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NASA
NON-DESTRUCTIVE ACADEMY OF SOUTH AFRICA

BINDT
THE BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING

APPROVED TRAINING ORGANISATION

Nasa 278 Radiographic Interpretation Curriculum

Revision control sheet:

Rev No:	Date:	Compiled by:	Reviewed by:	Revision Description:
0	02-Jan-2019	Meyuri Moodley	Nishaan Kanhaye	Implemented into QMS.
1	07-Jan-2020	Meyuri Moodley	Nishaan Kanhaye	Clause 3.1 made reference to visual testing in error. Changed to Radiographic Interpretation.

1.0 Course Duration:

1.1 Level 2:

a) The minimum training hours administered in Level 2 shall be 56.

2.0 Course Content:

2.1 Theory: The table below shows theory aspects covered:

Chapter Reference:	Level 2:
Chapter 1:	Introduction Terminology History Advantages and Limitations of Industrial Radiography
Chapter 2:	Properties of X and Gamma Rays Electro-Magnetic Radiation
Chapter 3:	Electro-Magnetic Radiation Wavelength (λ) Frequency (Hz) Velocity (m/s)
Chapter 4:	Absorption Scatter Rayleigh scattering
Chapter 5:	Production of X-Rays Circuits for X-rays Production Self-rectification Full wave rectified AC Fully rectified Tube Linear Accelerations (Linac), High Energy Machine and Betatrons Betatron Gamma Ray Sources Atom Particulate Radiation Electromagnetic Radiation Properties of Gamma Rays Production of X and Gamma Rays
Chapter 6:	X-ray Film Density Characteristic Curve Characteristic (H & D) Curve Contrast and Latitude Film Speed Intensifying screens Fluorescent (Salt) Screens Metal Screens Fluorometallic Screens Real Time (Fluoroscopic) System
Chapter 7:	Film Processing Automatic Processing Film Processing Faults

Chapter 8:	Sensitivity Factors affecting sensitivity Subject Contrast Film Contrast Geometric Factors Formula for Geometric Unsharpness Graininess Factors Film Inherent Unsharpness (U_f) The Inverse Square Law The Reciprocity Law Safety Formula Exposure Calculation Formula
Chapter 9:	Measurement of Exposure and Sensitivity Exposure Chart X-rays Radiographic Sensitivity Wire Image Quality Indicators EN462-1 Wire IQI Step Hole Plaque Type IQI Step (Plaque)/Hole American IQIs (Penetrameter)
Chapter 10:	Isotopes used in Radiography
Chapter 11:	Calculation Information for Radiography Exposure Reciprocity Law Inverse Square Law Exposure varies directly as the square of the distance Geometric Unsharpness Radiographic Sensitivity Intensity at 1m from 1 GBq Tenth/half value Layers (mm) Density Conversion Chart

2.2 Practical: The table below shows practical aspects covered:

Level 2:
Selection of Radiographic Interpretation technique for the test method being used. Define the limitations of the test method. Pre-test Checks (Calibrate and verify test equipment) Interpretation and evaluation according to codes, specifications or procedures. Report the results of Radiographic Interpretation tests.

3.0 Learning outcomes:

3.1 Upon completion of training, students should be able to carry out and understand the following regarding Radiographic Interpretation:

Level 2:
Basic principles General advantages and limitations Discontinuity associated with manufacturing processes, categories and types Select test technique to be used Interpret codes, specifications and procedures Compile instructions according to specifications, codes or procedures Carry out pre-test checks, set up equipment, perform tests and report results Interpret and evaluate test results according to specifications, codes or procedures

4.0 Course Outcome:

4.1 Successful Completion of Training:

Upon successful completion of the course, a successful completion of training certificate at the level attempted will be issued which meets eligibility to undertake the external PCN examination.