COURSE OVERVIEW FE0119-9D
ASNT NDT Level II Certification Program (MT, UT, PT & VT)
(ASNT SNT-TC-1A)

Course Title
ASNT NDT Level II Certification Program (MT, UT, PT & VT) (ASNT SNT-TC-1A)

Course Date/Venue
May 04-14, 2025/BoardRoom 1 Meeting Room, Elite Byblos Hotel, Al Barsha, Sheikh Zayed Road, Dubai, UAE

Course Reference
FE0119-9D

Course Duration/Credits
Nine days/7.2 CEUs/72 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 developed by Haward Technology in order to provide participants with the theoretical and practical training in the subject and certify them as an "ASNT Level-II" in the following Non-Destructive Testing (NDT) methods:-

a) Magnetic Particle Testing (MT)
b) Ultrasonic Testing (UT)
c) Liquid Penetrant Testing (PT)
d) Visual Testing (VT)

The course is developed in compliance with the requirements of the American National Standards Institute (ANSI) and The American Society for Non-destructive Testing (ASNT) based on the ANSI/ASNT CP-105 Standard for qualification of non-destructive testing personnel and as per the ASNT Recommended Practice No. SNT-TC-1A for Personnel Qualification and Certification in Non-destructive Testing together with the extra specific requirements.

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 *MT, UT, PT and VT*, 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 MT, UT, PT & VT*" upon successfully passing the examination with a minimum passing composite grade of at least 80 percent (%) which will be administered and graded by Haward 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 an "*ASNT NDT Level-II in Magnetic Particle Testing (MT), Ultrasonic Testing (UT), Liquid Penetrant Testing (PT), and Visual Testing (VT)*"
- Practice magnetic particle testing (MT), ultrasonic testing (UT), liquid penetrant testing (PT), and visual testing (RT)
- Set-up and calibrate equipment as well as interpret and evaluate results with respect to applicable codes, standards and specifications
- Thoroughly familiarize the scope and limitations of magnetic particle testing (MT), ultrasonic testing (UT), liquid penetrant testing (PT), visual testing (VT) and exercise assigned responsibility for on-the-job training and guidance of participants and NDT Level-I personnel
- Organize and report the results of NDT tests

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 is intended for those willing to be certified as ASNT Level-II in MT, UT, PT & VT methods. Course participants shall be ASNT Level-I Certified, in addition to other course prerequisites as specified below.

Exam Eligibility & Structure

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

All Participants of this course must have Level-I in MT, UT, PT, and VT before they can attend this Level-II course.

MT Initial Training & Experience Levels			
Level	Training Hours	Experience	
		Minimum Hours in Method or Technique	Total Hours in NDT
I	12	70	130
II	8	210	400

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

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

VT Initial Training & Experience Levels			
Level	Training Hours	Experience	
		Minimum Hours in Method or Technique	Total Hours in NDT
I	8	70	130
II	16	140	270

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 consists 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 selecting and performing the applicable NDT technique within the method and interpreting and evaluating the results on one or more flawed specimens as appropriate for the method and approved and documented by the NDT Level III (Grading Key).
- Evaluation. The candidate should detect all discontinuities and conditions specified and documented by the NDT Leve 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 NDT 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 checkpoint(s).
- 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.

