

Section	Course Modules	VT-1a	VT-2a	VT-2b	VT-3a	VT-4a
		1-day	2-day	2-day	3-day	4-day
Pipework Vibration Theory						
	Basic Vibration		√	√	√	√
	Structural and Acoustic Resonance		√	√	√	√
	Main causes & consequences of vibration problems	√	√	√	√	√
	Basic Fatigue		√	√	√	√√
	Basic Assessment Methodology	√	√	√	√	√
Calculation Methods						
	Main line Qualitative LOF Assessment	√	√	√	√	√
	Quantitative LOF Assessment - Flow Induced Vibration (FIV)		√	√	√	√
	Quantitative LOF Assessment – Mechanical Excitation		√		√	√
	Quantitative LOF Assessment – Pulsation					√
	Quantitative LOF Assessment – Acoustic Induced Vibration (AIV)		√		√	√
	Quantitative LOF Assessment – Valves					√
	Quantitative LOF Assessment – Cavitation and Flashing					√
	Quantitative LOF Assessment – Small Bore Connections		√	√	√	√
	Quantitative LOF Assessment – Thermowells		√		√	√
Assessments and Analysis						
	Visual Inspection	√	√	√	√	√√
	Basic Vibration measurements	√	√	√√	√	√√
	Basic Vibration analysis	√	√	√√	√	√√
	Basic Strain measurements		√	√	√	√
	Basic Strain analysis and fatigue Life estimation		√	√	√	√
	Specialist Techniques		√	√	√	√√
	Natural Frequency Determination				√	√
Corrective Actions						
	Main line corrective actions	√	√	√	√	√√
	Good design practice Summary	√	√	√	√	√
	SBC Bracing		√	√	√√	√√
	Dynamic Vibration Absorbers (DVA)		√	√	√	√√
	Visco-Elastic dampers		√	√	√	√√
Practical Sessions						
	Practical Visual Inspection Exercises		√	√√	√√	√√
	Practical Vibration Instrumentation Familiarisation Exercises			√√	√√	√√
	Practical Vibration Exercises			√√	√√	√√
	Practical Natural Frequency Determination Exercises				√	√√
	Practical Strain Exercises			√	√	√√
Worked Examples						
	Worked Example 1 – SBC LOF calculation Types 1 - 4					√
	Worked Example 2 – Flow Induced Vibration					√
	Worked Example 3 – Flow Induced Pulsation					√
	Worked Example 4 – Surge/Momentum Change					√
	Worked Example 5 – Intrusive Elements					√