

Reach Higher

with **Inspection Academy**—
GE's Inspection Technologies
Global Knowledge Center

www.geinspectionacademy.com



Sharing knowledge. Shaping technology.

At GE, we know the value of investing in your success

That's why our Inspection Technologies business formed GE's Inspection Academy. Built on the success of our Krautkramer NDT training schools heritage, our decades of expertise continue to shape NDT technology and training through substantial research, development, and collaborative efforts.

Our global presence helps ensure consistent quality education where you are and when you need it. Designed to meet your ongoing inspection training needs, the Inspection Academy offers flexible training delivery options on a broad range of inspection methods:

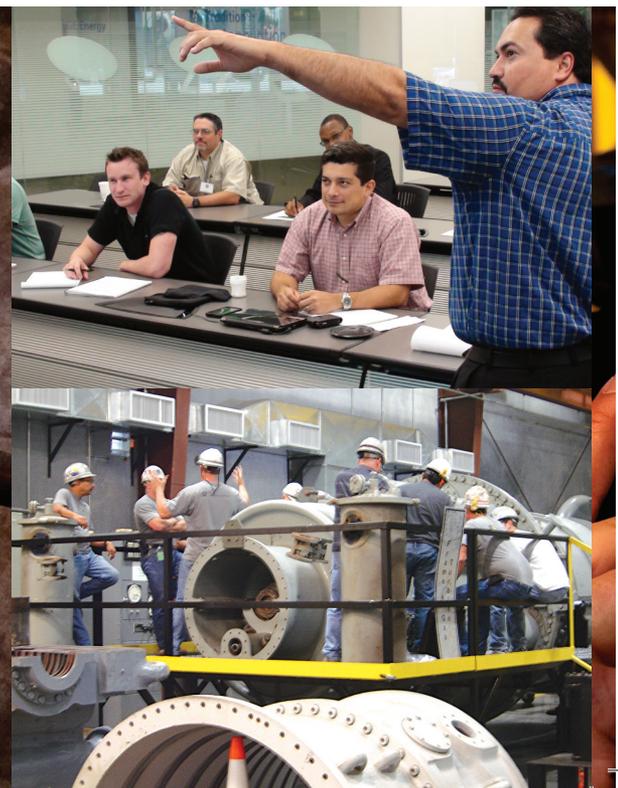
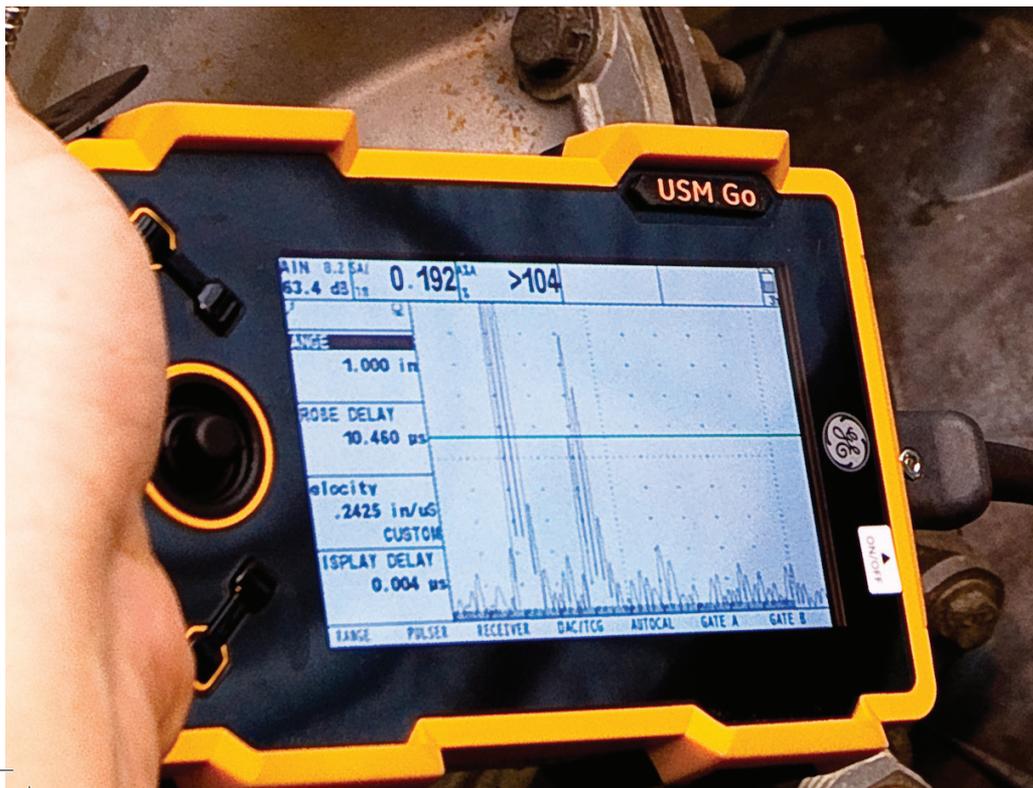
- **Classroom sessions** are held at our Customer Solutions Centers, or at your facility
- **eLearning Center** offers a growing selection of online courses that can be taken at your convenience
- **Educational collaboration** with universities, colleges, and industry leaders reveals the latest in NDT trends and technologies

