

NON-DESTRUCTIVE ACADEMY OF SOUTH AFRICA
 DURBAN BRANCH
 3 PASTOLL ROAD
 SARNIA
 PINETOWN
 3610
 TEL : 031 708 3433
 CELL : 083 321 0618
 FAX : 086 500 7979
 EMAIL : nish@nondestructive.co.za
 WEB : www.nondestructive.co.za



BINDT
 THE BRITISH INSTITUTE OF
 NON-DESTRUCTIVE TESTING



APPROVED TRAINING ORGANISATION

Non-Destructive Academy of South Africa	Document Title	: Visual Testing Curriculum
Compiled By : Miechaal Sewcoomar: PT,MT PCN L2D	Document Number	: NASA 237
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Visual Testing Curriculum

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Revision control sheet:

Revision No:	Revision Description:
0	First draft of document
1	Revised toward improvement Name change Aligned to BINDT approved course notes

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1.0 Course Duration:

1.1 Level 1 and 2 Combined:

- a) The minimum training hours administered in Level 1 shall be 16.
- b) The minimum training hours administered in Level 2 shall be 24.
- c) For Level 1 and 2 combined courses the total training hours shall be a minimum of 40.

1.2 In all cases, level 1, level 2 or combined level 1 and 2, NASA shall administer the full theory content of Level 1 and 2.

2.0 Course Content:

2.1 Theory: The table below shows theory aspects covered:

Chapter Reference:	Level 1 and 2 Combined Content:
Chapter 1: Qualification, Certification and Authorisation	SNT-TC-1A and ISO 9712 Levels of Qualification
Chapter 2: Introduction and Purpose	Introduction Definitions Brief overview of procedure Advantages Disadvantages
Chapter 3: Vision	Human vision The eye How the eye works Inside your eye Colour blindness Visual acuity Eye disorders Optic nerve disorders Retinal disorders Eye test requirements for NDT Types of vision tests Eye adaptation Mesopic vision Scotopic vision Visual perception Vision error of parallax

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<p>Chapter 4: Physics of Light</p>	<p>Physics of light Luminous flux Luminous intensity Luminance Illuminance Luminous efficiency Theories of light Properties of light Reflection of light Refraction of light Dispersion of light Diffraction of light Light absorption, reflection and transmission Visible light reflection and transmission Where does colour come from Lighting measurements Light sources</p>
<p>Chapter 5: Visual Testing Equipment</p>	<p>Light measurement equipment Inspection mirrors Magnifiers Borescopes Vernier callipers Spring joint callipers Micrometres Rulers Protractors Block mounted pointers V blocks Dividers Screw pitch gauge</p>
<p>Chapter 6: Product Knowledge Related to VT</p>	<p>Welding Types of joints Weld preparations Defects in steel Castings Forgings Valves Pumps Bolting Supports</p>

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Chapter 7: Gauges	Fillet welding gauge Digital welding gauges Adjustable fillet welding gauge Automatic weld size welding gauge Bridge cam gauge Digital pit gauge Socket weld gauge HI-LO welding gauge Pit gauge Pocket bridge cam gauge Taper gauge Weld profile gauge W.T.P.S gauge with calibration block
Chapter 8: Material Attributes Affecting Visual Testing	Cleanliness Lighting Access and viewing distance Viewing angles and distances
Chapter 9: Cleaning Methods and Surface Preparation	Methods of cleaning Dry abrasive blasting Wet blasting Steam cleaning Wire brushing Grinding Scrapers Flame cleaning Paint strippers Vapour degreasing Solvent Cleaning Detergent Cleaning Surface profile and finish
Chapter 10: VT Procedure	The Visual Testing technique Visual Testing procedure
Chapter 11: VT Report	VT Test Report
Chapter 12: VT Imperfection Recording	VT imperfection recording sketch

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2.2 Practical: The table below shows practical aspects covered:

Level 1 and Level 2 Combined:
Pre-test checks and calibrations Surface preparation and pre-cleaning Identifying specimen reference points Visual Testing of specimens in accordance to instructions Reporting of defects Instruction writing Equipment selection Interpretation of codes, specifications and acceptance criteria's

3.0 Learning outcomes:

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

Level 1 and Level 2 Combined:
Basic principles General advantages and disadvantages Discontinuities associated with manufacturing processes Select test equipment to be used Interpret codes, specifications and procedures Compile instructions 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.

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