



COURSE TITLE : **MAGNETIC PARTICLE TESTING
LEVEL-I (ASNT: SNT-TC-1A: 2011)**

SPONSORING DEPARTMENT : **NON DESTRUCTIVE TESTING (NDT) TRAINING CENTER**

COURSE DESCRIPTION:

Fundamentals: Magnetic field principles, magnetization by means of electric current, demagnetization. Testing and inspection. Specific application: welded joints & forgings. The trainee will be capable of making judgment on selection between PT & MT methods.

LEARNING OBJECTIVES:

- ❑ Principles of Magnets and Magnetic Fields, Theory of magnetism, Type of Materials & Terminology associated with magnetic particle testing.
- ❑ Characteristics of Magnetic Fields & Effect of Discontinuities of Materials.
- ❑ Magnetization by Means of Electric Current; Circular field & longitudinal fields.
- ❑ Advantages & Disadvantages of Circular field/longitudinal magnetization.
- ❑ Selecting the Proper Method of Magnetization; Inspection Materials.
- ❑ Principles of Demagnetization & Magnetic Particle Testing Equipment.
- ❑ Types of Discontinuities; Indications and Interpretations.
- ❑ Testing of many numbers of flawed specimens using magnetic particle tests.

COURSE OUTLINE:

- ❑ Hands-On Practical on weld specimens with Plate, Pipe, T, Nod and Nozzle configurations.
- ❑ Hands-On Practical on Flawed forged specimens.
- ❑ Reviews & Discussions.
- ❑ Mock Up Tests, Home Works, and Examinations.
- ❑ Test will be conducted in 3 methods:
 1. General
 2. Specific
 3. Practical
- ❑ The candidate successfully completes the course if he gets a minimum score of 70% in each test (General, Specific and Practical) and a minimum of 80% for the average of 3 tests.

WHO SHOULD ATTEND THIS COURSE:

- ❑ Should be High School graduate of science branch (minimum recommended level of education).
- ❑ Should have a minimum experience of 70 hours in method and 130 hours in NDT.
- ❑ Certificates: Near Vision acuity (Jaeger Number 2 or Ortho-Rater 8), and Color Contrast Differentiation has to be submitted at the time of registration.

METHODOLOGY (THEORY/LAB. OR BOTH):

Theory and Lab.

MEDIUM OF INSTRUCTION:

English (course materials and visual aid packages are in English).

COURSE DURATION: 1 week

HOURS PER DAY: 7 hours

TOTAL HOURS: 35 hours



COURSE TITLE : **MAGNETIC PARTICLE TESTING
LEVEL-II (ASNT: SNT-TC-1A: 2011)**

SPONSORING DEPARTMENT : **NON DESTRUCTIVE TESTING (NDT) TRAINING CENTER**

COURSE DESCRIPTION:

Fundamentals: Magnetic field principles, magnetization by means of electric current, demagnetization. Testing and inspection. Specific application: welded joints & forgings. Interpretation and evaluation of test results. The trainee will be capable of making independent decisions after referring to the relevant codes and standards. Would be able to make judgment on selection between PT & MT methods.

LEARNING OBJECTIVES:

- Review of basic Principles; Flux Fields; Alternating & Direct pulsating currents.
- Factors affecting Depth of penetration.
- Effects of Discontinuities on Materials; Current calculation formulas.
- Current directional flow versus flux field; Discontinuities commonly detected.
- Selecting the Proper Method of Magnetization; Sequence of operations.
- Demagnetization Procedures & Need for demagnetization of parts.
- Equipment; Black light type; Light characteristics & Tests for black light intensity.
- Quality Control of Equipment and Processes; Malfunctioning of equipment.
- Bath concentration; Settling & Other bath-strength tests.
- Testing of many numbers of flawed specimens using magnetic particle tests.
- Interpreting results based on ASTM/ ASME standards and specifications.
- Interpret the Company Procedure to perform acceptance/rejection.

COURSE OUTLINE:

- Hands-On Practical on weld specimens with Plate, Pipe, T, Nod and Nozzle configurations.
- Hands-On Practical on Flawed forged specimens.
- Reviews & Discussions.
- Mock Up Tests, Home Works, and Examinations.
- Test will be conducted in 3 methods:
2. General 2. Specific 3. Practical
- The candidate successfully completes the course if he gets a minimum score of 70% in each test (General, Specific and Practical) and a minimum of 80% for the average of 3 tests.

WHO SHOULD ATTEND THIS COURSE:

- Should be High School graduate of science branch (minimum recommended level of education).
- Should have a minimum experience of 210 hours in method and 400 hours in NDT.
- Certificates: Near Vision acuity (Jaeger Number 2 or Ortho-Rater 8), and Color Contrast Differentiation has to be submitted at the time of registration.

METHODOLOGY (THEORY/LAB. OR BOTH):

Theory and Lab.

MEDIUM OF INSTRUCTION:

English (course materials and visual aid packages are in English).

COURSE DURATION: 1 week

HOURS PER DAY: 7 hours

TOTAL HOURS: 35 hours