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BINDT
 THE BRITISH INSTITUTE OF
 NON-DESTRUCTIVE TESTING



APPROVED TRAINING ORGANISATION

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NASA 237

Visual Testing Curriculum

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Revision control sheet:

Rev No:	Date:	Compiled by:	Reviewed by:	Revision Description:
0	n/a	Nish Kanhaye	Nish Kanhaye	First draft of document.
1	09-Jan-2018	Miechaal Sewcoomar	Nish Kanhaye	Revised toward improvement. Name change. Aligned to BINDT approved course notes.
2	02-Apr-2025	Acacia Sureschandra	Nish Kanhaye	The document format was updated.

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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:
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
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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>
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<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>
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<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	<ul style="list-style-type: none"> 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
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Chapter 8: Material Attributes Affecting Visual Testing	<ul style="list-style-type: none"> Cleanliness Lighting Access and viewing distance Viewing angles and distances
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Chapter 9: Cleaning Methods and Surface Preparation	<ul style="list-style-type: none"> 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
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Chapter 10: VT Procedure	<ul style="list-style-type: none"> The Visual Testing technique Visual Testing procedure
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Chapter 11: VT Report	<ul style="list-style-type: none"> VT Test Report
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Chapter 12: VT Imperfection Recording	<ul style="list-style-type: none"> 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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