COURSE OVERVIEW FE0727

ASNT NDT Level I Program (VT, PT & MT)

(ANSI/ASNT CP-105-2016)

Course Title

ASNT NDT Level I Program (VT, PT & MT) *(ANSI/ASNT CP-105-2016)*

Course Date/Venue

Session 1: June 15-19, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE

Session 2: November 03-07, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Course Reference

FE0727

Course Duration/Credits

Five days/40 CEUs/4.0 PDHs

Course Description

This hands-on, highly-interactive course includes various practical sessions and exercises. Theory learnt will be applied using our state-of-the-art simulators.

This course is designed to provide participants the theory lectures and practical training with a preliminary understanding of Visual Testing (VT), Liquid Penetrant Testing (PT) and Magnetic Particle Testing (MT) as per the ANSI/ASNT CP-105-2016 Standard for qualification of non-destructive testing personnel and as per the ASNT Recommended Practice No. SNT-TC-1A 2016 for Personnel Qualification and Certification in Non-destructive Testing.

This course covers the visual testing applications; the liquid penetrant testing equipment including the principles of magnets and magnetic fields; the liquid penetrant processing and various penetrant testing methods; the characteristics of magnetic fields and the effect of discontinuities of materials; magnetization by means of electric current; the proper method of magnetization and the principles of demagnetization; the magnetic particle testing equipment; the types of discontinuities detected by magnetic particle testing; and and magnetic particle test indications and interpretations.

Sample Questions for general examinations will be presented in the question booklet A that was obtained from ASNT headquarters. Participants will further demonstrate familiarity with and ability to operate the necessary equipment for VT, PT and MT, record and analyze the resultant information to the degree required as well as test flawed specimen and component and analyze the results of NDT as part of the practical training.

At the completion of the course, participants will be appearing for a Level I exam. Each candidate will be a 'Certified ASNT NDT Level I in Visual Testing, Liquid Penetrant Testing and Magnetic Particle Testing' upon successfully passing the examination with a minimum passing composite grade of at least 80 percent (%).

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 than12 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 performing the applicable NDT technique on one or more specimens or machine problems approved by the NDT Level III and in evaluating the results to the degree of responsibility as described in the employer's written practice. At least ten (10) different checkpoints requiring an understanding of test 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 will 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.

Course Objectives

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

- Get certified as a "*Certified ASNT NDT Level-I in Visual Testing (VT), Liquid Penetrant Testing (PT) and Magnetic Particle Testing (MT)"*
- Perform specific calibrations, specific non-destructive testing (NDT) and specific evaluations properly for acceptance or rejection determinations according to written instructions and record results
- Define visual testing and discuss visual testing applications including the standard terms and their meanings in the employer's industry
- Describe employer-defined applications and visual testing to specific procedures
- Carryout liquid penetrant processing and various penetrant testing methods
- Recognize liquid penetrant testing equipment including the principles of magnets and magnetic fields
- Describe the characteristics of magnetic fields and the effect of discontinuities of materials
- Discuss magnetization by means of electric current, select the proper method of magnetization and explain the principles of demagnetization
- Identify magnetic particle testing equipment, the types of discontinuities detected by magnetic particle testing and magnetic particle test indications and interpretations

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 conveniently saved in a **Tablet PC**.*

Who Should Attend

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

Prerequisite

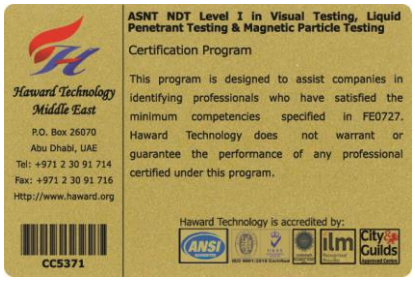
Initial Training & Experience Levels				
NDT Method	**Level**	**Training Hours**	**Minimum Hours in Method**	**Total Hours in NDT**
VT	I	8	70	130
PT	I	4	70	130
MT	I	12	70	130

Qualification Certificate(s)

(1) Internationally recognized Qualification Certificates will be issued to participants who have successfully completed the course and passed the exam at the end of the course. Successful candidate will be certified as a *"Certified ASNT NDT Level I in Visual Testing, Liquid Penetrant Testing & Magnetic Particle Testing"*. Qualification Certificate is valid for 3 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

Haward Technology Middle East

Continuing Professional Development (HTME-CPD)

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CEU Official Transcript of Records

TOR Issuance Date: 19-Nov-17

HTME No. PAR11317

Participant Name: Rashed Al Ismail

Program Ref.	Program Title	Program Date	No. of Contact Hours	CEU's
FE0727	**ASNT NDT Level I Program (VT, PT & MT)** *(ANSI/ASNT CP-105-2016)*	November 15-19, 2017	40	4.0

