

# Reach higher

With inspection Academy – Waygate  
Technologies Global Knowledge Center

[www.waygateinspectionacademy.com](http://www.waygateinspectionacademy.com)



# Sharing knowledge

## We know the value of investing in your success

That's why our Inspection Technologies business formed Waygate 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.

# Shaping technology

## 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 Waygate'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, ANSI/ASNT CP-105, and NAS 410. We also offer several courses on more advanced technologies or applications.



# Classroom sessions

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## 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 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 [waygateinspectionacademy.com](http://waygateinspectionacademy.com). We may be able to develop what you need.



# eLearning center

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## Learn when and where you want

Waygate'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 several 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.

### Training at customer locations

All our courses are available for training at your location. We can also customize a course for you. Training at your location is cost effective if you have 5 or more trainees by saving travel & living costs. The instructor travels to your location. Classes can also be scheduled for first or second shift so employees are available to work. We charge this service at a fixed cost. Please contact us for pricing and availability.

### Distance training – Instructor led webinars

A number of the more popular courses are available for distance training. These are live instructor led courses provided over the internet. Please check the Inspection Academy website for current offerings or please put in a course request if you want to see a particular class on the schedule.

# Classroom session course descriptions

The most up-to-date course calendar is available at [www.geinspectionacademy.com](http://www.geinspectionacademy.com)

Course name	Hours	Topics
<b>Eddy Current Testing Level I</b>	40	<p>This 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"> <li>• Eddy current theory</li> <li>• Instrument operation</li> <li>• Inspection parameters</li> <li>• Applications of meters and impedance plane displays</li> <li>• Types of coils, surface probes, flaw evaluation, conductivity, and crack detection</li> </ul>
<b>Eddy Current Testing Level II</b>	40	<p>This 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"> <li>• Theory and mathematics of alternating current and electrical circuits</li> <li>• Applications</li> <li>• Single- and multi-frequency crack detection</li> <li>• Plating and coating</li> <li>• Cladding and wall thickness</li> <li>• Conductivity measurement</li> <li>• Hardness and heat treatment</li> <li>• Inspection procedures</li> <li>• Calibration and acceptance standards</li> <li>• Categories of discontinuities</li> </ul>
<b>Magnetic Particle Level I' and Level II'</b> 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. Contact <a href="http://waygateinspectionacademy.com">waygateinspectionacademy.com</a> for more information.	20	<ul style="list-style-type: none"> <li>• Principles of magnetics and magnetic fields</li> <li>• Flux patterns</li> <li>• Flux fields</li> <li>• Effects of discontinuities</li> <li>• Types of magnetization and demagnetization methods</li> <li>• Materials, methods, and equipment</li> <li>• Discontinuities and indications</li> <li>• Method selection</li> <li>• Demagnetization equipment</li> <li>• Evaluation techniques</li> <li>• Quality control equipment and processes</li> </ul>
<b>Penetrant Testing (PT) Testing Levels I and II</b> 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. Contact <a href="http://waygateinspectionacademy.com">waygateinspectionacademy.com</a> for more information	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-1.</p>
<b>ASTM CR/DDA Process Control Course (System Qualification)</b>	24	<p>This 3-day theory and lab course is designed to give the student an understanding of the CR &amp; DDA process control requirements. The course will briefly review applicable CR &amp; DDA <b>ASTMs</b>, is designed around <b>ASTM e2245</b> for CR &amp; <b>E2737</b> for DDAS. There is a discussion of EPS plate use for CR. Rhythm software &amp; software tools will be used. Monitor-SMPTE pattern is also <b>2033 ASTM E 2007 ASTM E2446 ASTM E 2445 DDA ASTMs</b>.</p> <p>Reviewed: <b>ASTM E 2033 ASTM E 2007 ASTM E 2446 ASTM E 2445 DDA ASTMs</b>                      Reviewed: <b>ASTM E 2698 ASTM E 2736 ASTM E 2597 ASTM E 1695 ASTM E2737</b></p>
<b>Advanced Digital X-Ray Testing Level III</b>	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"> <li>• Advanced computed radiography</li> <li>• Digital detector array</li> <li>• Digital image conversion</li> <li>• Imaging techniques</li> <li>• DICONDE compliance</li> <li>• Computed tomography</li> <li>• Discussion of <b>ASTM E2033, E2445, E2597 and E2737</b></li> </ul>

