PD389
ASME BPV Code, Section V: Nondestructive Examination Requirements

Day One
- Introduction; Program overview/ Course objectives
  - History and development of NDE
  - Development of the new NDE methods (i.e. Phased Array UT, Digital RT)
  - Terminology: Key definitions used in NDE
  - Conditions necessary for effective NDE
  - NDE variables
  - Codes / specifications and procedures
  - Personnel considerations: Levels of qualifications and certifications
  - Certification programs: ASNT SNT-TC-1A, CP-189, NAS 410, ISO 9712
  - Origin, types, severity and characteristics of material discontinuities
  - Classification and interpretation of discontinuities

- Visual Testing (VT)
  - Basic principles; Advantages and limitations
  - Examination techniques - direct / indirect / translucent
  - Equipment - optical aids, mirrors, fibroscope, videoprobes
  - Procedures and evaluation
  - Importance of complete / accurate reporting
  - Applications – welds, vessels, components
  - Typical examination nonconformance’s
  - Visual examinations of welds

Day Two
- Penetrant Testing (PT)
  - Basic principles; Advantages and limitations
  - Different examination techniques - solvent removable, fluorescent, post-emulsification)
  - Equipment - portable, systems, accessories
  - Process variables
  - Procedures and evaluation
  - Importance of complete / actuate reporting
  - Applications – welds, vessels, components
  - Typical examination nonconformance’s

- Magnetic Particle (MT)
  - Basic principles; Advantages and limitations
  - Different examination techniques (direct and indirect)
  - Equipment (permanent magnets, yokes, prods, wet horizontal)
  - Process variables
  - Procedures and evaluation
  - Importance of complete / actuate reporting
  - Applications – welds, vessels, components
  - Typical examination nonconformance’s

- Radiographic Testing (RT)
- Basic principles; Advantages and limitations
- Nature and characteristics of radiation
- Safety considerations
- Equipment - stationary / portable
- Examination techniques - gamma, x-ray
- RT procedures
- Film processing considerations: quality levels, film density, viewing considerations
- Interpretation and evaluation of radiographs
- Importance of complete / actuate reporting
- Applications – welds, pressure vessels, castings
- Typical examination nonconformance’s
- Review of radiographic images

Day Three
- Ultrasonic Testing (UT)
  - Basic principles; Advantages and limitations
  - Nature and characteristics of sound generation
  - Wave modes
  - Different examination techniques - contact, immersion, thickness
  - Equipment (instrumentation, transducers)
  - Variables – material structure, surface, configuration
  - Procedures and evaluation
  - Importance of complete / accurate reporting
  - Applications – welds, pressure vessels, components
  - Typical examination nonconformance’s

- Eddy Current Testing (ET)
  - Basic principles; Advantages and limitations
  - Nature and characteristics of electromagnetic induction
  - Conductivity, permeability and other key terms
  - Different examination techniques
  - Equipment - instrumentation, probes, standards
  - Variables – materials, frequency, surface, etc.
  - Procedures and evaluation
  - Importance of complete / accurate reporting
  - Applications - weld inspection, coating measurements, tubing inspection, sorting
  - Typical examination nonconformance’s