Understanding MIL-STD-810G

Course No. 451

INTRODUCTION The United States Department of Defense's MIL-STD-810G, *Environmental Engineering Considerations and Laboratory Tests*, released 31 October, 2008, is the most comprehensive collection of test methods and guidance for using them available today. It covers 29 basic tests with numerous procedures for most of them. Almost all the tests can be tailored to some degree, to ensure that the testing will meet its intended goal. While written with defense contractors in mind, 810G is just as valuable for commercial enterprises. Along with test methods, it includes guidance on what team members should be involved and their roles starting with the acquisition process and going through the final test report. It also contains world climatic information to help the test team to choose the proper environments for test. As a living document, MIL-STD-810G has continued to grow and evolve since its inception in 1962, and no test lab would be complete without both a copy of the document and at least one individual who understands how to apply it.

FOR WHOM INTENDED This course is applicable to individuals from a wide range of commercial and government activities such as defense contractors, aerospace, aviation, shipbuilding, weapons systems, land vehicles and all branches of the Armed Forces. The course is intended for personnel involved with developing, applying, or reviewing environmental design and test specifications, standards and requirements. The target audience includes:

- Environmental engineering specialists
- Environmental test laboratory personnel
- Reliability and product assurance engineers
- Product designers
- Integrated Product Development Team leaders
- Contract writers and administrators

BRIEF COURSE DESCRIPTION This course provides understanding and guidance about the contents and proper application of MIL-STD-810G. The instructor follows the standard section by section, starting with the introduction and providing detailed information about each of the 29 methods, guiding students not only in preparation of test methodologies but also in the type of equipment necessary to run each test.

For newcomers, this course will make MIL-STD-810G less mysterious and formidable. Those with some experience will gain a better understanding, to recognize mistakes and repeat successes.

Environmental design and test standards are a combination of valuable lessons learned and repetitive dogma. The ability to recognize the conflicting statements in referenced documents and obtain clarification as to which statement needs to be followed in a particular case will prove valuable to participants. This course will be presented in an interactive lecture-discussion format; lectures will be interspersed with class project work sessions to reinforce the students' understanding of the course material. Students are encouraged to introduce problems and questions from their own work for group discussions.

DIPLOMA PROGRAMS This course is required for TTi's Environmental Engineering Specialist (EES) and Climatic Test Specialist (CTS) Diploma Program and may be used as an elective for any TTI Specialist Diploma Program.

PREREQUISITES This course is intended for individuals with basic familiarity with environmental test procedures and facilities.

TEXT Each student will receive 180 days access to the on-line electronic course workbook. Renewals and printed textbooks are available for an additional fee.

COURSE HOURS, CERTIFICATE and CEUs Class hours/days for on-site courses can vary from 14–35 hours over 2–5 days as requested by our clients. Upon successful course completion, each participant receives a certificate of completion and one Continuing Education Unit (CEU) for every ten class hours.

INTERNET COMPLETE COURSE 451 features over 21 hours of video as well as more in-depth reading material. All chapters of course 451 are also available as OnDemand Internet Short Topics. See the on-line course outline for details.

Course Outline

Introduction and Course Overview
- Student Expectations and Goals

Part One
- MIL-STD-810G — Introduction, History and Scope
- Environmental Engineering Program
- Environmental Management and Engineering Tasks
- Guidance for Program Management and Environmental Tailoring (Part One, Annex B, Annex C, Annex D)

Part Two — Environmental Test Procedures
- Typical Format for Environmental Test Procedures

The following topics are discussed for each of the methods: Introduction, Limitations, History and Rationale, Changes, Effects of the Environment, Test Sequence, Procedures, Analysis of Results, Equipment Needed

Method 500.5	Low Pressure (Altitude)
Method 501.5	High Temperature
Method 502.5	Low Temperature
Method 503.5	Temperature Shock
Method 504.1	Contamination by Fluids
Method 505.5	Solar Radiation (Sunshine)
Method 506.5	Rain
Method 507.5	Humidity
Method 508.6	Fungus
Method 509.5	Salt Fog
Method 510.5	Sand and Dust
Method 511.5	Explosive Atmosphere
Method 512.5	Immersion
Method 513.6	Acceleration
Method 514.6	Vibration
Method 515.6	Acoustic Noise
Method 516.6	Shock
Method 517.1	Pyroshock
Method 518.1	Acidic Atmosphere
Method 519.6	Gunfire Shock
Method 520.3	Temperature, Humidity, Vibration and Altitude
Method 521.3	Icing/Freezing Rain
Method 522.1	Ballistic Shock
Method 523.3	Vibro-Acoustic/Temperature
Method 524	Freeze /Thaw
Method 525	Time Waveform Replication
Method 526	Rail Impact
Method 527	Multi-Exciter Testing (MET)
Method 528	Mechanical Vibrations of Shipboard Equipment

Part Three
- World Climatic Regions—Guidance

Part Four
- Developing Life Cycle Environmental Profiles (LCEP)

Award of Certificates for Successful Completion

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