Training Course on Digital Energy and Optimization

Professional Development Training Course Outline

Category	Development	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

In today's data-driven and eco-conscious world, the demand for Digital Energy and Optimization expertise is skyrocketing. Training Course on Digital Energy and Optimization equips learners with the cutting-edge tools, methodologies, and strategies to implement energy-efficient digital solutions in real-time environments. Covering everything from smart grid technology and IoT integration to AI-powered analytics and energy consumption forecasting, this program prepares participants for the evolving landscape of digital transformation in energy systems.

With the global shift towards sustainable energy and green digital infrastructure, professionals must upskill in energy management, cloud-based control systems, and digital twin simulations. This course bridges the gap between technology and sustainability, enhancing your ability to make data-driven decisions and reduce operational costs across industries like oil & gas, utilities, IT, and manufacturing.

Programme Curriculum

Training Course on Digital Energy and Optimization

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Course Objectives

1. Understand the principles of digital energy transformation.
2. Analyze the benefits of smart energy management systems (EMS).
3. Implement IoT-enabled energy monitoring solutions.
4. Explore AI-driven optimization techniques for energy efficiency.
5. Apply machine learning to predictive energy analytics.
6. Design and simulate digital twins for smart grids.
7. Integrate blockchain technology for secure energy transactions.
8. Leverage cloud computing in energy optimization.
9. Examine cybersecurity in digital energy infrastructures.
10. Measure ROI in energy efficiency optimization projects.
11. Navigate regulatory frameworks for digital energy adoption.
12. Improve carbon footprint through real-time energy analytics.
13. Develop sustainable energy strategies using digital tools.

Target Audience

1. Energy Managers
2. Sustainability Officers
3. IT Infrastructure Experts
4. Utility Company Employees
5. Government Policy Makers
6. Industrial Engineers
7. IoT and Smart Device Developers
8. Environmental Consultants

Course Duration: 10 days

Course Modules

Module 1: Introduction to Digital Energy

- Definition and scope of digital energy
- Historical evolution of energy systems
- Key players and technologies
- Benefits of digital transformation in energy

- Overview of course framework

Module 2: Smart Grid Fundamentals

- Architecture of smart grids
- Integration with renewable energy
- Grid communication protocols
- Advanced metering infrastructure
- Challenges and opportunities

Module 3: IoT in Energy Management

- IoT devices for real-time energy tracking
- Wireless sensor networks
- Data acquisition and analytics
- Energy-saving automation
- Industrial IoT (IIoT) applications

Module 4: AI and Machine Learning in Optimization

- Introduction to AI/ML concepts
- Predictive energy usage models
- Anomaly detection algorithms
- Load forecasting
- Real-time data-driven decisions

Module 5: Digital Twins for Energy Systems

- What are digital twins?
- Simulation and modeling
- Use in fault detection
- Cost optimization
- Digital twin case studies

Module 6: Blockchain in Energy Transactions

- Blockchain basics
- P2P energy trading
- Decentralized energy markets
- Transparent energy billing
- Case examples in smart contracts

Module 7: Cloud Computing in Energy

- Cloud platforms for EMS
- Scalability and flexibility benefits
- Real-time dashboards
- Remote monitoring
- Data integration tools

Module 8: Cybersecurity in Energy Systems

- Security threats in digital energy
- Best practices for protection
- Secure protocols and firewalls
- Role of AI in security
- Compliance with global standards

Module 9: Renewable Energy Optimization

- Digital tools in solar and wind
- Hybrid systems optimization
- Forecasting energy production
- Asset performance analytics
- Grid stability enhancements

Module 10: Big Data in Energy Analytics

- Data lifecycle in EMS
- Energy KPIs and benchmarks
- Visualization tools
- Real-time vs historical analytics
- Data lakes and warehouses

Module 11: Energy Efficiency in Smart Buildings

- Intelligent HVAC and lighting
- Smart meters and controls
- Behavioral analytics
- Occupancy-based energy use
- Energy savings evaluation

Module 12: Predictive Maintenance

- Concept and importance
- Sensor-based monitoring
- Condition-based maintenance
- Downtime reduction
- Case applications in industry

Module 13: Regulations and Compliance

- Overview of global energy regulations
- Carbon neutrality standards
- Reporting and documentation
- Industry-specific compliance tools
- Role of digital audits

Module 14: Strategy and Implementation

- Developing a digital energy roadmap
- Stakeholder alignment
- Budgeting and ROI assessment
- Pilot testing and scaling
- Change management strategies

Module 15: Capstone Project

- Choose real-world problem
- Apply digital optimization techniques
- Present a strategy and solution
- Peer review and feedback
- Final project presentation

Training Methodology

- Interactive lectures
- Case study analysis
- Hands-on digital labs
- Expert-led workshops
- Collaborative group projects

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	04 Dec 2026	Online	$2,000
23 Nov 2026	04 Dec 2026	Physical	$3,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$9,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$12,000

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