XCELERATE TRAINING INSTITUTE

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ELECTRICAL ENGINEERING

Battery Energy Storage Systems (BESS) Training Course

Design, Integration, Safety and Operation of Grid-Scale Storage

DURATION	LANGUAGE	FORMAT	COURSE CODE
5 days	English or Arabic	Classroom / Online	EE-102

Upcoming dates

Dates	Venue	Format	Fee
4 – 8 Jan 2027	Amman	Classroom	€3,800
8 – 12 Mar 2027	Amsterdam	Classroom	€4,800
17 – 21 May 2027	Barcelona	Classroom	€4,800
26 – 30 Jul 2027	Berlin	Classroom	€4,800
6 – 10 Sep 2027	Boston	Classroom	€5,500
8 – 12 Nov 2027	Cairo	Classroom	€3,600

Register or ask a question

Online: x8ti.com/course/battery-energy-storage-systems-bess-training-course/

+491631686678 · info@x8ti.com

Battery Energy Storage Systems (BESS) Training Course

Introduction

Battery energy storage is essential for integrating large amounts of solar and wind power into the grid. The Gulf is building some of the world's largest storage projects, creating strong demand for engineers who understand how these systems are designed, protected and operated.

This course covers battery technologies, system components, sizing, grid integration, protection, fire safety and operation and maintenance of battery energy storage systems, from commercial to utility scale.

Learning Objectives

By the end of this course, participants will be able to:

- Explain battery chemistries and their characteristics
- Describe the components of a battery energy storage system
- Size storage systems for different applications
- Understand grid integration, power conversion and control
- Apply safety, protection and fire prevention requirements
- Plan operation, maintenance and performance monitoring

Training Methodology

This course combines short expert presentations with practical exercises, case studies from the Gulf and international organisations, group discussions and work with real templates and tools. Participants are encouraged to bring examples from their own work so that the learning can be applied immediately.

Participants complete sizing exercises and analyse real project data and safety incidents.

Benefits for Your Organisation

- Engineers able to specify and evaluate storage projects
- Safer installation and operation
- Better project performance and lifetime
- Support for renewable energy targets
- Reduced dependence on external consultants

Benefits for You

- Up-to-date knowledge of a key energy technology
- Practical sizing and integration skills
- Understanding of safety standards
- Ability to work on renewable and storage projects
- Strong career prospects in the energy transition

Who Should Attend

This course is designed for:

- Electrical and power engineers
- Renewable energy engineers
- Utility planning and operations staff
- Project managers in energy projects
- Maintenance and asset managers

Course Outline

Day 1: Energy Storage Fundamentals

- The role of storage in modern power systems
- Storage applications: peak shaving, frequency response and arbitrage
- Battery chemistries: lithium-ion, LFP, flow and emerging types
- Key performance parameters
- Market and project trends in the Gulf

Day 2: System Components and Design

- Cells, modules, racks and containers
- Battery management systems
- Power conversion systems and inverters
- Energy management and control systems
- Auxiliary systems and thermal management

Day 3: Sizing and Grid Integration

- Sizing methods for different applications
- Integration with solar and wind plants
- Grid codes and connection requirements
- Protection and coordination
- Modelling and simulation basics

Day 4: Safety and Standards

- Thermal runaway and fire risks
- Fire detection, suppression and explosion prevention
- Relevant international standards
- Site layout and hazard assessment
- Emergency response planning

Day 5: Operation and Maintenance

- Commissioning and testing
- Performance monitoring and degradation
- Maintenance strategies
- Warranty and availability management

- End-of-life and recycling

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Registration Form

Battery Energy Storage Systems (BESS) Training Course

Preferred dates: ..... Venue or online: .....

Duration: 5 days Language: .....

Please complete and email this form to us, or register online. We confirm your place and send the invoice within one working day.

Delegate information

Full name (Mr / Ms / Dr / Eng): .....

Position: ..... Telephone / mobile: .....

Official email: ..... Personal email: .....

Company information

Company name: .....

Address: .....

City / country: ..... VAT / tax number: .....

Person responsible for training & development

Full name (Mr / Ms / Dr / Eng): .....

Position: ..... Telephone / mobile: .....

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☐ Please invoice me ☐ Please invoice my company

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