In order to serve our customers across the globe, new languages and content are being added.

Covering the major NDT modalities, advanced technologies, and more

Whether you are an inspector, plant manager, maintenance engineer or third-party service provider, the Inspection Academy translates GE's industry leadership into real learning opportunities for you. Courses are available for the major NDT modalities, including ultrasonics, radiography, eddy current, magnetic particle, dye penetrant, and remote visual inspection.

Many of our courses offer a certificate of training toward Level I and Level II certifications to the American Society for Nondestructive Testing's Recommended Practice SNT-TC-1A. Most courses meet or exceed the criteria set forth in ASNT SNT TC-1A 2011 edition, ANSI/ASNT CP-105-2011, and NAS 410. We also offer a number of courses on more advanced technologies or applications.



Classroom Sessions

Shaping the way customers perform

The Inspection Academy's classroom sessions combine detailed course work with hands-on experience to deepen understanding and develop high-level competency of inspection theories and concepts. Participants build practical proficiency while working with GE's ultrasonic thickness gauges, digital flaw detectors, X-ray equipment, and a large selection of transducers, probes, calibration standards, and inspection samples—all under the direct supervision of our ASNT certified staff. Ultimately, better educated employees perform faster and higher quality inspections which means improved productivity for you.

Classroom training features and benefits:

- Interactive classroom settings help promote the exchange of ideas between the instructor and participants. Questions can be answered as they arise and group discussions can further illuminate topics.
- Practical hands-on training helps verify that the participant thoroughly understands the theory, principles, and application.
- Adherence to a structured and ASNT-validated class schedule ensures that training takes place in a short, set timeframe while meeting ASNT requirements.

If your organization needs a course that you don't see in our catalog, please contact us at Inspection.Academy@ge.com. We may be able to develop what you need.

eLearning Center

Learn when and where you want

GE's Inspection Academy is committed to providing you with the flexibility to learn whenever and wherever you choose.

Our learning environment allows the theory and principles of each NDT method to be thoroughly covered and provides a number of impressive features that make these cost-effective and convenient courses a good choice in many scenarios.

eLearning features and benefits:

- Participants learn at their own pace and on their schedule with online tools that provide flexibility for individual learning styles.
- Time online can be precisely tracked.
- Periodic quizzes keep participants on track. Subjects that require review can be repeated until they are mastered.
- A comprehensive final exam at the end of each course ensures that the certificate of completion is reflective of the learning by the participant.
- Interaction with an online instructor is available through email.

Available eLearning courses include:

- Introduction to Nondestructive Testing
- Ultrasonic Testing (UT) Level I and Level II
- Eddy Current Testing (ET) Level I and Level II
- Radiographic Testing (RT) Level I and Level II
- Visual Testing (VT) Level I and Level II
- Introduction to Phased Array Ultrasonics
- Radiation Safety
- Magnetic Particle Testing (MT) Level I and Level II
- Penetrant Testing (PT) Level I and Level II

We also have a growing library of product specific training.

