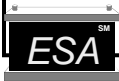


# DC SYSTEM DESIGN

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# DC SYSTEM DESIGN

Developed by  
Marco W. Migliaro, PE, Fellow IEEE

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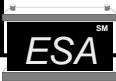
*Graphics by CA Rhodes*

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## TERMINAL OBJECTIVE

Upon completion of this training, the participant will understand the design concepts for dc systems including: industry standards and other references related to dc system design; the typical calculations performed when designing a dc system; safety considerations; selection of the number of batteries used; dc equipment selection; the criteria for a basic system design as related to equipment requirements, protective device selection, ground detection and physical location; design features to provide for testing of the battery; instrumentation and alarm requirements; and considerations for specification of spare equipment.



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## ENABLING OBJECTIVES

The standard for each of the following objectives is the material contained in the course materials provided to the participant.

Given the course materials, the participant shall be able to:

- DC01 Recall the industry standards that provide recommendations for dc system design and stationary battery systems
- DC02 Recall the types of calculations performed when designing a dc system
- DC03 Recall the safety considerations required for dc system design
- DC04 Describe considerations for selection the number of batteries, and battery chargers
- DC05 Recall the requirements for qualification of Class 1E equipment
- DC06 Describe the alternatives that may be considered for a main protective device and how it would be applied



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## ENABLING OBJECTIVES

*(continued)*

- DC07 Recall why ground detection is required on dc systems that are not intentionally grounded and the typical detection schemes used
- DC08 Discuss the criteria used to determine if cross-ties between dc systems should be considered as part of a system design
- DC09 Recall the criteria used to locate dc system equipment
- DC10 Discuss the need for providing a means of enabling a battery to be discharge tested and considerations for this provision
- DC11 Recall the various instruments and alarms that are typically provided on a dc system and where they may be located
- DC12 Recall the factors that may be considered when determining what spare equipment (type and quantity) should be procured

