Eddy current testing (ET) — Levels 1, 2 and 3

The eddy current testing training shall be in accordance with Tables 5 and 6. (ISO/TS 25107:2019(E))

Table 5 — General content

Content	Level 1 (% of total duration)	Level 2 (% of total duration)	Level 3 (% of total duration)
7.1 Introduction to terminology and history of eddy current testing (ET)	1	1	2
7.2 Physical principles of the method and associated knowledge	15	16	17
7.3 Product knowledge and capabilities of the method and its derived techniques	10	10	15
7.4 Equipment	24	17	15
7.5 Information prior to testing	4	19	26
7.6 Testing	37	19	4
7.7 Evaluation and reporting	5	8	8
7.8 Assessment	0.0	4	4
7.9 Quality aspects	4	4	4
7.10 Developments	0.0	2	5

Table 6 — Eddy current testing (ET) — Levels 1, 2 and 3

Content			Level 1	Level 2	Level 3
7.1 Introduction to terminology and history of eddy current testing (E T)	History		X	X	X
	Purpose of NDT	What is testing?	X	X	X
		[illegible]	X	X	X
		[illegible]	X	X	X
		[illegible]	X	X	X
		[illegible]	X	X	X
		[illegible]	X	X	X
	Purpose of eddy current testing (ET)	[illegible]	X		
		[illegible]	X		
7.2 Physical principles and associated knowledge concepts necessary for understanding the physical principles of eddy current	Electricity	[illegible]	X	X	X
		[illegible]	X	X	X
		[illegible]	X	X	X
		[illegible]	X	X	X
		[illegible]	X	X	X
		[illegible]	X	X	X
		[illegible]	X	X	X
		— Conductivity	X	X	X
		Units	X	X	X
		— Conductivity values for some	X	X	X

(physics, mathematics) may be the object of a preliminary course		metals			
		Alternating current	X	X	X
		— Sinusoidal current	X	X	X
		— Voltage	X	X	X
		— Amplitude	X	X	X
		— Frequency	X	X	X
		— Period	X	X	X
		[illegible]	X	X	X
		[illegible]		X	X
		[illegible]			X
	Magnetism	[illegible]	X	X	X
		[illegible]		X	X
		[illegible]	X	X	X
		[illegible]	X	X	X
		[illegible]	X	X	X
		[illegible]	X	X	X
		[illegible]	X	X	X
		[illegible]	X	X	X
		[illegible]		X	X
		[illegible]		X	X
		[illegible]		X	X
		[illegible]		X	X
		[illegible]		X	X
	Electromagnetism	[illegible]	X	X	X
		[illegible]	X	X	X
		[illegible]	X	X	X
		[illegible]		X	X
		[illegible]	X	X	X
		[illegible]	X	X	X
		[illegible]	X	X	X
		[illegible]	X	X	X
		[illegible]	X	X	X
		[illegible]		X	X
		[illegible]	X		
		[illegible]		X	X
		[illegible]	X	X	X
		[illegible]	X	X	X
		[illegible]		X	X
		[illegible]	X	X	X
		[illegible] Penetration		X	X
		Impedance	X	X	X
		— Complex plane representation		X	X
		— Impedance plane diagrams		X	X

	Alternative techniques	Pulsed eddy current			X
		Magnetic field sensors			X
		Alternating current field measurement			X
		Remote field eddy currents			X
	Simulation	Analytical calculation of eddy current tests			X
7.3 Product knowledge and related capability of the method and derived techniques	Defectology			X	X
				X	X
				X	X
				X	X
				X	X
				X	X
				X	X
				X	X
				X	X
				X	X
				X	X
				X	
				X	
				X	
				X	
				X	
				X	
				X	
				X	
	Applications of eddy current testing		X	X	X
			X	X	X
	Capabilities		X	X	X
		Conductive materials	X	X	X
		Non-contact	X	X	X
		High speed	X	X	X
		High temperature	X	X	X

		Multiplexed arrays	X		
		Mechanized	X	X	X
	Techniques	Single frequency	X	X	X
		Multifrequency	X	X	X
		Multiparameter	X	X	X
		Pulsed current		X	X
		Multiplexed arrays		X	X
		[illegible]		X	X
		[illegible]		X	X
	Codes and standards			X	X
7.4 Equipment	Eddy current testing system	[illegible]	X	X	X
		[illegible]		X	X
		[illegible]		X	X
		[illegible]			X
		[illegible]			X
		[illegible]			X
		[illegible]		X	X
		[illegible]	X	X	X
		[illegible]		X	X
		[illegible]		X	X
		[illegible]		X	X
		[illegible]		X	X
		[illegible]		X	X
		[illegible]		X	X
		[illegible]	X	X	X
		[illegible]	X	X	X
		[illegible]	X	X	X
		[illegible]		X	X
	Output and signal display	[illegible]	X	X	X
		[illegible]	X	X	X
		[illegible]	X	X	X
	Reference blocks	[illegible]	X	X	X
		[illegible]		X	X
		[illegible]		X	X
		[illegible]		X	X
	Codes and standards			X	X
7.5 Information prior to testing	Information about the test object	[illegible]	X		
		Identification or designation material	X	X	X
		— Object to be tested	X	X	X
		— Kind of manufacture	X	X	X
		— Catalogue of defects		X	X

		— Extent of test coverage		X	X
	Test conditions and application of standard	Accessibility		X	X
		Temperature			X
		Humidity			X
		Availability			X
		Unwanted interfering signals			X
		E			X
		I			X
		P		X	X
		A		X	X
		S ce l ed o			X
		S o		X	X
		P l		X	X
		A		X	X
	Technique and sequence of performing test	S		X	
		S		X	
		P		X	
		P		X	
		P		X	
	Instructions	P re			X
		P i		X	
		P a i	X		
		I			X
		P c			X
7.6 Testing	Probe selection as a result of 7.5	P		X	X
		–		X	X
		–		X	X
		–		X	X
		– ht		X	X
		–		X	X
		–		X	X
		–		X	X
	Operating conditions as a result of 7.5	–		X	X
		–		X	X
		–		X	X
		–		X	X
		— Interfering signals		X	X
		— Electric and/or magnetic disturbances		X	X
	Parameters	Excitation frequency	X	X	X
		Auxiliary frequencies	X	X	X

		Probe speed	X	X	X
		Probe clearance	X	X	X
		Probe vibration	X	X	X
		Probe centering	X	X	X
	Adjustment curves		X	X	X
	Settings		X	X	X
				X	X
			X	X	
7.7 Evaluation and reporting	Reporting			X	X
			X	X	X
	Evaluation			X	X
				X	X
				X	X
				X	X
7.8 Assessment	Evaluation and confirmation of test reports			X	X
					X
7.9 Quality aspects	Factors affecting quality of testing		X	X	X
			X	X	X
					X
					X
					X
					X
				X	
			X		
				X	X
				X	X
	Knowledge of applicable NDT application and product standards			X	
				X	
				X	X
			X	X	X
			X	X	X
7.10 Developments	General information				X
		— Magneto-optical imaging			X
		— SQUID			X
		— Giant magneto-resistance			X
		Imaging			X
		Modelling			X