

IALR NDT Classes

VT

Daily Lesson Plan

Program: Nondestructive Testing

Competency Area: Visual Testing (VT)

Materials: NDT Course Material Student Handout for Surface Methods

Week/Day: Day 1

Learning objectives: Describe the historical development of Visual Testing (VT) as an NDT method.

Explain the role of VT in the broader context of NDT techniques.

Identify key milestones and industry standards related to VT.

Summarize the advantages, limitations, and typical applications of VT.

Define critical NDT and welding terminology relevant to VT.

Differentiate between welding process terms and defect descriptions.

Classify types of discontinuities and defects detected by VT.

Interpret industry-standard definitions from applicable codes and standards.

Structure/Activity/Lab: PowerPoint & VT Lab #1 – Demonstration, Basic introduction and familiarization with VT concepts, PowerPoint & VT Lab #2 – Applying VT terminology and definitions in a practical setting

Assessments: Quiz #1, Quiz #2, Lab2 & Technical Performance Evaluations

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Week/Day: Day 2

Learning objectives: Identify primary fabrication and welding processes used in industry.

Recognize discontinuities commonly associated with each process.

Analyze how process variables influence defect formation.

Differentiate between process-related defects and service-induced damage.

Interpret welding and NDT symbols according to relevant standards.

Apply symbol interpretation to inspection planning and reporting.

Distinguish between different weld joint types using symbolic representation.

Translate drawing symbols into inspection requirements.

Structure/Activity/Lab: PowerPoint & VT Lab #3 – Recognizing discontinuities in welded and base materials

VT Lab #4 – Classifying defects by process type

VT Lab #5 – Hands-on identification of process-related defects

VT Lab #6 – Interpreting welding symbols on prints

VT Lab #7 – Translating symbols into inspection requirements

Assessments: Quiz #3, Quiz #4 & Technical Performance Evaluations

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Week/Day: Day 3

Learning objectives: Identify the types of equipment used in VT, including gauges, rulers, magnifiers, and lighting tools

Demonstrate proper use of each inspection tool for accurate measurements.

Evaluate lighting adequacy and measurement accuracy during inspection.

Select the correct tool for specific inspection tasks and conditions.

Structure/Activity/Lab: PowerPoint

VT Lab #8 – Calipers

VT Lab #15 – Bore Gauges

VT Lab #9 – Micrometers

VT Lab #16 – Depth Gauges

VT Lab #10 – Hi-Lo Gauges

VT Lab #17 – Feeler Gauges

VT Lab #11 – Fillet Weld Gauges

VT Lab #18 – Pit Gauges

VT Lab #12 – Bridge Cam Gauges

VT Lab #19 – Wire Gauges

VT Lab #13 – Rulers/Tape Measures

VT Lab #20 – Bevel Protractors

VT Lab #14 – Magnifiers

Assessments: Quiz #5 & Technical Performance Evaluations

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Week/Day: Day 4

Learning objectives: Apply acceptance criteria from TP-271 and MIL-STD-2035A to inspection findings.

Evaluate welds and components against specified standards.

Document inspection results according to code requirements.

Verify compliance through correct measurement, observation, and reporting.

Structure/Activity/Lab: PowerPoint & Integration of multiple prior labs into acceptance criteria evaluation exercises. Balance of Lab Exercises or specific exercises as determined by instructor

Assessments: Technical Performance Evaluations

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Week/Day: Day 5

Learning objectives: Verification of Student Understanding of body of knowledge

Structure/Activity/Lab: Testing

Assessments: VT Practical Exam

VT Final Written Exams