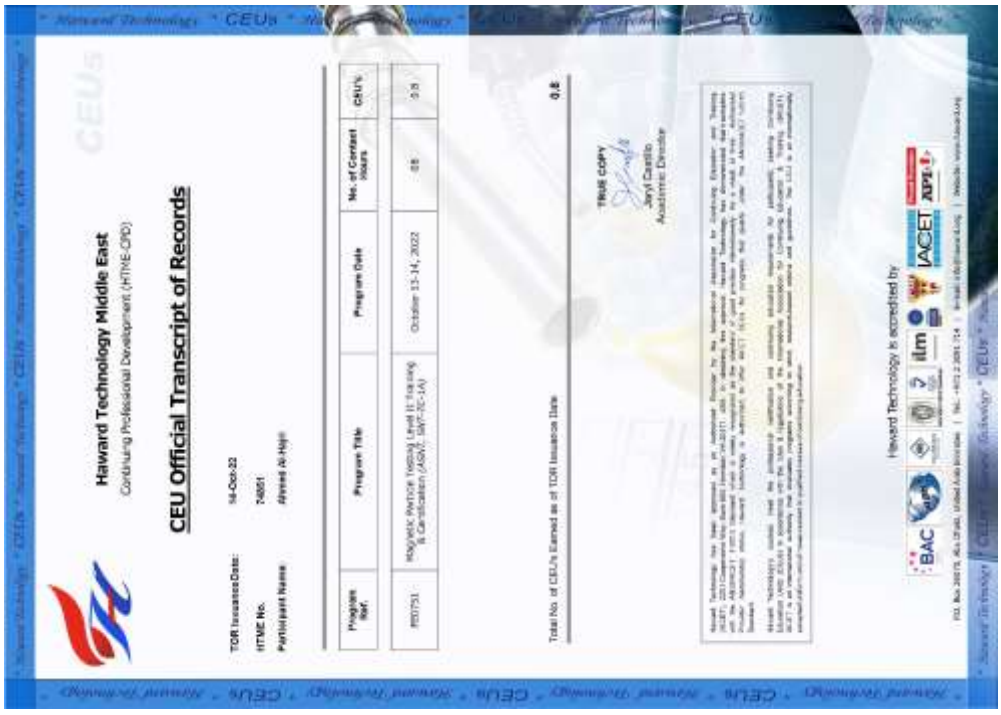
Magnetic Particle Testing Qualification Certificate(s)

(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 II in Magnetic Particle 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.



Ultrasonic Testing 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 II in Ultrasonic 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.

Liquid Penetrant Testing 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 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:-


Qualification Certificate

Haward Technology Middle East

This is to certify that

Ahmed Al-Hajri

has met the established & published Requirements for Certification by ASNT in accordance with SNT-TC-1A (2020) and the company's Written Practice as

ASNT NDT Level II

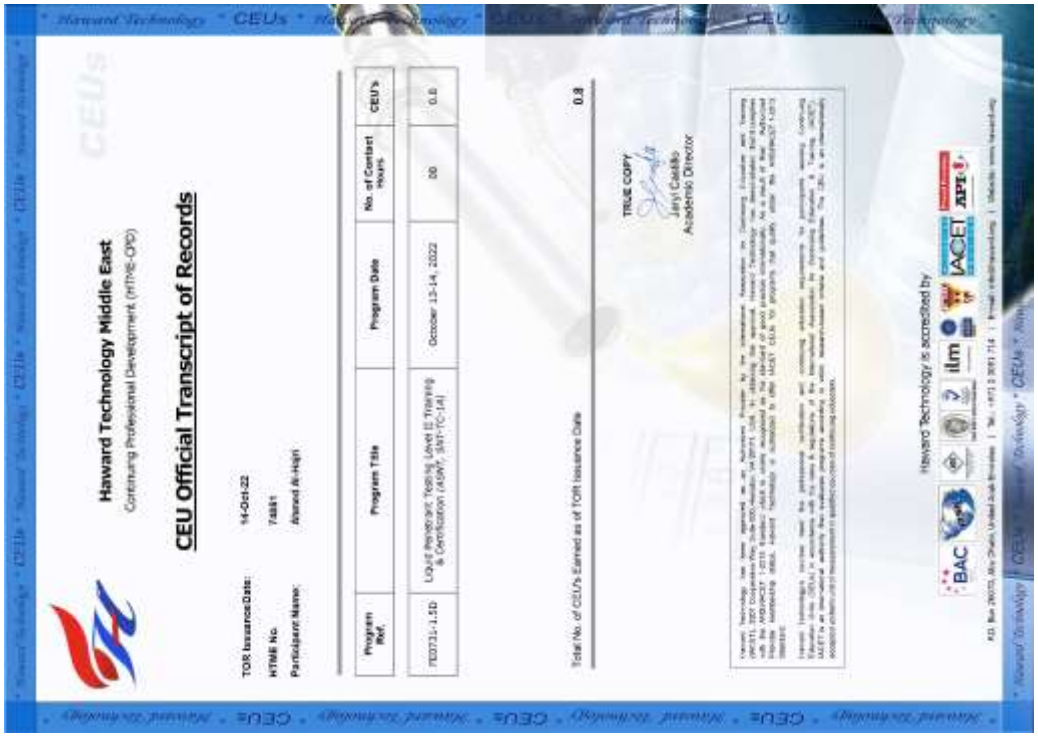
in the following Nondestructive Testing Methods:

