Standard Vibration Training Course – List of Contents

Basic Level I		Intermediate Level II		Advanced Level III	
Theory Contents					
Speaker introduction. Course objectives.		Speaker introduction. Course objectives.		Speaker introduction. Course objectives.	
What's vibration? Where can we find vibrations in the real world? Some vocabulary used in vibration testing.	0:15	Introducing damping. Q factor definitions	0:30	Simulating vibration signals from the real environment. Iteration vs on-line control	0:15
Sinusoidal vibration. Frequency-displacement-velocity-acceleration. Units; testing profiles	1:15	Advanced programming of sine testing Advanced programming of random testing	1:00	SRS shock response spectrum	0:30
Resonance search and dwell; Transmissibility plot. Isolation systems	0:45	Mixed modes; Sine on Random; Random on Random	0:15	Kurtosis; Degrees of freedom; averages. promediados. Confidence level. Statistical accuracy.	0:45
Vibración random. PSD. ISO 5344	0:45	Single axis vibration vs multiaxis vibration. Tests using multiple exciters. MIMO	0:30	HALT&HASS. Fundaments and testing systems	00:30
Classical Shock		Control strategies	0:30	Transport simulation. Packaging testing. Cushioning material vibration and shock characterization	1:00
	3:00		2:45		3:00
Practical Contents					
Setting up and running a sine test	0:10	Advanced parameters in a sine test. Practical set up.	0:20	Setting up a real environment replication test. Practical set up.	0:20
Setting up and running a random test	0:10	Advanced parameters in a random test. Practical set up.	0:20	SRS programming. Practical set up.	0:20
Setting up and running a classical shock test	0:10	Advanced parameters in a classical shock test. Practical set up.	0:15	Practial examle of a head expander vibration response characterisation	0:30
		Sine on Random set up	0:10	How kurtosis changes a random test. Practical example.	0:20
		Random on Random set up	0:10		
	0:30		1:15		1:30
Testing Equipment Contents					
Different types of vibration test systems (mechanical, pneumatic, electrodynamic and electrohydraulic)	1:30	Comprehensive discussion of electrodynamic shakers. ED shaker. Power amplifiers Blower/cooling unit Vibration isolation systems Vibration sensors Slip tables Head expanders	1:45	Low frequency tests with ED shakers. Checking specific package vibration standards. ISTA; ASTM; ISO.	0:45
Choosing a shaker type. General guides. Shakers limits.		Advanced vibration sensors	0:15	Combined vibration/climate tests (temperature, humidity, altitude.)	0:30
Vibration Servocontrollers	0:30			Vibroacoustic testing.	0:10
Vibration sensors. Accelerometers				Multiaxis vibration controllers introduction.	0:20
	2:00		2:00		1:45
Standards Contents					
What we need to know of a test. Checking the standards. Practical examples.	0:45	Vibration testing in Automotive Industry; Squeak & rattle Testing; Battery testing.	0:20	How to build up a standard. From the field to the Lab. Real data vs Standards. Data loggers.	0:45
Vibration testing laboratory lay-out tips.	0:30	Aeronautics testing distinctive features	0:20		
Servicing a vibration test system. What to remember.	0:15	Vibration testing in the military world.	0:20		
	1:30		1:00		0:45
	7:00		7:00		7:00