MAWA EVENTS

Address: No. 857, Block A2. Leisure Commerce Square - No 9., 46150 Petaling Jaya, Selangor, Malaysia

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THE INTERNET OF THINGS (IOT) IN ENERGY

""Harnessing IoT Technologies to Drive Efficiency, Sustainability, and Innovation Across the Energy Sector""

Schedule

Date	Venue	Fees (Face-to-Face)
21 – 25 Sep 2026	London, UK	USD 3495 per delegate

► **Available delivery methods:** Face-to-Face & Online Training

Introduction

The energy industry is undergoing a digital transformation, with the Internet of Things (IoT) enabling smarter operations, predictive maintenance, energy efficiency, and decentralized generation. From smart grids to real-time asset monitoring, IoT technologies are helping energy providers optimize performance while reducing environmental impact.

This 5-day course explores how IoT is revolutionizing the energy sector. Participants will gain practical insights into the architecture, deployment, and management of IoT systems in various energy contexts—conventional, renewable, and distributed. The course combines strategy, case studies, and hands-on exercises to empower professionals to develop and implement data-driven, connected energy solutions.

Objectives

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

- Understand the core principles and architecture of IoT systems in the energy domain
- Identify key use cases for IoT in energy production, transmission, distribution, and consumption
- Evaluate sensors, communication networks, and platforms suitable for energy applications
- Design and implement IoT solutions for energy efficiency, asset management, and system reliability
- Analyze and act on real-time data to enhance operational decision-making and sustainability

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Why Attend

- To optimize energy operations through intelligent, data-driven systems
- To reduce downtime, waste, and emissions using predictive maintenance and monitoring
- To adopt smart grid and smart metering technologies
- To improve transparency and traceability across the energy value chain
- To lead innovation and digital transformation initiatives in your energy organization

Target Audience

This program is designed for:

- Energy and utility engineers and managers
- Smart grid and renewable energy professionals
- IT, OT, and automation specialists in energy companies
- Policy makers and sustainability officers
- Anyone involved in digital transformation in the energy sector

Individual Benefits

Key competencies that will be developed include:

- IoT solution design for energy operations
- Understanding smart grid infrastructure and data management
- Deploying sensors and edge computing in energy facilities
- Integrating IoT with existing SCADA and EMS systems
- Analyzing energy usage data to support optimization strategies

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Increased energy efficiency and operational resilience
- Enhanced asset performance through real-time monitoring
- Lower carbon footprint through smarter energy use
- Improved reliability and customer engagement with smart metering
- A strategic roadmap for implementing and scaling IoT solutions

Instructional Methodology

The course follows a blended learning approach combining theory with practice:

- Strategy Briefings – Smart energy frameworks, standards, and industry trends
- Case Studies – Global IoT applications in power generation, oil & gas, and renewables
- Workshops – IoT design, sensor selection, and connectivity mapping
- Peer Exchange – Insights from real-world energy digitization projects
- Tools – IoT platform demos, data dashboards, and smart device simulations

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Course Outline

Detailed 5-Day Course Outline

Training Hours: 7:30 AM – 3:30 PM Daily Format: 3–4 Learning Modules | Coffee breaks: 09:30 & 11:15 | Lunch Buffet: 01:00 – 02:00

Day 1: Introduction to IoT in the Energy Sector

- Module 1: IoT Concepts and Energy Sector Applications (07:30 – 09:30) • What is IoT and how it applies to the energy ecosystem • Challenges and opportunities for IoT adoption
- Module 2: IoT Architecture and Communication Protocols (09:45 – 11:15) • Device layer, network layer, platform layer, and application layer • Protocols: MQTT, LoRaWAN, Zigbee, Modbus, etc.
- Module 3: Use Cases Across the Energy Value Chain (11:30 – 01:00) • Generation, transmission, distribution, and end-use • Smart metering, grid balancing, and predictive maintenance
- Module 4: Workshop – Mapping IoT Opportunities in Energy (02:00 – 03:30) • Participants identify and prioritize IoT use cases

Day 2: Sensing, Connectivity, and Edge Infrastructure

- Module 1: Industrial Sensors and Measurement Devices (07:30 – 09:30) • Temperature, pressure, vibration, current, and gas sensors • Sensor calibration and deployment strategies
- Module 2: Connectivity Options and Edge Computing (09:45 – 11:15) • Local networks, cellular, satellite, and mesh networks • Role of edge gateways in data filtering and latency reduction
- Module 3: IT/OT Convergence and Interoperability (11:30 – 01:00) • Bridging SCADA, EMS, and IoT platforms • APIs, protocols, and data normalization
- Module 4: Hands-On – Design a Sensor and Network Architecture (02:00 – 03:30) • Create a solution for a power plant or substation

Day 3: Data Analytics and Energy Optimization

- Module 1: Real-Time Data Collection and Storage (07:30 – 09:30) • Cloud vs. local storage, data security, and latency management
- Module 2: Visualization and Reporting Dashboards (09:45 – 11:15) • Operational KPIs, alerts, and control room insights
- Module 3: Predictive Analytics and Asset Health Monitoring (11:30 – 01:00) • Machine learning in fault detection and maintenance planning
- Module 4: Workshop – Analyze Sample Energy Data (02:00 – 03:30) • Use case: anomaly detection and load forecasting

Day 4: Implementation and Security in Energy IoT Systems

- Module 1: Planning and Managing IoT Projects (07:30 – 09:30) • Pilot-to-scale process, stakeholder mapping, and budgeting
- Module 2: Cybersecurity in Energy IoT (09:45 – 11:15) • Cyber threats to connected energy infrastructure • Best practices for securing devices, networks, and data
- Module 3: Integration with Legacy Systems and Compliance (11:30 – 01:00) • Adapting older infrastructure to support IoT • Regulatory requirements and smart grid compliance
- Module 4: Simulation – IRP for an Energy IoT Deployment (02:00 – 03:30) • Develop an implementation roadmap

Day 5: Future Trends, Innovation, and Project Presentations

- Module 1: Emerging Technologies and Energy 4.0 (07:30 – 09:30) • Blockchain, AI, digital twins, and decentralized energy systems
- Module 2: Policy, Regulation, and Sustainability (09:45 – 11:15) • Government incentives and energy transition strategies
- Module 3: Final Presentations (11:30 – 01:00) • Group projects showcasing IoT strategies for energy settings
- Module 4: Certification and Wrap-Up (02:00 – 03:30) • Q&A, discussion, and certificate distribution

Certification

Participants will receive a Certificate of Completion in The Internet of Things (IoT) in Energy, confirming their expertise in designing and auditing smart energy systems driven by connected technologies.

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Why Choose MAWA Events

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In-House / Customized Training Interested in running this course for your team? Please contact us:	TEL: **+601116373203**	EMAIL: **info@mawaevents.net**