Penetrant Testing Level II Training & Certification**  
**(ASNT, SNT-TC-1A)**

**Course Title**

Liquid Penetrant Testing Level II Training & Certification (ASNT, SNT-TC-1A)

**Course Reference**

FE0731-2D

**Course Duration/Credits**

Two days (08 hours)/0.8 CEUs/08 PDHs

**Course Date/Venue**

Session(s)	Date	Venue
1	February 05-06, 2024	Ajman Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
2	May 06-07, 2024	Club B Meeting Room, Ramada Plaza by Wyndham Istanbul City Center, Istanbul, Turkey
3	August 05-06, 2024	Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE
4	November 04-05, 2024	Al Aziziya Hall, The Proud Hotel Al Khobar, Al Khobar, KSA



**Course Description**



***This practical and highly-interactive course includes various practical sessions and exercises. Theory learnt will be applied using our state-of-the-art equipment.***



This course is designed to provide participants the theory lectures and practical training with a preliminary understanding of Liquid Penetrant Testing (PT) as per the ASNT Recommended Practice No. SNT-TC-1A for Personnel Qualification and Certification in Nondestructive Testing.



Further, the course will discuss the basic principles and process of various methods and equipment; the appropriate penetrant testing method; the advantages and disadvantages of various methods; the inspection and evaluation of indications; the identification of discontinuities inherent in various materials, reason for indications, appearance of indications and time for indications to appear; the persistence of indications, effects of temperature, lightning and metal smearing operations, preferred sequence for penetrant inspection and part preparation; and the factors affecting indications for pre-cleaning, penetrant used, prior processing and technique used.



During this interactive course, participants will learn the indications from cracks occurring during solidification, processing and service; the indications from porosity and specific material forms that include forgings, castings, plate, welds and extrusions; the evaluation of true indications, false indications, relevant indications and non-relevant indications; the process control, control process variables, testing and maintenance of materials; the proper inspection procedures and standards including applicable methods/processes and acceptance criteria; and the basic methods of instruction.

Sample Questions for general examinations are presented in the separate question booklets that can be obtained from ASNT International Service Center. Participants will further demonstrate familiarity with and ability to operate the necessary equipment for PT, record and analyse the resultant information to the degree required as well as test flawed specimen and component and analyse the results of NDT as part of the practical training.

At the completion of the course, participants will be appearing for a Level II exam. Each candidate will be a 'Certified ASNT NDT Level II in Liquid Penetrant Testing' upon successfully passing the examination with a minimum passing composite grade of at least 80 percent (%) which will be administered and graded by Howard Technology through its Certified ASNT Level-III instructors.

### Course Objectives

Upon the successful completion of this course, each participant will be able to:-

- Get certified as a "Certified ASNT NDT Level II in Liquid Penetrant Testing"
- Review the basic principles and process of various methods and equipment
- Select the appropriate penetrant testing method and discuss the advantages and disadvantages of various methods
- Inspect and evaluate indications and identify the discontinuities inherent in various materials, reason for indications, appearance of indications and time for indications to appear
- Recognize the persistence of indications, effects of temperature and lightning, effects of metal smearing operations, preferred sequence for penetrant inspection and part preparation
- Discuss the factors affecting indications for pre-cleaning, penetrant used, prior processing and technique used
- Recognize the indications from cracks occurring during solidification, processing and service
- Discuss the indications from porosity and specific material forms that include forgings, castings, plate, welds and extrusions
- Evaluate true indications, false indications, relevant indications and non-relevant indications
- Interpret process control as well as control process variables, test and maintain materials
- Carryout proper inspection procedures and standards including applicable methods/processes and acceptance criteria
- Employ the basic methods of instruction



### Exclusive Smart Training Kit - H-STK®



Participants of this course will receive the exclusive “Haward Smart Training Kit” (H-STK®). The H-STK® consists of a comprehensive set of technical content which includes **electronic version** of the course materials, sample video clips of the instructor’s actual lectures & practical sessions during the course conveniently saved in a **Tablet PC**.

