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Grounding and Shielding for Military Standards - MIL-STD-461, MIL-STD-1399, and MIL-STD-1310

[View Course Details](#)

COURSE DATES AND TIMES

Why Military Grounding and Shielding Training Is Critical

Military electronic systems must operate reliably in complex electromagnetic environments where improper grounding and shielding can lead to equipment malfunction, communication failures, and costly MIL-STD-461 compliance problems. Effective grounding, bonding, and shielding practices are essential for controlling electromagnetic interference (EMI) and ensuring reliable operation of mission-critical defense electronics.

This course provides comprehensive MIL-STD-461 grounding and shielding training for engineers and technicians responsible for controlling electromagnetic interference in military electronic systems. Participants gain practical knowledge of grounding networks, shielding techniques, and electromagnetic compatibility (EMC) practices required to meet military performance and compliance requirements.

Military EMI and EMC Training for Defense Electronics

This military EMI EMC training program focuses on practical grounding, bonding, and shielding techniques used to design compliant military electronic systems. Participants learn how electromagnetic interference develops within electrical equipment, wiring systems, and electronic enclosures, and how proper grounding and shielding design prevents EMI problems before they occur.

The course also provides advanced EMC compliance training, explaining how military equipment is evaluated against electromagnetic compatibility requirements and how

engineers can design systems that successfully meet MIL-STD testing criteria.

Participants also gain practical EMI troubleshooting training, learning how to identify coupling paths, eliminate interference sources, and diagnose grounding and shielding problems that affect sensitive electronic systems.

Improper grounding and shielding can cause:

- EMI interference in communication systems
- MIL-STD-461 test failures during equipment certification
- Lightning damage to shipboard electronics
- Ground loop currents and signal corruption
- Radiated emissions exceeding defense limits

Understanding these risks is essential for engineers responsible for the design, integration, and testing of military electronic systems.

Course Overview

This 12-Hour Instructor-Led Grounding and Shielding Military Standards Training Course provides a comprehensive overview of grounding and shielding techniques used in military electronic systems, based on key standards including MIL-STD-461, MIL-STD-1399, and MIL-STD-1310.

The program is designed for electrical engineers, technologists, and designers involved in the development and testing of defense electronic equipment.

Participants learn the engineering principles governing grounding networks, shielding effectiveness, and EMI control in military electronic systems, as well as the practical techniques used to design compliant grounding and shielding systems.

The course also explains the testing requirements and verification procedures used to evaluate grounding and shielding performance in military equipment.

Participants will explore:

- Grounding system design principles used in defense electronics
- Shielding techniques for controlling electromagnetic interference
- Compliance testing procedures used to verify EMC performance
- Lightning protection and surge suppression practices
- Case studies demonstrating successful grounding and shielding design

This training combines MIL-STD-461 training, military EMI EMC training, grounding bonding shielding training, EMC compliance training, and EMI troubleshooting training to provide a complete understanding of grounding and shielding design in defense systems.

Learning Outcomes

Participants completing this course will be able to:

- Design grounding and bonding networks that meet MIL-STD-461 EMC requirements
- Evaluate shielding effectiveness and cable management for EMI control
- Identify EMI coupling paths between power systems, cables, and electronic equipment
- Interpret MIL-STD-461 test results and troubleshoot compliance failures
- Apply grounding and shielding techniques to shipboard, vehicle, and facility systems

Technical Topics Covered

Participants will examine the electromagnetic mechanisms that create interference in electronic systems, including:

- EMI coupling mechanisms (conducted, capacitive, inductive, and radiated)
- Ground loop formation in complex equipment systems
- Cable shielding termination techniques
- Filtering and bonding strategies for power and signal circuits
- Shielding effectiveness measurement techniques

These topics provide engineers with the practical knowledge needed to design, evaluate, and troubleshoot grounding and shielding systems used in military electronics.

WHO SHOULD ATTEND

This course is suited for professionals involved in the design, installation, testing, and maintenance of electrical and electronic systems where grounding, bonding, and shielding are critical to electromagnetic compatibility and system reliability.

This includes:

- Electrical Engineers
- EMC / EMI Engineers
- Electrical Engineering Technologists and Technicians
- Systems Engineers
- Design Engineers
- Electronics Engineers
- Project Engineers
- Test and Validation Engineers
- Field Service Technicians
- Electrical Technicians
- Maintenance Engineers
- Electrical Supervisors

STUDENTS RECEIVE

- Grounding and Shielding for Military Standards Course Certificate
- 1.2 Continuing Education Unit (CEU) Credits (12 Professional Development Hours)
- 100-Page Digital Electrical Grounding Handbook - Value \$20 (Details Below)
- A FREE Magazine Subscription (Value \$25)

- \$100 Coupon Toward Any Future Electricity Forum Course (Restrictions Apply)
- Course Materials in PDF Format

COURSE OUTLINE

Grounding and Shielding for Military Standards Course Outline

DAY ONE

Session 1: Introduction to Electrical Grounding and Shielding

- Definition and importance of electrical grounding and shielding
- Overview of MIL-STD-461, MIL-STD-1399, and MIL-STD-1310 standards
- Examples of negative effects of improper grounding and shielding
- The relationship between grounding and shielding
- Applications of grounding and shielding

Session 2: Electrical Grounding

- Grounding principles and types of grounding systems
- Requirements and techniques for grounding according to MIL-STD-1399
- Grounding methods for different equipment types
- Grounding considerations in various environments

Session 3: Electrical Shielding

- Shielding principles and types of shielding materials and techniques
- Shielding requirements according to MIL-STD-461
- Shielding design considerations for different equipment types
- Shielding considerations in various environments

Session 4: Grounding and Shielding Testing

- Overview of testing requirements in MIL-STD-461 and MIL-STD-1399
- Testing procedures and methods for grounding and shielding
- Interpretation of test results and troubleshooting techniques
- Common testing mistakes and ongoing maintenance

DAY TWO

Session 5: Shipboard Electrical Grounding and Shielding

- Overview of the shipboard electrical system
- Grounding and shielding requirements according to MIL-STD-1310
- Design considerations for shipboard electrical systems
- Common challenges in shipboard electrical grounding and shielding
- Best practices for shipboard electrical grounding and shielding

Session 6: Lightning Protection and Surge Suppression

- Overview of lightning protection and surge suppression
- Lightning protection requirements according to MIL-STD-1310
- Surge suppression techniques and requirements
- Common challenges in lightning protection and surge suppression
- Best practices for lightning protection and surge suppression

Session 7: Grounding and Shielding Best Practices

- Best practices for grounding and shielding in military applications
- Common mistakes and pitfalls to avoid
- Case studies and examples of successful grounding and shielding designs
- Importance of ongoing training and development
- Resources for further learning and development

Session 8: Review and Conclusion

- Recap of key concepts and topics covered in the course
- Q&A session for attendees
- Importance of ongoing maintenance and monitoring of grounding and shielding systems
- Course evaluation and feedback
- Closing remarks and next steps

Review of expectations

Questions and Answers

COURSE TIMETABLE

Both Days:

Start: 10:00 a.m. ET

Finish: 4:30 p.m. ET

Contact us Today for a FREE quotation to deliver this course at your company's location.

[Request Quote](#)