Total No. of CEU's Earned as of TOR Issuance Date **4.0**

TRUE COPY

Maricel De Guzman
Academic Director

Haward Technology has been approved as an Authorized Provider by the International Association for Continuing Education and Training (IACET), 1760 Old Meadow Road, Suite 500, McLean, VA 22102, USA. In obtaining this approval, Haward Technology has demonstrated that it complies with the ANSI/IACET 1-2013 Standard which is widely recognized as the standard of good practice internationally. As a result of their Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for programs that qualify under the ANSI/IACET 1-2013 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 Association 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 is accredited by

P.O. Box 26070, Abu Dhabi, United Arab Emirates | Tel.: +971 2 3091 714 | Fax: +971 2 3091 716 | E-mail: info@haward.org | Website: www.haward.org

Certificate Accreditations

Certificates are accredited by the following international accreditation organizations: -

- The American Society for Nondestructive Testing (ASNT)

Haward Technology has certain instructors who are certified by **The American Society for Nondestructive Testing** (**ASNT**) and are authorized to conduct ASNT's certification programs for specific NDT methods. 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.

- 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.

- 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 **4.0 CEUs** (Continuing Education Units) or **40 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.

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.

Course Fee

US$ 5,500 per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

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.

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	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Introduction to Visual Testing*** *Definition of Visual Testing • History of Visual Testing • Overview of Visual Testing Applications*
0930 – 0945	*Break*
0945 – 1030	***Definitions*** *Standard Terms and Their Meanings in the Employer's Industry*
1030 – 1200	***Fundamentals*** *Vision • Lightning • Material Attributes • Environmental Factors • Visual Perception • Direct and Indirect Methods*
1200 – 1300	*Lunch*
1300 – 1500	***Equipment (As Applicable)*** *Mirrors • Magnifiers • Borescopes • Fiberscopes • Videoprobes • Remote Visual Inspection Systems • Light Sources and Special Lighting • Gages (Welding, Go/No-go, etc.) Templates, Scales, Micrometers, Calipers, Special Tools, etc. • Automated Systems • Computer-enhanced Systems*
1500 – 1515	*Break*
1515 – 1600	***Employer-Defined Applications*** *Mineral-based Material • Metallic Materials, Including Welds • Organic-based Materials • Other Materials (Employer Defined)*
1600 – 1720	***Visual Testing to Specific Procedures*** *Selection of Parameters (Inspection Objectives, Inspection Checkpoints, Sampling Plans, Inspection Patterns, Documented Procedures) • Test Standards/Calibration • Classification of Indications per Acceptance Criteria • Reports and Documentations*
1720 – 1730	***Recap***
1730	*End of Day One*

Day 2

0730 – 0830	***Introduction to Liquid Penetrant Testing*** *Brief History of Nondestructive Testing and Liquid Penetrant Testing • Purpose of Liquid Penetrant Testing • Basic Principles of Liquid Penetrant Testing • Types of Liquid Penetrants Commercially Available • Method of Personnel Qualification*
0830 – 0930	***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*
0930 – 0945	*Break*
0945 – 1100	***Various Penetrant Testing Methods*** *Current ASTM and ASME Standard Methods – ASTM E 165, E 1208, E 1209, E1210 and E 1417 • Characteristics of Each Method • General Applications of Each Method*
1100 – 1200	***Liquid Penetrant Testing Equipment*** *Liquid Penetrant Testing Units • Lighting for Liquid Penetrant Testing Equipment and Light Meters • Materials for Liquid Penetrant Testing • Precautions in Liquid Penetrant Inspection*
1200 – 1300	*Lunch*
1300 – 1500	***Principles of Magnets & Magnetic Fields*** *Theory of Magnetic Fields (Earth's Magnetic Field, Magnetic Fields Around Magnetized Materials) • Theory of Magnetism (Magnetic Poles, Law of Magnetism, Materials Influenced by Magnetic Fields, Magnetic Characteristics of Nonferrous Materials) • Terminology Associated with Magnetic Particle Testing*
1500 – 1515	*Break*
1515 – 1720	***Characteristics of Magnetic Fields*** *Bar Magnet • Ring Magnet*
1720 – 1730	***Recap***
1730	*End of Day Two*

