Contents	Level 1	Level 2	Level 3 (Note 1)
1.0 Principles of phased array probes	1.0. Array of piezo-electric elements 1.1 Delays 1.2 Control of beam shape and angle 1.3 Laws 1.4 Fundamental principles of probe performance and design	1.1. Array of piezo-electric elements 1.1 Delays 1.2 Control of beam shape and angle 1.3 Laws 1.4 Fundamental principles of probe performance and design	Not Presented
2.0 Principles of inspection sensitivity	2.0 Reference reflectors 2.1 Sensitivity to misaligned defects	2.0 Reference reflectors 2.1 Sensitivity to misaligned defects	Not Presented
3.0 Phased array instrument	3.0 Control panel including input and output sockets 3.1 Block diagram of internal circuit modules	3.0 Control panel including input and output sockets 3.1 Block diagram of internal circuit modules	Not Presented

4.0 Scanning with phased array probes	4.0. Swept beams 4.1. Linear scans 4.2. Fixed beam scans 4.3. Line scans – raster scans	4.4. Swept beams 4.5. Linear scans 4.6. Fixed beam scans 4.7. Line scans – raster scans	Not Presented
5.0 Calibration and checks	5.0 Checking probe elements 5.1 Beam angles and offsets/index point 5.2 Beam shape	5.0 Checking probe elements 5.1 Beam angles and offsets/index point 5.2 Beam shape	Not Presented
6.0 Software for data collection	6.0 Fie structure 6.1 Basic interface and windows options or panes 6.2 Status bar 6.3 Setup parameters 6.4 Inspection sequence –tabs: sequence and encoder settings 6.5 UT settings –tabs: acquisition, probe, configuration, etc. 6.6 Data acquisition controls and protocol 6.7 Acquisition toolbar 6.8 Online views of data presentation	6.0 Fie structure 6.1 Basic interface and windows options or panes 6.2 Status bar 6.3 Setup parameters 6.4 Inspection sequence –tabs: sequence and encoder settings 6.5 UT settings –tabs: acquisition, probe, configuration, etc. 6.6 Data acquisition controls and protocol 6.7 Acquisition toolbar 6.8 Online views of data presentation 6.9 Analysis mode 6.10 Data analysis view types 6.11 Analysis tools 6.12 Volumetric image merging principles	Not Presented

7.0 Principles of data analysis	Not Applicable	7.0 Review of data analysis for conventional ultrasonic inspection image formats and specific application to ultrasonic phased arrays	Not Presented
8.0 Software familiarity	8.0 Displays and display types – options available to customise these including echo-dynamic patterns B, C, D scan formats and merged volumetric views 8.1 Cursors and gates 8.2 Reporting and data file conversions available 8.3 Saving files	8.0 Volumetric merge options 8.1 Displays and display types – options available to customise these including echo-dynamic patterns B, C, D scan formats and merged volumetric views 8.2 Soft gain and thresholds including gating and DAC curves 8.3 Overlays – creating and importing/manipulating 8.4 Cursors and gates 8.5 Reporting and data file conversions available 8.6 Saving files	Not Presented
9.0 Use of software tools for defect detection and sizing	Not Applicable	9.0 Use of software tools for defect detection and sizing	Not Presented

10.0 Data analysis	Not Applicable	10.0 Data analysis	Not Presented
11.0 Procedures for verification of flaw existance and position	11.0 Procedures for verification of flaw existance and position	11.0 Procedures for verification of flaw existance and position	Not Presented
12.0 Reporting	12.0 Reporting	12.0 Reporting	Not Presented

Note 1: Phased Array level 3 course not available through ANDTc