

AdvEnSys (Advanced Engineering Systems)

TRAINING COURSES

AdvEnSys offers Environmental Testing training courses. The course content includes theoretical concepts needed to understand the physical basis behind each type of test, which are mainly oriented to allow the testing technician to understand the tests and to perform them according to the relevant standards.

Every course is taught either in-person or on-line. They are flexible in duration, content and with a limited number of attendants. Courses can be open for the general public or addressed to one or a group of companies. In this case, topics can be customized to cover the most relevant tests for those companies. Practical sessions on user's equipment are available also.

Course duration can be one, two or three consecutive days or, for example, every afternoon a week or just Mondays and Fridays for three weeks. Whenever available, practical training on real equipment will be included to supplement the theoretical concepts explained in the classroom.

Course content can cover any of the following subjects:



VIBRATION.- Split in three levels, it covers from basic vibration theory concepts to advance programming techniques. Vibration testing modes and different shock pulses are addressed in both theoretically and practical sessions. Vibration test systems latest developments are shown to keep the attendants updated to the latest designs. Other topics included in the training are fixtures, multiaxis testing, understanding standards, laboratory lay-out tips and maintenance.



CLIMATE.- Temperature, humidity, corrosion, altitude, vacuum, solar radiation, HALT/HASS testing, climatic/vibration combined testing, rolling bench chambers interfaces, Thermal shock, rapid and explosive decompression, rain, wind and sand testing.



TRANSPORT SIMULATION.- Packaging testing; Vibration, Shock, SRS, Drop, Compression, Climate; Cushioning materials dynamic characterization; real shipping environment data logging; dangerous goods testing,...



SPECIFIC STANDARD TESTING COURSES.- MIL-STD 810H; DEF-STAN 0035 Part 3; ECSS-E-10-03C; IEC 60068-2-XX; NASA-STD-7003A, RTCA DO-160G, ISTA, ASTM ,...

Standard Vibration training Course - list of contents

BASIC LEVEL I	ADVANCED LEVEL II	PROFICIENCY LEVEL III
Vibration testing essentials	Expanded knowledge	Getting to the details
Theory contents		
What's vibration and where we can find them Sinusoidal vibration. testing profiles Resonance search and dwell; Transmissibility plot. Isolation systems Random vibration. PSD. ISO 5344 Classical Shock	Introducing damping. Q factor definitions Advanced programming of sine and random testing Mixed modes; Sine on Random; Random on Random Single axis vibration vs multiaxis vibration. MIMO Control strategies	Simulating vibration signals from the real environment. SRS shock response spectrum Kurtosis; DoF; averages; confidence level; Statistical accuracy. HALT&HASS. Fundamentals and testing Transport simulation.
Practical contents		
Setting up and running a sine test Setting up and running a random test Setting up and running a classical shock test	Advanced sine test. Practical set up. Advanced random test. Practical set up. Advanced classical shock test. Practical set up. Sine on Random & Random on Random set up	Setting up a real replication test. Practical set up. SRS programming. Practical set up. Head expander vibration response characterisation How kurtosis changes a random test.
Testing equipment contents		
Different types of vibration test systems. Choosing a shaker type. General guides. Shakers limits. Vibration Servo controllers. Accelerometers	ED shakers comprehensive discussion. System components Advanced vibration sensors	Low frequency tests with ED shakers. Combined vibration/climate/altitude test. Multiaxis vibration controllers introduction
Standards contents		
What we need to know of a test. Checking the standards. Vibration testing laboratory lay-out tips. Servicing a vibration test system. What to remember.	Automotive Industry; Squeak & rattle Testing; Battery testing. Aeronautics testing distinctive features. Vibration testing in the military world.	How to build up a standard. Data gathering and conversion into a profile Checking specific package vibration standards.