

**COURSE OVERVIEW FE0661**  
**Eddy Current Level-I Training & Certification**  
**(SNT-TC-1A)**

**Course Title**

Eddy Current Level-I Training & Certification  
 (SNT-TC-1A)

**Course Date/Venue**

Please refer to page 3

**Course Reference**

FE0661

**Course Duration/Credits**

Five days/4.0 CEUs/40 PDHs

**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 Eddy Current Testing (ECT) as per the ASNT Recommended Practice No. SNT-TC-1A for Personnel Qualification and Certification in Non-destructive Testing.



During this interactive course, participants will learn the historical, developmental process, basic physics and controlling principles of eddy current testing; the eddy current theory; the types of eddy current sensing elements covering probes and factors affecting choice of sensing elements; the selection of inspection parameters; and the readout mechanisms.



The course will cover the effects of impedance on instrumentation; electromagnetic theory; and the readout mechanisms of calibrated or uncalibrated meters, impedance plane displays, data recording systems, alarms and lights; and the numerical readouts, marking systems, sorting gates and tables, cutoff saw or shears and automation.

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 ECT, 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.

### **Course Objectives**

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

- Get certified as a “*Certified Level I in Eddy Current Testing*”
- Enhance the knowledge and skills and qualify in the following topic according to ASNT requirements (SNT-TC-1A)
- Discuss the historical and developmental process including the basic physics and controlling principles of eddy current testing
- Explain the eddy current theory covering the generation of eddy currents by means of an AC field and the effect of fields created by eddy currents (impedance changes)
- Identify the effects of impedance on instrumentation and the properties of eddy current
- Recognize the various types of eddy current sensing elements comprising of probes and factors affecting choice of sensing elements
- Select inspection parameters that include frequency, coil drive, hall element drive, channel gain, display sensitivity selections, standardization, filtering and thresholds
- Describe readout mechanisms covering calibrated or uncalibrated meters, impedance plane displays, data recording systems, alarms, lights, etc
- Recognize numerical readouts, marking systems, sorting gates and tables, cutoff saw or shears and automation and feedback

### **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 eddy current 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 using current testing and in order to investigate material with such technique.

### Course Date/Venue

Session(s)	Date	Venue
1	April 19-23, 2026	Meeting Room 4, Four Seasons Hotel Cairo at Nile Plaza, Corniche El Nil, Garden City, Cairo, Egypt
2	June 15-19, 2026	Salon Expo, NH Hotel Plaza de Armas, Seville, Spain
3	August 30-September 03, 2026	Tamra Meeting Room, Al Bandar Rotana Creek, Dubai, UAE
4	September 20-24, 2026	Meeting Plus 9, City Centre Rotana, Doha, Qatar
5	November 15-19, 2026	Pierre Lotti Meeting Room, Movenpick Hotel Istanbul Golden Horn, Istanbul, Turkey
6	December 07-11, 2026	Ruben Boardroom, The Rubens at The Palace, Buckingham Palace Road, London, United Kingdom
7	January 31-February 04, 2027	Meeting Plus 9, City Centre Rotana, Doha, Qatar
8	March 21-25, 2027	Pierre Lotti Meeting Room, Movenpick Hotel Istanbul Golden Horn, Istanbul, Turkey

### Course Fee

Cairo	<b>US\$ 5,500</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.
Seville	<b>US\$ 8,800</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.
Dubai	<b>US\$ 5,500</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.
Doha	<b>US\$ 6,000</b> per Delegate. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Istanbul	<b>US\$ 6,000</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.
London	<b>US\$ 8,800</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.

**Exam Eligibility & Structure**

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

Initial Training & Experience Levels			
Level	Training Hours	Experience	
		Minimum Hours in ECT Method	Total Hours in NDT
I	40	210	400
II	40	630	1200

A person may be qualified directly to NDT Level II with no time as a certified NDT Level I, providing the recommended training and experience consist of the sum of the hours recommended for NDT Level I and Level II.

