Demand Side Management Programs 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

Demand Side Management (DSM) is becoming a critical strategy for utilities, governments, energy regulators, industries, and large energy consumers seeking to improve energy efficiency, grid flexibility, demand response, and energy resilience. The rapid growth of renewable energy, distributed energy resources (DERs), battery storage, electric vehicles (EVs), smart meters, and digital energy platforms is transforming how electricity demand is managed. Demand Side Management Programs Training Course provides participants with practical knowledge of DSM programs, demand response, load management, energy efficiency, peak-load reduction, time-of-use tariffs, smart grids, dynamic pricing, distributed energy resources, and consumer engagement. Participants will explore how advanced DSM strategies can reduce energy costs, improve system reliability, manage peak demand, integrate renewable energy, and support net-zero and decarbonization objectives.

The course combines strategic concepts, analytical techniques, regulatory considerations, technology applications, and real-world DSM case studies to help participants design, implement, monitor, and evaluate effective demand-side programs. It addresses emerging trends including AI-enabled energy management, IoT-connected devices, automated demand response, virtual power plants (VPPs), flexible loads, energy storage, prosumer models, digitalization, and grid-interactive efficient buildings. Through practical exercises and case-based learning, participants will develop the ability to identify demand-side opportunities, develop business cases, select appropriate DSM interventions, measure program performance, and establish measurement, verification, and evaluation (M&V) frameworks that deliver measurable energy, economic, and environmental benefits.

Programme Curriculum

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Course Duration

5 days

Course Objectives

By the end of the training, participants will be able to:

1. Understand the strategic principles and applications of Demand Side Management (DSM).
2. Analyze electricity demand patterns, load profiles, peak demand, and consumption behavior.
3. Design effective Demand Response (DR) and load-shifting programs.
4. Develop energy efficiency and peak-load management strategies.
5. Apply smart grid, smart metering, IoT, and digital energy technologies in DSM.
6. Evaluate Time-of-Use (TOU), dynamic pricing, and demand-based tariff mechanisms.
7. Integrate distributed energy resources (DERs), battery storage, solar PV, and flexible loads into DSM programs.
8. Develop consumer engagement and behavioral energy efficiency initiatives.
9. Apply AI, data analytics, automation, and advanced forecasting to demand management.
10. Establish Measurement, Verification & Evaluation (M&V) frameworks for DSM initiatives.
11. Assess DSM program financial viability, cost-effectiveness, and return on investment (ROI).
12. Develop DSM strategies supporting renewable energy integration, decarbonization, and net-zero targets.
13. Design scalable DSM programs that improve grid resilience, flexibility, reliability, and energy affordability.

Target Audience

1. Utility and electricity distribution company professionals
2. Energy managers and energy efficiency specialists
3. Power system planners and grid operations professionals
4. Energy regulators and government policymakers

5. Sustainability and **net-zero** professionals
6. Facility, building, and industrial energy managers
7. Renewable energy, smart grid, and DER specialists
8. Consultants, engineers, project managers, and energy-sector executives

Course Modules

Module 1: Fundamentals of Demand Side Management

- DSM concepts, evolution, objectives, and strategic importance
- **Demand response, load management, and energy efficiency** fundamentals
- Electricity demand characteristics and customer load profiles
- Peak demand, load factor, diversity factor, and system utilization
- Case Study: Global DSM trends and emerging market opportunities

Module 2: Demand Analysis and Load Forecasting

- Customer segmentation and electricity consumption analysis
- Load profiling and **peak-demand identification**
- Short-, medium-, and long-term demand forecasting
- Advanced forecasting using **data analytics and AI**
- Case Study: Identifying flexible and controllable loads

Module 3: Demand Response and Load Management

- Direct and indirect demand response mechanisms
- **Peak shaving, load shifting, load shedding, and valley filling**
- Automated Demand Response (ADR)
- Interruptible and incentive-based DR programs
- Case Study: Demand response for commercial and industrial customers

Module 4: Energy Efficiency and Behavioral DSM

- Energy efficiency program design and implementation
- **Behavioral energy efficiency** and consumer engagement
- Building, industrial, commercial, and residential DSM opportunities
- Energy audits and energy conservation measures
- Case Study: Customer awareness, incentives, and digital engagement strategies

Module 5: Smart Grids, Digitalization and Emerging Technologies

- Smart meters and **Advanced Metering Infrastructure (AMI)**
- IoT-enabled energy monitoring and control
- AI, machine learning, and predictive energy analytics
- Smart buildings and **grid-interactive efficient buildings**
- Case Study: Digital energy management platforms and automation

Module 6: Renewable Energy, Storage and Flexible Loads

- DSM integration with **solar PV and wind power**
- Battery Energy Storage Systems (BESS) for demand management
- Electric vehicles and **smart EV charging**

- Distributed Energy Resources (DERs) and prosumers
- Case Study: Virtual Power Plants (VPPs) and grid flexibility

Module 7: DSM Economics, Tariffs and Measurement & Verification

- Time-of-Use and **dynamic electricity pricing**
- DSM cost-benefit analysis and program economics
- Incentive structures and customer participation models
- **Measurement, Verification & Evaluation (M&V)**
- Case Study: KPIs, energy savings, demand reduction, ROI, and program performance

Module 8: DSM Program Design, Implementation and Case Studies

- DSM program planning and implementation frameworks
- Stakeholder management and regulatory considerations
- Program risk management and scalability
- **International DSM best-practice case studies**
- Case Study: Development of a practical DSM implementation roadmap

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
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:

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