Battery Storage SCADA Systems Training Course

Professional Development Training Course Outline

Category	Renewable Energy	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Battery Energy Storage Systems (BESS) are rapidly transforming the global energy landscape, enabling renewable energy integration, grid stabilization, and smart energy management. At the core of modern BESS operations lies the Supervisory Control and Data Acquisition (SCADA) system, a critical technology that ensures real-time monitoring, control, automation, and data analytics for energy storage assets. Battery Storage SCADA Systems Training Course is designed to equip professionals with cutting-edge knowledge in Battery Storage SCADA Systems, Energy Management Systems (EMS), Grid Integration, Cybersecurity, IoT-enabled monitoring, and Industrial Automation, empowering them to lead in the fast-evolving clean energy sector.

As utilities, independent power producers, and smart grid developers increasingly deploy advanced battery storage solutions, the demand for skilled professionals in SCADA architecture, real-time data acquisition, predictive maintenance, AI-driven analytics, and renewable energy optimization continues to surge. This course provides a hands-on, industry-focused learning experience covering SCADA protocols, battery management systems (BMS), cloud integration, digital twins, and cybersecurity frameworks, ensuring participants gain both theoretical expertise and practical skills aligned with global industry trends.

Programme Curriculum

Battery Storage SCADA Systems Training Course

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Course Duration

5 days

Course Objectives

1. Understand Battery Energy Storage Systems (BESS) architecture and SCADA integration
2. Master real-time monitoring and control using advanced SCADA platforms
3. Analyze grid stability, frequency regulation, and load balancing techniques
4. Implement Industrial IoT (IIoT) and smart sensors in energy storage
5. Develop expertise in SCADA communication protocols (Modbus, DNP3, IEC 61850)
6. Apply AI and Machine Learning for predictive maintenance and analytics
7. Design cybersecure SCADA systems aligned with NERC CIP standards
8. Integrate renewable energy sources with battery storage systems
9. Optimize energy dispatch using Energy Management Systems (EMS)
10. Evaluate data visualization and dashboard development tools
11. Implement cloud-based SCADA and remote asset management
12. Perform fault detection, diagnostics, and system troubleshooting
13. Understand digital twin technology for smart energy systems

Target Audience

1. Electrical and Power Systems Engineers
2. SCADA and Automation Engineers
3. Renewable Energy Professionals
4. Utility and Grid Operators
5. Energy Analysts and Consultants
6. Industrial IoT Specialists
7. Project Managers in Energy Sector
8. Maintenance and Operations Engineers

Course Modules

Module 1: Introduction to Battery Energy Storage Systems

- Overview of BESS technologies
- Lithium-ion vs alternative storage systems
- Key components and architecture
- Applications in smart grids
- *Case Study:* Utility-scale BESS deployment

Module 2: Fundamentals of SCADA Systems

- SCADA architecture and components
- RTUs, PLCs, and HMIs
- Data acquisition principles
- Control system basics
- *Case Study:* SCADA in power distribution

Module 3: SCADA Communication Protocols

- Modbus, DNP3, IEC 61850
- Protocol selection strategies
- Interoperability challenges
- Data integrity and latency
- *Case Study:* Protocol optimization in BESS

Module 4: Battery Management Systems (BMS) Integration

- BMS architecture
- State of Charge (SoC) and State of Health (SoH)
- Thermal management
- Safety mechanisms
- *Case Study:* BMS failure analysis

Module 5: Energy Management Systems (EMS)

- EMS vs SCADA roles
- Load forecasting techniques
- Energy optimization strategies
- Demand response integration
- *Case Study:* Smart grid EMS deployment

Module 6: Grid Integration of Battery Storage

- Grid codes and standards
- Frequency and voltage control
- Renewable integration challenges
- Peak shaving techniques
- *Case Study:* Solar + storage integration

Module 7: Industrial IoT in SCADA Systems

- IoT sensors and connectivity
- Edge computing in energy systems
- Data collection strategies
- Smart monitoring systems
- *Case Study:* IoT-enabled BESS monitoring

Module 8: Cybersecurity in SCADA Systems

- Threat landscape and vulnerabilities
- Security frameworks (NERC CIP, ISO 27001)
- Network security design
- Incident response strategies

- *Case Study:* Cyberattack on energy infrastructure

Training Methodology

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now

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