The most complete and up to date list of eLearning courses can be found at www.geinspectionacademy.com



Classroom Session Course Descriptions

The most up-to-date course calendar is available at www.geinspectionacademy.com

COURSE NAME	HOURS	TOPICS
Ultrasonic Testing Level I	40	<p>GE's Ultrasonic Testing Level I course is designed to teach both theoretical knowledge and practical skills for the Level I technician. Upon completion, the student will be able to set up equipment, calibrate, and perform tests according to recognized procedures under the supervision of Level II or Level III technicians.</p> <ul style="list-style-type: none">• Ultrasonic theory• Instrument operation• Inspection parameters• Thickness testing• Straight beam flaw detection and sizing• Calibration techniques for straight beam, dual element, delay-line, and angle beam transducers
Ultrasonic Testing Level II	40	<p>GE's Ultrasonic Testing Level II course is intended to provide a continued thorough grounding in the principles of ultrasonic testing and fundamentals of materials and processes. The student will be able to identify and analyze materials, and determine and apply proper inspection techniques.</p> <ul style="list-style-type: none">• Angle beam flaw location and evaluation• Special instrument features• Equipment quality control• Flaw, sizing, manufacturing processes, their flaws• Proper and correct ultrasonic inspection
Phased Array Week 1	40	<p>GE's 80 Hour Phased Array Course teaches the fundamentals of Phased Array technology in an 80-hour instructor-led course. Students will learn the principles of the technology, and detailed operation of the instrument and probes. This class is designed to keep a very low student-to-instrument ratio for a more hands-on, practical learning experience.</p> <ul style="list-style-type: none">• Sector and linear scans• Angle beam calibrations• Focal law verification• Phased array imaging• Phased array probes• Phased array in lieu of radiography• Weld inspection
Phased Array Week 2	40	<ul style="list-style-type: none">• Calibrations, TCG and focusing• Top view (C-scan)• Encoders• Phased array applications• Weld inspection and weld flaw image interpretation• Flaw sizing with phased arrays• Overview of inspection codes
Phased Array Workshop	32	<p>GE's Phased Array Workshop teaches the fundamentals of Phased Array technology in a 4-day instructor-led course. Students will learn the principles of the technology, and basic operation of the instrument and probes. This is a hands-on, practical learning experience.</p> <ul style="list-style-type: none">• Basic phased array theory• Phased array probes• Angle beam calibrations on a phased array flaw detector• Storing and recalling setups on a phased array flaw detector• Flaw sizing with phased array• Encoders• TOPView software
Eddy Current Testing Level I	40	<p>GE's Eddy Current Testing Level I course teaches the fundamentals of eddy current testing. Students will learn the principles of the technology and application of the method. The course includes hands-on training and inspection of test parts with known defects.</p> <ul style="list-style-type: none">• Eddy current theory• Instrument operation• Inspection parameters• Applications of meters and impedance plane displays• Types of coils, surface probes, flaw evaluation, conductivity, and crack detection

COURSE NAME	HOURS	TOPICS
Eddy Current Testing Level II	40	<p>GE's Eddy Current Testing Level II course teaches advanced concepts and principles of eddy current testing. Students will build on their level I knowledge and gain more detailed knowledge of principles of the technology. The course includes hands-on training and inspection of test parts with known defects.</p> <ul style="list-style-type: none"> • Theory and mathematics of alternating current and electrical circuits • Applications • Single- and multi-frequency crack detection • Plating and coating • Cladding and wall thickness • Conductivity measurement • Hardness and heat treatment • Inspection procedures • Calibration and acceptance standards • Categories of discontinuities
Radiography Testing Level I	40	<p>GE's Radiography Level I (5-day) course in Radiographic inspection covers the theory, applications, and safety aspects of X-Ray and gamma radiographic inspection. Students will also receive classroom instruction on darkroom procedures, radiographic interpretation and general safety.</p> <p>Subjects covered include:</p> <ul style="list-style-type: none"> • Radiation sources • Radiation safety • Radiography techniques • Image quality • Basic radiographic interpretation
Radiography Testing Level II	40	<p>GE's Radiography Level II (5-day) advanced course emphasizes a greater depth of study into radiographic inspection with emphasis on procedures and techniques. This course provides a review of modern digital radiography.</p> <p>Prerequisite: Level I in Radiography</p> <p>Subjects covered include:</p> <ul style="list-style-type: none"> • Radiography calculations • Radiographic image quality • Radiography techniques • Digital Radiography • Radiography inspection codes and interpretation
Intermediate Digital X-Ray Testing Level II	40	<p>This 5-day (40-hour) NAS410-style course is designed to provide each student with the technical information required to properly operate and optimize various digital X-ray technologies in a production NDT environment. Daily tests and a final examination will be administered to ensure each student's comprehension of the course material.</p> <ul style="list-style-type: none"> • Intermediate computed radiography • Digital detector array • Digital image conversion and imaging techniques • DICOM compliance • Discussion of ASTM E2033, E2445 and E2597
Advanced Digital X-Ray Testing Level III	40	<p>This 5-day (40-hour) NAS410-style course is designed to provide each student with the technical information required to properly evaluate, qualify, and implement various digital X-ray technologies in a production NDT environment. Daily tests and a final examination will be administered to ensure each student's comprehension of the course material.</p> <ul style="list-style-type: none"> • Advanced computed radiography • Digital detector array • Digital image conversion • Imaging techniques • DICOM compliance • Computed tomography • Discussion of ASTM E2033, E2445, E2597 and E2737