Course name	Hours	Topics
<b>Basic Digital X-Ray Testing Level I</b>	40	<p>This is a 5-day course (40 hours) NAS410-style course is for beginning students in Digital Radiography. The course is designed to provide the required RT Level I basic Radiographic theory to understand and properly use digital Radiography. This course will cover both Computed Radiography and Digital Detector Arrays.</p> <p>Daily tests and a final examination will be administered to ensure each student's comprehension of the course material.</p>
<b>Computed Radiography</b> (ASTM E2445, ANSI/ASNT CP-105 & NAS 410)	40	<p>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 Waygate Technologies' 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> <p>Topics include:</p> <ul style="list-style-type: none"> <li>• Radiation safety</li> <li>• Exposure techniques</li> <li>• CR normalization</li> <li>• Overview of profile techniques for corrosion under insulation (CUI)</li> <li>• General discussion of DDAs</li> <li>• Casting discontinuities - digital reference radiographs</li> <li>• Weld discontinuities</li> <li>• Discussion of ASTM E2033 and E2445 codes</li> </ul>
<b>Digital Radiography</b> (ASTM E2737, ANSI/ASNT CP-105 & NAS 410)	40	<p>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 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> <p>Topics Include:</p> <ul style="list-style-type: none"> <li>• Radiation safety</li> <li>• General discussion of computed radiography</li> <li>• Overview of profile techniques for corrosion under insulation (CUI)</li> <li>• Digital detector arrays (DDAs)</li> <li>• DDA calibration</li> <li>• Digital reference radiographs</li> <li>• Digital image conversion</li> <li>• Imaging techniques</li> <li>• DICOMDE compliance</li> <li>• Computed tomography</li> <li>• Discussion of ASTM E2597 and E2737 codes</li> </ul>
<b>Digital Radiographic Interpretation</b>	40	<p>This Digital Radiographic Film Interpretation Course (5-day) revamps the classic film interpretation course by adding digital radiography and imaging software. Students will utilize 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 Rhythm software will be provided for the class.</p> <p>Subjects covered include:</p> <ul style="list-style-type: none"> <li>• Film processing, viewing and interpretation</li> <li>• Digital radiography (CR, DR and film digitizers)</li> <li>• Digital raw image and artifacts</li> <li>• Software tools and filters</li> <li>• Digital reference radiographs of steel castings</li> <li>• Radiography codes, interpretation and acceptance criteria for weldments</li> </ul>

<sup>1</sup> Does not meet NAS410 requirements.

# Classroom session course descriptions

The most up-to-date course calendar is available at [www.geinspectionacademy.com](http://www.geinspectionacademy.com)

Course name	Hours	Topics
<b>Digital Radiographic Interpretation &amp; Rhythm Software</b>	24	<p>Digital Radiographic Interpretation 3-day course is a Non-Film Radiographic Interpretation and Evaluation Class. This course provides the theoretical and practical knowledge required for correct viewing and interpretation of weld radiographs gained using digital radiography. The course is for those with a minimum of RT Level I. Laptops with rhythm software will be provided for the class.</p> <p>Subjects covered include:</p> <ul style="list-style-type: none"> <li>• Intro to Digital Radiography (CR, DR &amp; Film Digitizers)</li> <li>• Digital Raw Image and Artifacts</li> <li>• Rhythm Software tools and filters</li> <li>• Digital Reference Radiographs of Steel Castings</li> <li>• Radiography Codes, Interpretation and acceptance criteria for weldments</li> </ul> <p>This course is structured to meet and exceed the Requirements of The American Society for Non-destructive Testing (ASNT) recommended practice SNT-TC-1A-24 hour course and covers the topical outline of ASTM/ANSI CP-105 for Radiographic Interpretation and Evaluation</p>
<b>Intermediate Digital X-Ray Testing Level II</b>	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"> <li>• Intermediate computed radiography</li> <li>• Digital detector array</li> <li>• Digital image conversion and imaging techniques</li> <li>• DICOMDE compliance</li> <li>• Discussion of ASTM E2033, E2445 and E2597</li> </ul>
<b>X-ray Computed Tomography CT</b> Advanced Scan Operator/Intermediate Data Analyst	40	<p>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:</p> <ul style="list-style-type: none"> <li>• Apply safety regulations for operation of ionizing radiation equipment.</li> <li>• Demonstrate the proper set-up and reconstruction of a CT scan.</li> <li>• Select CT scan parameters to optimize image quality for specific applications.</li> <li>• Perform corrective actions for image quality issues and artifacts, including Feldkamp artifacts, insufficient images, and beam hardening.</li> <li>• Perform calibrations for metrology measurements.</li> <li>• Perform system quality checks to comply with industrial standards.</li> <li>• Understand analysis software and advanced analysis possibilities for CT measurements.</li> <li>• Identify CT applications for castings, turbine blades, automotive parts, composites, additive manufacturing, electronics, advanced materials, biological and geophysical specimens, and paleontology.</li> </ul>
<b>Radiography Testing Level I</b>	40	<p>This 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"> <li>• Radiation sources</li> <li>• Radiation safety</li> <li>• Radiography techniques</li> <li>• Image quality</li> <li>• Basic radiographic interpretation</li> </ul>
<b>Radiography Testing Level II</b>	40	<p>This 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"> <li>• Radiography calculations</li> <li>• Radiographic image quality</li> <li>• Radiography techniques</li> <li>• Digital Radiography</li> <li>• Radiography inspection codes and interpretation</li> </ul>