**Examinations Category & Criteria**

Vision Examinations

- Near-Vision Acuity
  - This examination should ensure natural or corrected (no pharmacological agents) 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) on a standard Jaeger test chart. The ability to perceive an Ortho-Rater minimum of 8 or similar test pattern is also acceptable. This should be administered annually.
  - Pharmacological agents (eye drops) that would improve or enhance visual acuity at any distance shall not be used
- Color Contrast Differentiation
  - This examination should demonstrate the capability of distinguishing and differentiating contrast among colors or shades of gray used in the method as determined by the employer. This should be conducted upon initial certification and at five-year intervals thereafter
  - Vision examinations expire on the last day of the month of expiration

General (Written)

- This General examinations should address the basic principles of the applicable method
- In preparing the examinations, the NDT Level III should select or devise appropriate questions covering the applicable method and techniques described by the employer’s written practice and the applicable elements of the outline in ANSI/ANT CP-105
- The minimum number of questions that should be given is 40
- A valid ACCP, ASNT NDT or ASNT 9712 Level II certificate may be accepted as fulfilling the General examination criteria for each applicable method if the NDT Level III has determined that the ASNT examinations meet the requirements of the employer’s written practice. This acceptance should be documented

Specific (Written)

- This specific examination should address the equipment, operating procedures and NDT techniques that the individual may encounter during specific assignments described by the employer’s written practice and the applicable elements of the outline in ANSI/ASNT CP-105
- The specific examination should also cover the procedures, specifications or codes and acceptance criteria used in the NDT conducted by the employer
- The minimum number of questions that should be given is 20

- A valid ACCP, ASNT NDT, or ASNT 9712 Level II certificate may be accepted as fulfilling the Specific examination criteria for each applicable method if the NDT Level III has determined that the ASNT examinations meet the requirements of the employer's written practice. This acceptance should be documented. If this assessment cannot be accomplished, an employer-administered Specific examination should be completed

Practical

- The candidate should 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 should be tested and the results of the NDT analysed by the candidate
  - Phased Array Ultrasonic Testing and Time of Flight Diffraction Practical Examination. Flawed samples used for practical examinations should be representative of the components and/or configurations that the candidates would be testing under this technique and approved by the NDT Level III
  - Film Interpretation Limited Certification. The Practical examination should consist of review and grading of a sufficient number of radiographs to demonstrate satisfactory performance to the satisfaction of the NDT Level III. The number of radiographs should be addressed in the employer's written practice
- The description of the specimen, the NDT procedure including checkpoints and the results of the examination should be documented
- Specimens. Proficiency should be demonstrated in performing the applicable NDT technique on one or more flawed specimens as appropriate for the method and approved and documented by the NDT Level III (Grading Key)
- Evaluation. The NDT Level I should evaluate the results to the degree of responsibility as described in the employer's written practice. The candidate should detect all discontinuities and conditions specified and documented by the NDT Level III. The written practice should address the acceptable detection rate as well as the maximum number of false calls acceptable
- Grading. A checklist containing at least 10 different checkpoints requiring an understanding of test variables and the employer's procedural requirements should be included in this Practical examination. While it is normal to score the Practical on a percentile basis (80% required), the Practical examination checklist should also contain a single checkpoint or multiple checkpoints that failure to successfully complete will result in failure of the examination. This requirement should be clearly marked on the checkpoints)
- A valid ACCP or ASNT 9712 Level II certificate may be accepted as fulfilling the Practical examination criteria for each applicable method if the NDT Level III has determined that the ASNT examinations meet the requirements of the employer 's written practice. This acceptance should be documented. If this assessment cannot be accomplished, an employer-administered Practical examination should be completed.
- An example of a Practical examination checklist is attached as Appendix A to this Recommended Practice. The example checklist has been provided as guidance on the development of practical examinations for any method and level.

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.

**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.



**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 an “Level I in Eddy Current Testing”. Qualification Certificate is valid for 5 years.



- (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.