¹ Does not meet NAS410 requirements.

Classroom Session Course Descriptions

The most up-to-date course calendar is available at www.geinspectionacademy.com

COURSE NAME	HOURS	TOPICS
Computed Radiography (ASTM E2445, ANSI/ASNT CP-105 & NAS 410)	40	This 5-day (40-hour) course, which meets ASTM E2445, CP-105, SNT-TC-1A, and NAS 410 requirements, is designed to provide each student with the technical information required to properly operate and optimize various computed radiography (CR) technologies in a production NDT environment. Students will utilize GE's Rhythm software on provided laptop computers throughout the course. Daily tests and a final examination will be administered to ensure each student's comprehension of the course material. <p>Topics include:</p> <ul style="list-style-type: none"> • Radiation safety • Exposure techniques • CR normalization • Overview of profile techniques for corrosion under insulation (CUI) • General discussion of DDAs • Casting discontinuities - digital reference radiographs • Weld discontinuities • Discussion of ASTM E2033 and E2445 codes
Direct Radiography (ASTM E2737, ANSI/ASNT CP-105 & NAS 410)	40	This 5-day (40-hour) course, which meets CP-105, SNT-TC-1A, and NAS 410 requirements, is designed to provide each student with the technical information required to properly operate and optimize various direct radiography (DR) technologies in a production NDT environment. Students will utilize GE's Rhythm software on provided laptop computers throughout the course. Daily tests and a final examination will be administered to ensure each student's comprehension of the course material. <p>Topics Include:</p> <ul style="list-style-type: none"> • Radiation safety • General discussion of computed radiography • Overview of profile techniques for corrosion under insulation (CUI) • Digital detector arrays (DDAs) • DDA calibration • Digital reference radiographs • Digital image conversion • Imaging techniques • DICOMDE compliance • Computed tomography • Discussion of ASTM E2597 and E2737 codes
X-ray Computed Tomography (CT) Advanced Scan Operator / Intermediate Data Analyst	40	Upon completion of this 40 hour course with hands-on practical application, participants will meet Level III Scan Operator requirements as outlined by the Metals Affordability Initiative (MAI) guidance for affordable CT usage, and will be prepared to: <ul style="list-style-type: none"> • Apply safety regulations for operation of ionizing radiation equipment. • Demonstrate the proper set-up and reconstruction of a CT scan. • Select CT scan parameters to optimize image quality for specific applications. • Perform corrective actions for image quality issues and artifacts, including Feldkamp artifacts, insufficient images, and beam hardening. • Perform calibrations for metrology measurements. • Perform system quality checks to comply with industrial standards. • Understand analysis software and advanced analysis possibilities for CT measurements. • Identify CT applications for castings, turbine blades, automotive parts, composites, additive manufacturing, electronics, advanced materials, biological and geophysical specimens, and paleontology.
Digital Film Interpretation	40	GE's Digital Radiographic Film Interpretation Course (5-day) revamps the classic film interpretation course by adding digital radiography and imaging software. Students will utilize GE's Rhythm software on provided laptop computers throughout the course. This course provides the theoretical and practical knowledge required for correct viewing and interpretation of weld radiographs gained using digital radiography and classic film. Emphasis is on radiographic interpretation of welds, however the class is a good intro to digital radiography. Laptops with GE Rhythm software will be provided for the class. <p>Subjects covered include:</p> <ul style="list-style-type: none"> • Film processing, viewing and interpretation • Digital radiography (CR, DR and film digitizers) • Digital raw image and artifacts • Software tools and filters • Digital reference radiographs of steel castings • Radiography codes, interpretation and acceptance criteria for weldments