Day 3

0730 – 0930	***Effect of Discontinuities of Materials*** *Surface Cracks • Scratches • Subsurface Defects*
0930 – 0945	*Break*
0945 – 1100	***Magnetization by Means of Electric Current*** *Circular Field (Field Around a Straight Conductor, Right-hand Rule, Field in Parts Through Which Current Flows, Methods of Inducing Current Flow in Parts, Discontinuities Commonly Discovered by Circular Fields) • Longitudinal Field (Field Produced by Current Flow in a Coil, Field Direction in a Current-Carrying Oil, Field Strength in a Current-Carrying Coil, Discontinuities Commonly Discovered by Longitudinal Fields, Advantages of Longitudinal Magnetization, Disadvantages of Longitudinal Magnetization)*
1100 – 1200	***Selecting the Proper Method of Magnetization*** *Alloy, Shape and Condition of Part • Type of Magnetizing Current • Direction of Magnetic Field • Sequence of Operations • Value of Flux Density*
1200 – 1300	*Lunch*

1300 – 1400	***Principles of Demagnetization*** *Residual Magnetism • Reasons for Requiring Demagnetization • Longitudinal and Circular Residual Fields • Basic Principles of Demagnetization • Retentivity and Coercive Force • Methods of Demagnetization*
1400 – 1500	***Magnetic Particle Testing Equipment*** *Equipment Selection Considerations (Type of Magnetizing Current, Location and Nature of Test, Test Materials Used, Purpose of Test, Area Inspected) • Manual Inspection Equipment • Medium and Heavy-duty Equipment • Stationary Equipment • Mechanized Inspection Equipment (Semiautomatic Inspection Equipment, Single-purpose Semiautomatic Equipment, Multi-purpose Semiautomatic Equipment, Fully Automatic Equipment)*
1500 – 1515	*Break*
1515 – 1600	***Types of Discontinuities Detected by Magnetic Particle Testing*** *Inclusions • Blowholes • Porosity • Flakes • Cracks • Pipes • Laminations • Laps • Forging Bursts • Voids*
1600 – 1720	***Magnetic Particle Test Indications & Interpretations*** *Indications of Nonmetallic Inclusions • Indications of Surface Seams • Indications of Cracks • Indications of Laminations • Indications of Laps • Indications of Bursts and Flakes • Indications of Porosity • Nonrelevant Indications*
1720 – 1730	***Recap***
1730	*End of Day Three*

Day 4

0730 – 0930	***MOCK EXAM - General***
0930 – 0945	*Break*
0945 – 1200	***MOCK EXAM - Specific***
1200 – 1300	*Lunch*
1300 – 1500	***MOCK EXAM - Practical***
1500 – 1515	*Break*
1515 – 1600	***MOCK EXAM – Practical (cont'd)***
1600 – 1700	***MOCK EXAM Review & General Discussion***
1700 – 1715	***Course Conclusion***
1715 – 1730	*Presentation of Course Certificates*
1730	*End of Course*

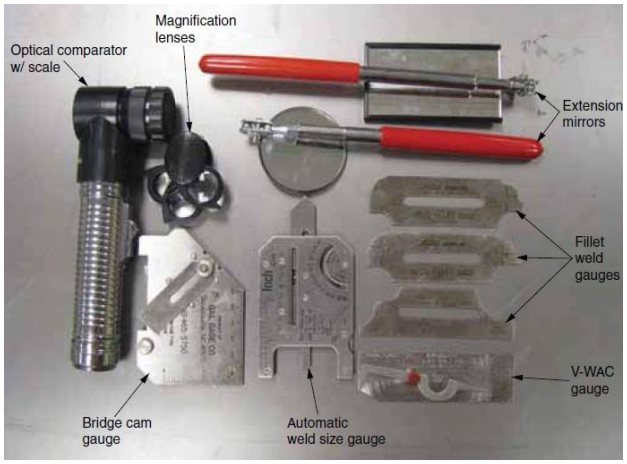
Day 5

0730 – 0830	***Near-Vision Acuity Vision Examination***
0830 – 0930	***Color Contrast Differentiation Vision Examination***
0930 – 0945	*Break*
0945 – 1145	***General Written Examination***
1145 – 1200	*Break*
1200 – 1400	***Specific Written Examination***
1400 – 1500	*Lunch*
1500 – 1730	***Practical Examination***
1730	*End of Exam*

Practical Sessions

Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout welding inspection using the "American Welding Society (AWS) Tool Kit", "Structural Weld Replica Kit", "Visual Testing (VT) Equipment", "Magnetic Particle Testing (MT) Equipment" and "Liquid Penetrant Testing (UT) Equipment" suitable for classroom training.

Structural Weld Replica Kit



Visual Testing (VT) Equipment

Magnetic Particle Testing (MT) Equipment

Liquid Penetrant Testing (PT) Equipment

Course Coordinator

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