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**Haward Technology Middle East**  
Continuing Professional Development (HTME-CPD)

**CEU Official Transcript of Records**

TOR Issuance Date: 14-Nov-24  
HTME No. 74851  
Participant Name: Waleed Al Habeeb

Program Ref.	Program Title	Program Date	No. of Contact Hours	CEUs
FE0661	Eddy Current Level-I Training & Certification (SWT-(E-1A))	Nov 10-14, 2024	40	4.0

Total No. of CEUs Earned as of TOR Issuance Date: **4.0**

TRUE COPY

*Jaryl Castillo*  
Jaryl Castillo  
Academic Director

Haward Technology has been approved as an Accredited Provider by the International Association for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA, 20171, USA. In obtaining this approval, Haward Technology has demonstrated that it complies with the standards and requirements of IACET. The International Association for Continuing Education and Training (IACET) is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally recognized unit of measurement in specialized courses of continuing education.

Haward Technology is accredited by



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### Certificate Accreditations

Haward's certificates are accredited by the following international accreditation organizations: -

- 
British Accreditation Council (BAC)

Haward Technology is accredited by the **British Accreditation Council for Independent Further and Higher Education** as an **International Centre**. Haward's certificates are internationally recognized and accredited by the British Accreditation Council (BAC). 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.

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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. Gert Viljoen** is a **Senior Inspection Engineer** with over **30 years** of experience within the **Oil & Gas, Refineries, Petrochemical** and **Power** industries. His expertise lies extensively in the areas of **Eddy Current, TOFD, Phased Array Ultrasonic Testing (PAUT), Non-destructive Testing Methods, Welding Technology, Welding Procedure Specification, Welder Performance Qualification, Piping Inspection & Testing, Piping Inspection Procedures, Piping Components Pressure Design, Fabrication & Assembly, In-Service Piping Systems Inspection & Repair, Inspection Data Evaluation & Analysis, Piping System Repairs & Alterations, Pressure Equipment Inspection, Steam Generators, Reactors, Towers, Columns, Gasifiers, Heat Exchangers, Storage Tanks, Repair Procedures Verification, Maintenance Strategies, Static & Rotating Equipment, Pipe Work, Equipment Life Assessment Review, Risk-based Inspection Verification, Ultrasonic Testing & Evaluation, Liquid Penetrant Testing, Magnetic Particle Testing, Electromagnetic Testing, Radiographic Testing, Visual Testing and Damage Assessment.** He is also well-versed in Quality Management System, ISO 9000/9001, ISO 17020, SANS 10227 Systems and Root Cause Analysis & Investigation. Currently, he is the **Inspection Specialist** of **RBI Technical Solutions International**.

During his career life, Mr. Viljoen has gained his practical and field experience through his various significant positions and dedication as the **Chief Inspector, Inspection Manager, QC Manager, NDT Inspection Department Head, Flight Engineer, Fabricator, In-service/Welding Inspector, Field Supervisor** and **Contractor Coordinator** for numerous international companies like the **Saudi Aramco, SGS Pty Ltd., SASOL Synthetic Fuels** and **South African Airforce**, just to name a few.

Mr. Viljoen is a **Certified Instructor/Trainer, a Registered Technical Assessor, a Technical Instructor, a Certified ASNT NDT Level III Inspector** in Liquid Penetrant Testing (PT), Magnetic Particle Testing (MT) and Ultrasonic Testing (UT); a **Certified ASNT NDT Level II Inspector** in Radiographic Testing (RT), Infrared Thermography (IR) and Eddy Current Testing (ET); a **Certified Piping Inspector (API 570), Certified Pressure Vessel Inspector (API 510), Certified Aboveground Storage Tank Inspector (API 653); a Certified Paint Inspector Level I, a Competent Person Pressure Vessels, a Competent Person Steam Generators** and a **Certified Pressure Equipment Inspector**. Further, He has completed Phased Array for small bore pipe test development, Time of Flight Diffraction (TOFD), Tank Floor Scanning, IRIS and Guided Ultrasonics (GUL) as well as delivered numerous courses, workshops, trainings, seminars and conferences worldwide.