Course name	Hours	Topics
<b>Phased Array Week 1</b>	40	<p>This 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"> <li>• Sector and linear scans</li> <li>• Angle beam calibrations</li> <li>• Focal law verification</li> <li>• Phased array imaging</li> <li>• Phased array probes</li> <li>• Phased array in lieu of radiography</li> <li>• Weld inspection</li> </ul>
<b>Phased Array Week 2</b>	40	<ul style="list-style-type: none"> <li>• Calibrations, TCG and focusing</li> <li>• Top view (C-scan)</li> <li>• Encoders</li> <li>• Phased array applications</li> <li>• Weld inspection and weld flaw image interpretation</li> <li>• Flaw sizing with phased arrays</li> <li>• Overview of inspection codes</li> </ul>
<b>Phased Array Workshop</b>	32	<p>This 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"> <li>• Basic phased array theory</li> <li>• Phased array probes</li> <li>• Angle beam calibrations on a phased array flaw detector</li> <li>• Storing and recalling setups on a phased array flaw detector</li> <li>• Flaw sizing with phased array</li> <li>• Encoders</li> <li>• TOPView software</li> </ul>
<b>Ultrasonic Testing Level I</b>	40	<p>This 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"> <li>• Ultrasonic theory</li> <li>• Instrument operation</li> <li>• Inspection parameters</li> <li>• Thickness testing</li> <li>• Straight beam flaw detection and sizing</li> <li>• Calibration techniques for straight beam, dual element, delay-line, and angle beam transducers</li> </ul>
<b>Ultrasonic Testing Level II</b>	40	<p>This 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"> <li>• Angle beam flaw location and evaluation</li> <li>• Special instrument features</li> <li>• Equipment quality control</li> <li>• Flaw, sizing, manufacturing processes, their flaws</li> <li>• Proper and correct ultrasonic inspection</li> </ul>

<sup>1</sup> Does not meet NAS410 requirements.

Course name	Hours	Topics
Visual Testing Level I and Level II	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"> <li>• Principles of examining and evaluating results through direct visual examination</li> <li>• Basic principles of optics, light, material conditions, and discontinuities</li> <li>• Identification and evaluation</li> <li>• Hand tool measuring devices (calipers, micrometers, weld gauges, depth gauges – typical)</li> <li>• Visual aids (mirrors, magnifiers, and flashlights)</li> <li>• Borescopes (rigid) and fiberscopes (flexible)</li> <li>• Typical standards, codes, procedures, and reports</li> <li>• Vision</li> <li>• Lighting</li> <li>• Material attributes</li> <li>• Environmental and physiological factors</li> <li>• Visual perception</li> <li>• Equipment (borescopes, CCT cameras, fiberscopes, gauges and micrometers, RVI systems, magnifiers and mirrors)</li> <li>• Applications</li> <li>• Acceptance and rejection criteria</li> <li>• Typical standards, codes, procedures, and reports</li> </ul>





# 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. Waygate's significant resources—such as 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.

# 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.

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



## Questions?

If you have any questions, please call +1 832.325.4368 Option 5 between 7:30 a.m. – 5:30 p.m., U.S. Central Time, or e-mail [waygateinspectionacademy.com](mailto:waygateinspectionacademy.com)