### Who Should Attend

This course provides an overview of all significant aspects and considerations of liquid penetrant testing in accordance with the ASNT international standard for all engineers, inspectors and other technical staff working in the field of welding technology and quality assurance of welded joints using liquid penetrant testing and in order to investigate material with such technique.

### Exam Eligibility & Structure

Exam candidates shall have the following minimum pre-requisites:-

All Participants of this course must have Level-I in PT before they can attend this Level-II course.

Initial Training & Experience Levels			
Level	Training Hours	Minimum Hours in PT Method	Total Hours in NDT
I	4	70	130
II	8	140	270

The experience shall consist of time at NDT Level I or equivalent. If a person is being qualified directly to NDT Level II with no time at NDT Level I, the experience (both Method and Total NDT) shall consist of the sum of the hours for NDT Level I and Level II and the training shall consist of the sum of the hours for NDT Level I and Level II.

### Examinations Category & Criteria

#### Vision Examinations

- Near-Vision Acuity
  - This examination will ensure natural or corrected near-distance acuity in at least one eye such that the applicant is capable of reading a minimum of Jaeger Number 2 or equivalent type and size letter at the distance designated on the chart but not less than 12 inches (30.5 cm) or a standard Jaeger test chart. The ability to perceive an Ortho-Rater minimum of 8 or similar test pattern is also acceptable. This examination shall be administered annually.



- Color Contrast Differentiation
  - This examination will demonstrate the capability of distinguishing and differentiating contrast among colors or shades of gray used in the method as determined by the employer. This shall be conducted upon initial certification and at five-year intervals thereafter

### General (Written)

- This examination will address the basic principles of the applicable method
- The NDT Level III will provide appropriate questions covering the applicable method to the degree required by the employer's written practice
- The minimum number of examination questions that will be given is 40

### Specific (Written)

- This examination will address the equipment, operating procedures and NDT techniques that the individual may encounter during specific assignments to the degree required by the employer's written practice
- The specific examination will also cover the specifications or codes and acceptance criteria used in the employer's NDT procedures
- The minimum number of examination questions that will be given is 20

### Practical

- The candidate shall demonstrate familiarity with and ability to operate the necessary NDT equipment, record and analyse the resultant information to the degree required
- At least one flawed specimen or component shall be tested and the results of the NDT analysed by the candidate
- The description of the specimen, the NDT procedure including check points and the results of the examination shall be documented
- Proficiency shall be demonstrated in selecting and performing the applicable NDT technique within the method and in interpreting and evaluating the results on one or more specimens or machine problems approved by the NDT Level III. At least ten (10) different checkpoints requiring an understanding of NDT variables and the employer's procedural requirements will be included. The candidate shall detect all discontinuities and conditions specified by the NDT Level III

*Note: While it is normal to score the practical on a percentile basis, practical examinations shall contain check points that failure to successfully complete will result in failure of the examination*

### Additional Criteria

All written examinations will be closed-book except that necessary data such as graphs, tables, specifications, procedures, codes, etc., may be provided during the examination. All questions are approved by the responsible NDT Level III.