Method	Product Form	Certificate No.	Issue Date	Expiry Date
Liquid Penetrant Testing	All Forms	[redacted]	10/22	10/27

ASNT Level III Examiner
Mr. Luis Lopez (ASNT# 219655)
Signature & Stamp:

Mr. Jaryl Castillo
Academic Director

(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)

CEU Official Transcript of Records

TOR Issuance Date: 14-Oct-22
HTME No. 7181
Participant Name: Ahmed Al-Hajri

Program Ref.	Program Title	Program Date	No. of Contact Hours	CEU's
FE0731-I-5D	Liquid Penetrant Testing, Level II Training & Certification (ASNT, SNT-TC-1A)	October 13-14, 2022	00	0.8

Total No. of CEU's Earned as of TOR Issuance Date: 0.8

TRUE COPY
Jaryl Castillo
Academic Director

Haward Technology is accredited by

Visual Testing 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 Visual Testing"*. Qualification Certificate is valid for 5 years.


Qualification Certificate

Haward Technology Middle East

This is to certify that

Ahmed Al-Hajri

has met the established & published Requirements for Certification by ASNT in accordance with SNT-TC-1A (2020) and the company's Written Practice as

ASNT NDT Level II

in the following Nondestructive Testing Methods:

Method	Product Form	Certificate No.	Issue Date	Expiry Date
Visual Testing	All Forms	[illegible]	10/22	10/27

ASNT Level III Examiner
Mr. Luis Lopez (ASNT# 219655)
Signature & Stamp:

Mr. Jaryl Castillo
Academic Director

(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)

CEU Official Transcript of Records

TOR Issuance Date: 14-Oct-22
HTME No. 74851
Participant Name: Ahmed Al-Hajri

Program Ref.	Program Title	Program Date	No. of Contact Hours	CEU's
FE0703-2-9D	Visual Testing Level II Training & Certification (ASNT, SNT-TC-1A)	October 12-14, 2022	16	1.6

Total No. of CEU's Earned as of TOR Issuance Date: 1.6

TRUE COPY
Jaryl Castillo
Academic Director

Haward Technology is accredited by

Course Accreditations

Haward Technology is 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.

- 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 **7.2 CEUs** (Continuing Education Units) or **72 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. Talaat Mohamed, PGDip, BSc, is a **Certified Inspection Engineer** (**NDT-ASNT**) **& Certified Welding Inspector (CWI-AWS)** with **over 30 years** of extensive experience within the **Oil**, **Gas**, **Petrochemical**, **Petroleum** and **Refinery** industries. His thorough experience widely covers **Radiation** Safety & Protection, **Radioactive** Waste Management, **Radiation** Protection Instrumentation, **Nuclear & Radiological** Safety, **Nuclear** Engineering, **Radiation**, Safe Handling and **Non-destructive Testing** in **Radiography**, **Ultrasonic**, **Penetrant**, **Magnetic Particle**, **Visual Testing** and **Welding Inspection**. Further, he is also an expert in **Equipment Analysis & Piping Design**, **Welding**, **Corrosion & Risk Based Inspection**, **Fitness-for-Service Assessment**, **Boiler & Pressure Vessel**, **Fabrication**, Vibration, Heat Treatment, Inspection & Repair Procedures, Material **Damage Mechanism**, Material Failure Analysis, **Mechanical Integrity**, Isomerization, Distillation & Reforming Units, Pipelines, Pressure Piping, Stationary Equipment, **Tank Inspection**, Fired Boilers & Heaters, Heat Exchangers, Coolers, Pressure Vessels, Drums, Storage Tanks, Furnaces, Heaters, Pipelines, Columns, Reactors, Strippers and Safety Valves. He is also well-versed in UltraPIPE software, PCMS software and Lloyd's Register RBMI software as well as the API 571, API 510, API 572, API 570, API 653, API 560, Welding & Brazing Qualifications, API 573 and ASME B31.3 standards. He is currently the **Inspection General Manager** of Cairo Oil Refining Company (CORC) wherein he is responsible in developing the strategies for inspection and testing as well as designated as a certifying authority for ASNT-NDT levels certification according to SNT-TC-1A Personnel Qualification and Certification in Non-destructive Testing.