**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	<b>PRE-TEST</b>
0830 – 0930	<b>Introduction to Eddy Current Testing</b> Historical & Developmental Process • Basic Physics & Controlling Principles
0930 – 0945	Break
0945 – 1200	<b>Electromagnetic Theory: Eddy Current Theory</b> Generation of Eddy Currents by Means of an AC Field
1200 – 1300	Lunch
1300 – 1500	<b>Electromagnetic Theory: Eddy Current Theory (cont'd)</b> Effects of Fields Created by Eddy Currents (Impedance Changes)
1500 – 1515	Break
1515 – 1650	<b>Electromagnetic Theory: Eddy Current Theory (cont'd)</b> Effect of Change of Impedance on Instrumentation • Properties of Eddy Current
1650 – 1700	<b>Recap</b>
1700	End of Day One

#### **Day 2:**

0730 – 0930	<b>Lab Demonstration</b> Generation of Z-curves with Conductivity Samples
0930 – 0945	Break
0945 – 1200	<b>Lab Demonstration (cont'd)</b> Generation of Lift-Off Curves
1200 – 1300	Lunch
1300 – 1500	<b>Types of Eddy Current Sensing Elements</b> Probes (Types of Arrangements, Modes of Operation, Theory of Operation, Hall Effect Sensors, Applications, Advantages, Limitations)
1500 – 1515	Break
1515 – 1650	<b>Types of Eddy Current Sensing Elements (cont'd)</b> Factors Affecting Choice of Sensing Elements (Type of Part to be Inspected, Type of Discontinuity to be Detected, Speed of Testing Required, Amount of Testing (Percentage) Required, Probable Location of Discontinuity)
1650 – 1700	<b>Recap</b>
1700	End of Day Two

#### **Day 3:**

0730 – 0930	<b>Selection of Inspection Parameters</b> Frequency • Coil Drive: Current/Voltage
0930 – 0945	Break
0945 – 1200	<b>Selection of Inspection Parameters (cont'd)</b> Hall Element Drive: Current/Voltage • Channel Gain
1200 – 1300	Lunch
1300 – 1500	<b>Selection of Inspection Parameters (cont'd)</b> Display Sensitivity Selections • Standardization
1500 – 1515	Break

1515 – 1650	<b>Selection of Inspection Parameters (cont'd)</b> Filtering • Thresholds
1650 – 1700	<b>Recap</b>
1700	End of Day Three

**Day 4:**

0730 – 0930	<b>Readout Mechanisms</b> Calibrated or Uncalibrated Meters • Impedance Plane Displays • Data Recording Systems
0930 – 0945	Break
0945 – 1200	<b>Readout Mechanisms (cont'd)</b> Alarms, Lights, etc • Numerical Readouts
1200 – 1300	Lunch
1300 – 1500	<b>Readout Mechanisms (cont'd)</b> Marking Systems • Sorting Gates & Tables
1500 – 1515	Break
1515 – 1650	<b>Readout Mechanisms (cont'd)</b> Cutoff Saw or Shears • Automation & Feedback
1650 – 1700	<b>Recap</b>
1700	End of Day Four

**Day 5:**

0730 – 0830	<b>Lab Demonstration</b> Demo Filter Effects on Rotating Reference Standards • Demo Lift-Off effects
0830 – 0930	<b>Lab Demonstration (cont'd)</b> Demo Frequency Effects
0930 – 0945	Break
0945 – 1030	<b>Lab Demonstration (cont'd)</b> Demo Rotational & Forward Speed Effects
1030 – 1115	<b>Lab Demonstration (cont'd)</b> Generate a Z-Curve with Conductivity Standards
1115 – 1215	Lunch
1215 – 1415	<b>Theoretical Examination</b>
1415 – 1430	Break
1430 – 1530	<b>Theoretical Examination (cont'd)</b>
1530 – 1630	<b>Practical Examination</b>
1630 – 1645	<b>Course Conclusion</b>
1645 – 1700	Presentation of Course Certificates
1700	End of Course

**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 “AWS Tool Kit”, “Structural Weld Replica Kit” and liquid penetrant testing and calibration using the “Ultrasonic Flow Detector Testing Kit” and “Ultrasonic Flawed Specimen Test Components” suitable for classroom training.





**Ultrasonic Flow Detector Testing Kit**



**Ultrasonic Testing Package USM 36**



**Course Coordinator**

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