**Qualification Certificate(s)**

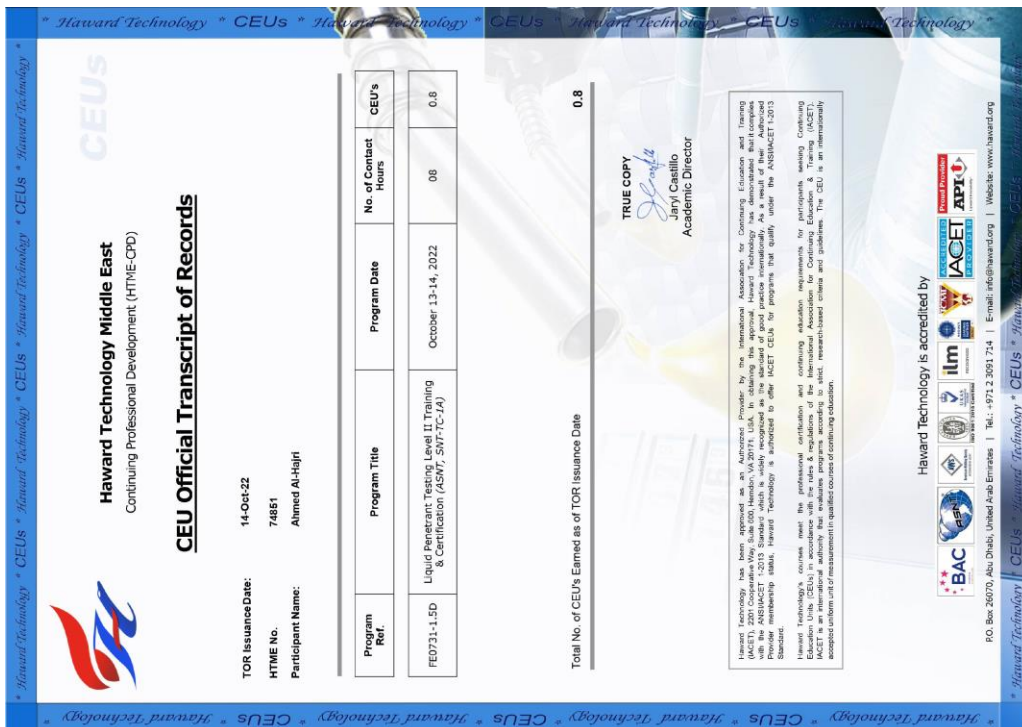
(1) Internationally recognized Wall Competency Certificates and Plastic Wallet Card Certificates will be issued to participants who completed a minimum of 80% of the total tuition hours and successfully passed the exam at the end of the course. Successful candidate will be certified as a "Certified ASNT NDT Level II in Liquid Penetrant Testing". Qualification Certificate is valid for 5 years.

**Sample of Certificates**

The following are samples of the certificates that will be awarded to course participants:-



(2) Official Transcript of Records will be provided to the successful delegates with the equivalent number of ANSI/IACET accredited Continuing Education Units (CEUs) earned during the course.




### Certificate Accreditations

Certificates are accredited by the following international accreditation organizations: -

-  The American Society For Nondestructive Testing (ASNT)


Haward Technology's instructors are certified by **The American Society for Nondestructive Testing (ASNT)** and are authorized to conduct ASNT's certification programs for specific NDT methods in accordance with ASNT-TC-1A (2016). ASNT is the world's largest technical society for nondestructive testing (NDT) that provides a forum for exchange of NDT technical information, NDT educational materials and programs, and standards and services for the qualification and certification of NDT personnel.

-  The International Accreditors for Continuing Education and Training (IACET - USA)

Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units (CEUs)** in accordance with the rules & regulations of the International Accreditors for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

Haward Technology Middle East will award **0.8 CEUs** (Continuing Education Units) or **08 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant's involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant's CEU and PDH Transcript of Records upon request.

-  British Accreditation Council (BAC)

Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

### Course Instructor(s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:



**Mr. Luis Lopez** is a **Senior Inspection Engineer** with extensive experience within the **Oil & Gas, Petrochemical** and **Refinery** industries. His expertise widely covers in the areas of **Thermography, Thermal Infrared Testing, Radiographic Film Interpretation, Visual Testing, Phased Array Ultrasonic Testing, Ultrasonic Testing, Magnetic Particle Testing, Liquid Penetrant Testing, Non-destructive Testing, NDT Methods & Applications, Electromagnetic Testing, Hydrostatic Leak**

**Testing, Eddy Current Testing, Valve Inspection & Testing, Codes & Standards Interpretation, Corrosion Engineering, Corrosion & Metallurgy, Welding & Corrosion Engineering, Welding Metrology, International Welding Codes, Practical Welding Technology, Plastic Pipe Welding, Welding Inspection, Welding Defects Analysis, Welding Joints & Coating Inspection, Post Weld Heat Treatment, Hardness Testing, Welding Electrodes Monitoring & Control, Pipe Testing, Piping System, Steel Structures, Metals Casting, Crane Functional Testing & Load Testing, Hydrotesting, Pressure Testing Procedure, Pressure Equipment Calibration, Stream Inspection, Corrosion Evaluation, Casting Products Inspection and Raw Materials Inspection.** He is currently the **Senior NDT Instructor** of **SETE** wherein he is deeply involved in thermography, NDT qualification and certification of personnel.