During his career life, Mr. Talaat has gained his practical and field experience through his various significant positions such as the **Inspection General Manager**, Technical Studies **Department Manager**, **Isomerization Inspection Department Manager**, **NDT & Inspection Section Head**, **Training Instructor**, **Technical Trainer**, **NDT Instructor**, **Inspection Engineer**, **QA/QC Team Leader** and **Team Leader** for numerous international companies like the Khalda Petroleum Company, Suez Oil Processing Co., Agiba Co., El-Nasr Petroleum Co., Suez Oil Co., General Petroleum Co., Petrobel Co., Egyptian Gas Co., Gulf Petroleum Co., as well as for Cairo Oil Refining Company, Welding Academy, GASCO and United Gas Derivatives Company.

Mr. Talaat has a **Bachelor** degree in **Mechanical Engineering** and a **Post-Graduate Diploma** in **Metallurgy & Material Engineering**. Further, he is a **Certified ASNT Level III NDT Inspector** in **Radiographic Testing** (**RT**), **Ultrasonic Testing** (**UT**), **Penetrant Testing** (**PT**), **Magnetic Particle Testing** (**MT**) and **Visual Non-destructive Testing** (**VT**); a **Certified Welding Inspector** (**CWI-AWS**), a **Certified Instructor/Trainer**; a **Certified Trainer/Assessor/Internal Verifier** by the **Institute of Leadership & Management** (**ILM**); and holds a certification in Quality Assurance, ISO 9000, API Heat Exchangers & Cooling Towers, Internal Quality System Auditing and Internal Quality System Auditing for ISO 9001/2000. Moreover, he is an active member of the American Society of Non-destructive Testing (**ASNT**), the Engineers Syndicate, the Society of Mechanical Engineers, the American Welding Society (**AWS**) and the Supreme Committee of Quality and delivered countless trainings, workshops and seminars worldwide.

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

US$ 10,000 per Delegate + **VAT**. 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: Magnetic Particle Testing: Sunday, 04th of May 2025

0730 – 0800	*Registration, Coffee, Welcome & Introduction*
0800 – 0815	***PRE-TEST***
0815 - 0830	***Principles*** *Theory ● Magnets & Magnetism*
0830 - 0845	***Flux Fields*** *Direct Current ● Direct Pulsating Current ● Alternating Current*
0845 - 0900	***Effects of Discontinuities on Materials*** *Design Factors ● Relationship to Load-Carrying Ability*
0900 - 0915	***Magnetization by Means of Electric Current*** *Circular Techniques ● Longitudinal Technique*
0915 - 0930	*Break*
0930 - 1000	***Selecting the Proper Method of Magnetization*** *Alloy, Shape & Condition of Part ● Type of Magnetizing Current ● Direction of Magnetic Field ● Sequence of Operations ● Value of Flux Density*
1000 - 1030	***Demagnetization Procedures*** *Need for Demagnetization of Parts ● Current, Frequency & Field Orientation ● Heat Factors & Precautions ● Need for Collapsing Flux Fields*
1030 - 1100	***Equipment*** *Portable Type ● Stationary Type ● Automatic Type ● Multidirectional Units ● Liquids & Powders ● Ultraviolet Radiation Type ● Light-Sensitive Instruments*
1100 - 1115	***Types of Discontinuities*** *In Castings ● In Ingots ● In Wrought Sections & Parts ● In Welds*
1115 - 1130	***Evaluation Techniques*** *Use of Standards-e.g. ASTM E 1444, E 3024, E 709 ● Defect Appraisal*

1130 - 1200	***Quality Control of Equipment & Processes*** *Malfunctioning of Equipment ● Proper Magnetic Particles & Bath Liquid ● Bath Concentration ● Test for Ultraviolet Radiation Intensity*
1200 - 1300	*Lunch Break*
1300 - 1600	***Theoretical Examination***
1600 - 1615	*Break*
1615 - 1650	***Practical Examination***
1650 - 1700	***Recap*** *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*
1700	*End of Day Two*

