

Training on **Applied Vibration Testing**

According to Military and Civil Test Standards

TRAINING PROGRAM DESCRIPTION

Two and a half days of
focused **International** and **Online** or **Classroom** Training

by

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Foreword

This training is a focused training on mechanical vibration and shock testing. Vibration and shock testing topics cover the related test methods and sections in MIL-STD-810H and RTCA-DO-160G, described in the following standard documents:

"MIL-STD-810H
US Department of Defense Test Method Standard Environmental Engineering
Considerations and Laboratory Tests"

and

"RTCA-DO-160G
Environmental Conditions and Test Procedures For Airborne Equipment ©
2010, RTCA, Inc."

The instructors share their experience and knowledge gained by working long years in the field with designing products and performing tests in accordance with such as MIL-STD-810H, RTCA-DO-160, and MIL-STD-461G. The slides are supported by many graphics and test videos for the efficiency and clarity of the information and each session is planned in accordance with the tests described in MIL-STD-810H and RTCA-DO-160G. Sessions include presentations on platform level requirements, guides, and lessons learned items based on MIL-STD-810H and RTCA-DO-160G. The training informs the participants about the vibration tests by performing vibration tests on the material determined for the training in the laboratory environment. The training also includes test process and requirements overview in view of DOD Systems Engineering Processes. Dr. Ismail Cicek is the lead instructor of this training and several experienced test personnel and design engineers help complete the training sessions.

Dr Ismail Cicek's Ph.D. study topic was random vibrations and he managed equipment test lab both in the United States of America and Turkey. The following link describes Dr Cicek's experiences in the topic with more detail:

<https://www.globaldynamicsystems.com/dr-i-cicek/>

Training on
Applied
Vibration
Testing



MIL-STD-
810 and
RTCA-DO-
160

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MARINE EQUIPMENT TEST CENTER

Purpose of the Training

One of the most difficult parts to understand in MIL-STD-810 and RTCA-DO-160 test standards is vibration tests. In addition, there are many types of tests according to the platform and transport modes to be applied. Applied vibration tests training is given at Istanbul Technical University Maritime Test Application and Research Center, Tuzla campus. This training, which are organized to cover the tests specified in MIL-STD-810H and RTCA-DO-160G, include theoretical and practical parts. The application parts include the exercises to enter the vibration test profiles in to the test system by choosing the periodic and random test envelopes from military and civil standards.

Training Scope

The training sessions cover the following topics with annotated slides, test photos, videos, and additional reference material from standards, specifications, and documents:

- Environmental tests and vibration
- Vibration Test System
- Test Application
- Periodic vibrations: Dwell Tests, Sweep Tests
- Random Vibrations: Broadband, Narrowband, Sine-on-random, Random-on-random
- Spectral Analysis
- MIL-STD-810H Vibration Test Profiles
- RTCA-DO-160G Vibration Test Profiles.
- Shock Testing

Read more details about this training content and schedule at the [GDS Website:](http://www.GlobalDynamicSystems.com)
<http://www.GlobalDynamicSystems.com>

Instructors

Training is mainly provided by [Dr Ismail Cicek](#) and is assisted by several GDS personnel experienced in environmental testing and management.

Training is provided by Dr Ismail Cicek with over 20 years of experience in the environmental qualification testing of products in accordance with, such as, MIL-STD-810H and RTCA-DO-160G. Dr Cicek led various engineering programs or projects and managed the US Air Force test projects many years. Dr Cicek worked as the lab chief engineer for five years at the US Air Force Aeromedical Test Lab at WPAFB, OH. Training is also assisted by our personnel experienced in design and environmental testing of military and aerospace equipment.

Read DAU Paper: "A New Process for the Acceleration Test and Evaluation of Aeromedical Equipment for U.S. Air Force Safe-To-Fly Certification". [Click to display this report.](#)

GDS Team has provided MIL-STD-810, RTCA-DO-160, MIL-STD-461 training courses to more than five hundred students and over one hundred organizations around the world since 2009. Read more details about the instructors at <https://www.GlobalDynamicSystems.com>.

Training Schedule and Execution Type

- Education Location: Istanbul Technical University, Maritime Faculty Campus, Test Center Laboratory, Tuzla, Istanbul
- Led by live two instructors experienced in the field by both testing and lecturing.
- Two and a half days of focused online training schedule is typically as follows
 - 1st Day: 09:00 – 17:00 (Lunch Break between 12:30 and 13:30)
 - 2nd Day: 09:00 – 17:00 (Lunch Break between 12:30 and 13:30)
 - 3rd Day: 09:00 – 13:00
 - Time zone: Central European Time (CET)
- Attendees will receive a Training Certificate.

Visit [GDS Website](#) to check the calendar of scheduled training classes and for registration information. Or, send an email to us with your registration request: info@GlobalDynamicSystems.com.

Call us to further discuss about your training needs. Ph: +1 (937) 912-1220 (USA) | Ph: +90 (537) 210-4068 (Turkey)

[Our training calendar](#) includes all open training classes, including RTCA-DO-160, MIL-STD-810, and MIL-STD-461.

Training Material

The instructors present the topics using the presentation slides with references to MIL-STD-810H and RTCA-DO-160G sections and contents with the inclusion of information included from relevant regulations, standards, and specifications. The lecturers provide slides for sharing their own experience and knowledge gained by working long years in the field and performing tests in accordance with RTCA-DO-160, MIL-STD-810, and MIL-STD-461. The slides are supported by many graphics and test videos for the efficiency and clarity of the information.

The slides and other shareable course material will be shared with the registered students when during the lessons GOOGLE DRIVE.

Registration includes all presentations and additional material shared before the class. Visit [GDS Website](#) to display the details of the registration process.

Training Contents (Detail)

2.5 days of training covers the following topics:

- Introduction to Vibrations: Category of Vibration Problems
- Fundamental Concepts
- Vibration Test System
- Periodic Vibration, Fast Fourier Transform, and Mode Shapes
- Random Vibration and Power Density Function
- MIL-STD-810H
 - 513.8 Acceleration
 - 514.8 Vibration
 - 516.8 Shock
- RTCA-DO-160G
 - Section 7.0 Operational Shocks and Crash Safety
 - Section 8.0 Vibration
- Laboratory Test Cases
 - Sweep Testing and Identifying the Critical Frequencies
 - Sine Testing: Dwell
 - Random Vibration
 - Entry of 810H/160G

Our References

We have provided training courses to more than 100 companies and organizations and over 500 individual trainees so far.