During his career life, Mr. Lopez gained his practical and field experience through his various significant positions and dedication as the **Technical Manager, NDT Instructor, NDT Manager & Instructor, NDT Inspector, NDT Offshore Inspector & Quality Control, Phased Array Ultrasonic Technician and Radiographic Testing Technician** for various international companies such as the JP Inspections, Nova Inspection, NSD Services, Cotemar, UNISPEC Inspection and Ruiver.

Mr. Lopez holds a **Diploma in Professional Mechanical & Electrical Technician**. Further, he is a **Certified Instructor/Trainer, a Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership and Management (ILM)**, a **Certified ASNT-NDT Level III Inspector** in Infrared & Thermal Testing (**IR**), Liquid Penetrant Testing (**PT**), Magnetic Particle Testing (**MT**), Ultrasonic Testing (**UT**), Visual Testing (**VT**), Radiography Testing (**RT**), Leak Testing (**LT**), Electromagnetic Testing (**ET**), Certified Welding Inspection & Metallurgy Professional (**API 577**) and a **Certified AWS-CWI Welding Inspector**. He has further delivered numerous trainings, courses, workshops, seminars and conferences internationally.

### Training Methodology

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

- 30% Lectures
- 20% Practical Workshops & Work Presentations
- 30% Hands-on Practical Exercises & Case Studies
- 20% Simulators (Hardware & Software) & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

### Course Fee

Abu Dhabi	<b>US\$ 2,750</b> per Delegate + <b>VAT</b> . This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Istanbul	<b>US\$ 3,250</b> per Delegate + <b>VAT</b> . This rate includes Participants Pack (Folder, Manual, Hand-outs, etc.), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Dubai	<b>US\$ 2,750</b> per Delegate + <b>VAT</b> . This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Al Khobar	<b>US\$ 2,750</b> per Delegate + <b>VAT</b> . This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

### Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

### Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the course for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

#### **Day 1**

0730 – 0800	<i>Registration &amp; Coffee</i>
0800 – 0815	<i>Welcome &amp; Introduction</i>
0815 – 0830	<b>PRE-TEST</b>
0830 – 0930	<b>Review</b> <i>Basic Principles • Process of Various Methods • Equipment</i>
0930 - 0945	<i>Break</i>
0945 – 1100	<b>Selection of the Appropriate Penetrant Testing Method</b> <i>Advantages of Various Methods • Disadvantages of Various Methods</i>



1100 – 1230	<b>Inspection &amp; Evaluation of Indications</b> <i>General [Discontinuities Inherent in Various Materials, Reason for Indications, Appearance of Indications, Time for Indications to Appear, Persistence of Indications, Effects of Temperature &amp; 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)</i>
1230 – 1245	Break
1245 - 1420	<b>Inspection &amp; Evaluation of Indications (cont'd)</b> <i>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, Extrusions) • Evaluation of Indications (True Indications, False Indications, Relevant Indications, Non-Relevant Indications, Process Control (Controlling Process Variables, Testing &amp; Maintenance Materials)</i>
1420 - 1430	<b>Recap</b> <i>Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow</i>
1430	Lunch & End of Day One

**Day 2**

0730 – 0830	<b>Inspection Procedures &amp; Standards</b> <i>Inspection Procedures (Minimum Requirements) • Standards/Codes (Applicable Methods/Processes • Acceptance Criteria)</i>
0830 - 0930	<b>Basic Methods of Instruction</b>
0930 – 0945	Break
0945 - 1145	<b>Theoretical Examination</b>
1145 – 1200	Break
1200 – 1300	<b>Theoretical Examination (cont'd)</b>
1300 - 1400	<b>Practical Examination</b>
1400 - 1415	<b>Course Conclusion</b> <i>Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course</i>
1415 – 1430	Presentation of Course Certificates
1430	Lunch & End of Course

### **Practical Sessions**

Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will carryout NDT inspection using our “Liquid Penetrant Testing (PT) Equipment” and our specifically designed flawed specimen test components.



### **Course Coordinator**

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