Day 2: Ultrasonic Testing: Monday 05th of May 2025

0730 – 0930	***Review of Ultrasonic Technique*** *Principle of Ultrasonics ● Equipment*
0930 – 0945	*Break*
0945 – 1200	***Review of Ultrasonic Technique (cont'd)*** *Testing Techniques ● Standardization*
1200 – 1300	*Lunch Break*
1300 – 1400	***Evaluation of Base-Material Product Forms*** *Ingots ● Plate & Sheet ● Bar & Rod ● Pipe & Tubular Products*
1400 – 1415	*Break*
1415 – 1650	***Evaluation of Base-Material Product Forms (cont'd)*** *Forgings ● Castings ● Composite Structures ● Other Product Forms as Applicable - Rubber, Glass, etc.*
1650 – 1700	***Recap*** *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*
1700	*End of Day Two*

Day 3: Ultrasonic Testing: Tuesday 06th of May 2025

0730 – 0930	***Evaluation of Weldments*** *Welding Processes*
0930 – 0945	*Break*
0945 – 1200	***Evaluation of Weldments (cont'd)*** *Weld Geometries*
1200 – 1300	*Lunch Break*
1300 – 1400	***Evaluation of Weldments (cont'd)*** *Welding Discontinuities*
1400 – 1415	*Break*
1415 – 1650	***Evaluation of Weldments (cont'd)*** *Origin and Typical Orientation of Discontinuities*
1650 – 1700	***Recap*** *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*
1700	*End of Day Three*

Day 4: Ultrasonic Testing: Wednesday, 07th of May 2025

0730 – 0930	***Evaluation of Weldments (cont'd)*** *Response of Discontinuities to Ultrasound*
0930 – 0945	*Break*
0945 – 1200	***Evaluation of Weldments (cont'd)*** *Applicable Codes/Standards*
1200 – 1300	*Lunch Break*
1300 – 1400	***Evaluation of Bonded Structures*** *Manufacturing Processes*
1400 – 1415	*Break*
1415 – 1650	***Evaluation of Bonded Structures (cont'd)*** *Types of Discontinuities*
1650 – 1700	***Recap*** *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*
1700	*End of Day Four*

Day 5: Ultrasonic Testing: Thursday 08th of May 2025

0730 – 0930	***Evaluation of Bonded Structures (cont'd)*** *Origin and Typical Orientation of Discontinuities ● Response of Discontinuities to Ultrasound*
0930 – 0945	*Break*
0945 – 1200	***Evaluation of Bonded Structures (cont'd)*** *Applicable Codes/Standards*
1200 – 1300	*Lunch Break*
1300 – 1400	***Discontinuity Detection*** *Sensitivity to Reflections ● Resolution*
1400 – 1415	*Break*
1415 – 1650	***Discontinuity Detection (cont'd)*** *Determination of Discontinuity Size*
1650 – 1700	***Recap*** *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*
1700	*End of Day Five*

Day 6: Ultrasonic Testing: Sunday 11th of May 2025

0730 – 0930	***Discontinuity Detection (cont'd)*** *Location of Discontinuity*
0930 - 0945	*Break*
0945 - 1200	***Evaluation*** *Comparison Procedures ● Object Appraisal*
1200 – 1300	*Lunch Break*
1300 - 1600	***Theoretical Examination***
1600 – 1615	*Break*
1615 - 1650	***Practical Examination***
1650 - 1700	***Recap*** *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*
1700	*End of Six*

Day 7: Liquid Penetrant Testing: Monday, 12th of May 2025

0730 – 0830	***Review*** *Basic Principles ● Process of Various Methods ● Equipment*
0830 – 0930	***Selection of the Appropriate Penetrant Testing Method*** *Advantages of Various Methods ● Disadvantages of Various Methods*
0930 – 0945	*Break*
0945 – 1015	***Inspection & Evaluation of Indications*** *General [Discontinuities Inherent in Various Materials, Reason for Indications, Appearance of Indications, Time for Indications to Appear, Persistence of Indications, Effects of Temperature & Lighting (Visible 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)*
1015 - 1100	***Inspection & Evaluation of Indications (cont'd)*** *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 & Maintenance Materials)*
1100 - 1130	***Inspection Procedures & Standards*** *Inspection Procedures (Minimum Requirements) ● Standards/Codes (Applicable Methods/Processes ● Acceptance Criteria)*
1130 - 1200	***Basic Methods of Instruction***
1200 - 1300	*Lunch Break*
1300 - 1600	***Theoretical Examination***
1600 - 1615	*Break*
1615 - 1650	***Practical Examination***
1650 - 1700	***Recap*** *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*
1700	*End of Day Seven*