COURSE NAME	HOURS	TOPICS
<p>Visual Testing Level I and Level II</p>	24	<p>The Visual Testing course is a combination of two classes. The first being a Level I course which addresses the basics of visual testing to include basic visual testing principles, the human eye, lighting and physiological effects, tools used in visual testing, discontinuities evaluation and standards and specifications. The Level I class is an 8-hour course. The Level II course expands on the material presented in Level I and expands on the material attributes of materials, the human physiological effects and environmental conditions impacting visual tests. The Level II class is 16 hours and includes practical exercises.</p> <ul style="list-style-type: none"> • Principles of examining and evaluating results through direct visual examination • Basic principles of optics, light, material conditions, and discontinuities • Identification and evaluation • Hand tool measuring devices (callipers, micrometers, weld gauges, depth gauges – typical) • Visual aids (mirrors, magnifiers, and flashlights) • Borescopes (rigid) and fiberscopes (flexible) • Typical standards, codes, procedures, and reports • Vision • Lighting • Material attributes • Environmental and physiological factors • Visual perception • Equipment (borescopes, CCT cameras, fiberscopes, gauges and micrometers, RVI systems, magnifiers and mirrors) • Applications • Acceptance and rejection criteria • Typical standards, codes, procedures, and reports
<p>Mag Flux Level I</p> <p>This is a course that we typically do not schedule, but do have the capability to provide, if needed, as a component of a more comprehensive training package for your company.</p> <p>Contact Inspection.Academy@ge.com for more information.</p>	16	<ul style="list-style-type: none"> • History of flux leakage testing • Principles of magnetic fields • Indirect magnetism • Magnetization variables • Flux leakage • Search coils • Hall effect search units • Signal processing • Readout mechanisms
<p>Mag Flux Level II</p> <p>This is a course that we typically do not schedule, but do have the capability to provide, if needed, as a component of a more comprehensive training package for your company.</p> <p>Contact Inspection.Academy@ge.com for more information.</p>	12	<ul style="list-style-type: none"> • Flux leakage and magnetic theory • Types of sensing probes • Factors affecting flux leakage • Signal/noise ratios • Magnetization methods • Coupling • Signal processing and applications
<p>Magnetic Particle Level I¹ and Level II¹</p> <p>This is a course that we typically do not schedule, but do have the capability to provide, if needed, as a component of a more comprehensive training package for your company.</p> <p>Contact Inspection.Academy@ge.com for more information.</p>	20	<ul style="list-style-type: none"> • Principles of magnetics and magnetic fields • Flux patterns • Flux fields • Effects of discontinuities • Types of magnetization and demagnetization methods • Materials, methods, and equipment • Discontinuities and indications • Method selection • Demagnetization equipment • Evaluation techniques • Quality control equipment and processes
<p>Liquid Penetrant Testing (PT) Testing Levels I and II</p> <p>This is a course that we typically do not schedule, but do have the capability to provide, if needed, as a component of a more comprehensive training package for your company.</p> <p>Contact Inspection.Academy@ge.com for more information.</p>	24	<p>This three day course (24 Hr) combines Level I and Level II courses and explores theory involved with liquid penetrant inspection, equipment used, code and procedural development and hands-on demonstration of using penetrant inspections. This course meets or exceeds requirements of SNT-TC-1A.</p>

Educational Collaboration

Knowledge is a journey of discovery that never ends.

That is why we collaborate with universities, colleges, and industry leaders to make sure we are on the forefront of new NDT techniques and technologies. GE's significant resources—such as GE Global Research and our Technology Solutions Centers—help forge the strong relationships that provide the scale necessary to learn, develop, and shape the NDT industry.

If you have a challenge to overcome or you are ready to explore, we invite you to join us on this journey.

Pledge of Excellence

Our commitment to improving the skills of our customers extends to our employees as well. Investing in the education of our world-class NDT teams, across our portfolio of offerings, allows us to provide true experts in the inspection industry.

Questions?

If you have any questions, please call +1 (855) 232-7470 between 7:30 a.m.–5:30 p.m., U.S. Central Time, or e-mail Inspection.Academy@ge.com



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