Day 8: Visual Testing: Tuesday, 13th of May 2025

0730 - 0830	***Purpose & Scope of Visual Testing*** *Scope ● VT Looks for ● Time of Applications*
0830 – 0930	***Elements of Vision*** *Mechanics of Vision ● Adaptation & Accommodation ● Vision Limitations ● Vision Acuity Examination & Charts*
0930 – 0945	*Break*
0945 – 1130	***Elements of Lighting*** *Fundamentals of Light ● Light Sources ● Adequate Light Levels ● Glare & Fatigue ● General Lighting Requirements*
1130 - 1230	***Contrast & Resolution*** *Reflection at Smooth & Rough/Textured Surfaces ● Law of Illumination ● Reflectivity & Luminance ● Luminous Contrast ● Influence of Cleanliness on Contrast ● Dark-Field Contrast ● Colors & Contribution of Colors to Contrast ● Surface Geometry and Contrast*
1230 - 1330	*Lunch Break*

1330 - 1430	***Optics*** *Transmission of Lights through Solid & Liquid Media ● Refraction of Light ● Refractive Indexes of Glasses ● How Prisms Change the Direction of Light ● How Lenses Focus & Disperse Light ● Lens Optics & Lens Trains ● Fiber Optics & Fiber Bundles ● Digitization & Digital Technology*
1430 - 1500	***Visual Testing Equipment*** *Generic Tools such as Magnifiers & Mirrors ● Rigid Borescopes ● Fiber Borescopes ● Video Borescopes ● Video Borescopes Measurements Techniques ● Specialized Inspection Systems*
1500 - 1515	*Break*
1515 - 1600	***Visual Appearance of Discontinues*** *Primary Manufacturing Discontinues (e.g., Castings) ● Secondary Manufacturing Discontinues (e.g., Forgings) ● Service-Induced Discontinues ● Inherent Discontinues*
1600 - 1650	***Evaluation & Reporting*** *General Evaluation Scheme (ASTM E1316) ● Evaluation Criteria ● Evaluation Techniques ● Reporting & Documentation ● Completion of Testing Confirmed with a Checklist*
1650 - 1700	***Recap*** *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*
1700	*End of Day Eight*

Day 9: Visual Testing: Wednesday, 14th of May 2025

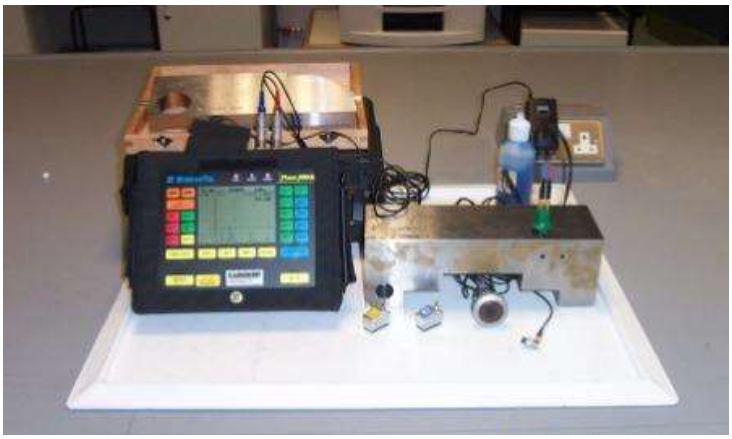
0730 – 0930	***Codes, Standards, & Specifications*** *VT as an Engineering Task ● VT as a Technician Task ● US Standards (e.g., ASME BPVC, AWS D1.1) ● European Standards (Based on PED) ● ISO Standards*
0930 - 0945	*Break*
0945 – 1115	***Employer-Specific Topics*** *Application & Techniques ● Specifications ● Lighting Techniques ● Materials Tested ● Special Evaluation Criteria ● Safety Rules*
1115 - 1145	***Glossary***
1145 - 1245	*Lunch*
1245 - 1545	***Theoretical Examination***
1545 - 1600	*Break*
1600 - 1630	***Practical Examination***
1630 – 1645	***Course Conclusion*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course*
1645 – 1700	*Presentation of Course Certificates*
1700	*End of Course*

Practical Sessions

Practical sessions which client shall provide will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout NDT inspection using the "Magnetic Particle Testing (MT) Equipment", "Ultrasonic Testing (UT) Equipment", "Liquid Penetrant Testing (PT) Equipment", "Visual Testing (VT)" and our specifically designed flawed specimen test components.

Magnetic Particle Testing (MT) Equipment

Liquid Penetrant Testing (PT) Equipment



Ultrasonic Testing (UT) Equipment

Ultrasonic Testing Package USM 36

RIDGID

micro CA-300

micro CA-300 Inspection Camera

See It. Find It. Solve It.®

NEW

Documentation made easy with the new RIDGID® micro CA-300 Inspection Camera, the next evolution of the microEXPLORER® Inspection Camera. Easily record still images and videos of problems in hard-to-reach areas and then share the findings with the RIDGIDConnect™ solution. Comfortable pistol-grip design, large screen and rugged anodized aluminum camera head with four bright LEDs make it easy to detect and diagnose the unreachable. Get the perfect view with enhanced features like image rotation and digital zoom.

Specifications

- Display ..... 3.5" (90mm) Color TFT
- Camera Diameter ..... 0.7" / (17mm) LCD (320 x 240 resolution)
- Lighting ..... 4 Adjustable LEDs
- Cable Reach ..... 3' (0,9m) (Expandable to 30' with optional extension, also compatible with microDrain, microReel and nanoReel)
- Images ..... JPG 640 x 480 Resolution
- Video ..... MP4 640 x 480 Resolution
- External Memory ..... SD Card up to 32 GB (4GB SD card included)
- Power Source ..... Rechargeable 3.7V Li-Ion Battery

Included: micro CA-300 with 17mm imager, battery, charger, USB cable, hook, magnet and mirror accessories, RCA cable, AC adapter, headset with microphone, 4GB SD card, 1 year RIDGIDConnect Basic Subscription - (Must register at www.RIDGIDmicro.com)

RIDGID CONNECT ENABLED

Ordering Information

Catalog No.	Description	Wt. lb.	Wt. kg
37888	micro CA-300 Inspection Camera	2.0	0.9
37103	17mm Replacement Imager	0.7	0,3
37108	3' Cable Universal Extension	0.7	0,3
37113	6' Cable Universal Extension	1.4	0,86
37083	3.7V Li-Ion Battery	.24	0,11
37098	6mm Imager Head (3')	.75	0,3

RIDGID FULL LIFETIME WARRANTY




RIDGID® • 400 Clark St., Elyria Ohio 44035-6001 U.S.A. • Visit us on the Internet: www.RIDGID.com

micro CA-300 Inspection Camera

RIDGID

See It. Find It. Solve It.®

Extra-Large 3.5" Screen


Ultra-Bright Aluminum Imager Head with 4 LEDs

Interchangeable Imager Heads Compatible with microDrain, microReel and nanoReel


360° Rotation in 90° Increments


Rechargeable 3.7V LI-Ion Battery

TV Out, USB, SD Card Storage

Speaker, Mic, Head Set Jack, AC Power Input


USB Cord, 4GB SD Card, RCA Cable, Hook, Magnet, Mirror, AC Adapter

RIDGID CONNECT ENABLED

Diagnostic Product Family

www.RIDGIDmicro.com

Cameras
1 37888 micro CA-300 Inspection Camera
2 36738 micro CA-100 Inspection Camera
3 40818 nanoReel + CA-300 Inspection Camera
4 40043 micro CA-25 Inspection Camera

Camera Accessories
5 37113 6' Cable Universal Extension
6 37108 3' Cable Universal Extension
7 37098 6mm Imager Head 3'

Locating
8 19238 NaviTrack® Scout™ Locator

Test and Measurement
9 36153 micro IR-100 Non-Contact Infrared Thermometer
10 36163 micro CD-100 Combustible Gas Detector
11 36158 micro LM-100 Laser Distance Meter

Distributor

For the complete selection of the RIDGID product line, please refer to the Ridge Tool Catalog or www.RIDGID.com.

RIDGID

Flawed Specimen Test Components

Course Coordinator
Mari Nakintu, Tel: +971 2 30 91 714, Email: mari1@haward.org