MAWA EVENTS

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

Phone: +601116373203 | **Email:** info@mawaevents.net

THE INTERNET OF THINGS (IOT) IN MINING

"Transforming Mining Operations Through Smart Monitoring, Predictive Analytics, and Automation"

Schedule

Date	Venue	Fees (Face-to-Face)
14 – 18 Dec 2026	London, UK	USD 3495 per delegate

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

Introduction

The mining industry is rapidly adopting Internet of Things (IoT) technologies to improve operational efficiency, enhance worker safety, reduce environmental impact, and optimize equipment performance. IoT enables real-time monitoring, predictive maintenance, and intelligent automation—helping mining companies to operate smarter and safer in both surface and underground operations.

This intensive 5-day training course is designed to equip mining professionals, engineers, and digital leaders with practical tools to plan, implement, and manage IoT in mining environments. Participants will explore best practices in IoT deployment, systems integration, data analytics, and cybersecurity, with real-world mining sector case studies and applications.

Objectives

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

- Understand the core principles of IoT and its relevance in mining
- Identify key use cases for IoT in exploration, extraction, logistics, and safety
- Deploy sensors, monitoring devices, and analytics platforms in mining sites
- Integrate IoT with mining equipment, SCADA systems, and GIS platforms
- Ensure security, scalability, and sustainability of IoT networks in harsh environments

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Why Attend

- To increase productivity, safety, and equipment uptime through real-time data
- To reduce operational costs by enabling predictive maintenance and remote control
- To comply with environmental regulations using automated monitoring
- To digitally transform legacy mining operations for competitive advantage
- To improve asset tracking, fuel efficiency, and safety response systems

Target Audience

This program is designed for:

- Mining engineers and operations supervisors
- Digital transformation leaders and innovation managers
- Automation and instrumentation engineers
- IT and OT professionals supporting mining operations
- Health, safety, and environmental officers in the mining sector

Individual Benefits

Key competencies that will be developed include:

- Knowledge of IoT architectures and device selection for mining
- Skills in deploying smart sensors and telemetry systems underground and on-site
- Use of analytics for predictive maintenance and operational insights
- Integration of IoT with mine planning, fleet management, and safety systems
- Implementation of secure and ruggedized IoT networks in mining conditions

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Greater operational control and visibility across mining sites
- Reduced downtime, improved production rates, and energy efficiency
- Safer working environments through real-time monitoring and alerts
- Stronger compliance with ESG and sustainability objectives
- Roadmap development for full-scale IoT implementation in mining

Instructional Methodology

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

- Strategy Briefings: IoT platforms, protocols, and industrial mining applications
- Case Studies: Global mining companies using IoT for safety, automation, and performance
- Workshops: Designing IoT sensor grids, selecting platforms, and analyzing mining data
- Peer Exchange: Lessons learned in remote deployment, underground networks, and harsh terrain
- Tools: Device selection checklists, deployment blueprints, analytics dashboards, and ROI calculators

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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 Mining

- Module 1: Fundamentals of IoT and Industry 4.0 in Mining (07:30 – 09:30) • IoT architecture, connectivity, and mining-specific applications
- Module 2: Use Cases Across the Mining Lifecycle (09:45 – 11:15) • Exploration, drilling, hauling, maintenance, and safety
- Module 3: Workshop – Mapping IoT Opportunities in a Mine (11:30 – 01:00) • Equipment monitoring, geotechnical sensors, personnel tracking
- Module 4: IT/OT Convergence in Mining Environments (02:00 – 03:30) • Integrating sensors with SCADA, GIS, and enterprise systems

Day 2: Device Selection and Sensor Deployment

- Module 5: Choosing the Right Sensors and Devices (07:30 – 09:30) • Vibration, pressure, temperature, gas, and proximity sensors
- Module 6: Deployment in Underground and Harsh Conditions (09:45 – 11:15) • Environmental sealing, battery life, and wireless constraints
- Module 7: Workshop – Designing a Sensor Network for a Mining Site (11:30 – 01:00) • Sensor layout, communication, and data transmission
- Module 8: Connecting IoT Devices to Command and Control Systems (02:00 – 03:30) • Gateways, protocols, and real-time decision support

Day 3: Analytics, Predictive Maintenance, and Operations

- Module 9: Real-Time Monitoring and Equipment Telemetry (07:30 – 09:30) • Live dashboards, alarms, and machine status updates
- Module 10: Predictive Analytics and Failure Detection (09:45 – 11:15) • Using historical data to prevent breakdowns
- Module 11: Workshop – Developing a Predictive Maintenance Model (11:30 – 01:00) • Working with data from drills, crushers, and loaders
- Module 12: Optimizing Haulage and Fleet Operations (02:00 – 03:30) • Fuel efficiency, route tracking, and remote diagnostics

Day 4: Safety, Environmental Compliance, and Cybersecurity

- Module 13: Enhancing Worker Safety Through IoT (07:30 – 09:30) • Wearables, tracking systems, and geofencing
- Module 14: Environmental Monitoring and Compliance (09:45 – 11:15) • Dust, emissions, noise, and groundwater impact tracking
- Module 15: Workshop – Designing a Smart Safety Alert System (11:30 – 01:00) • Early warnings for hazardous conditions
- Module 16: Cybersecurity for Mining IoT Systems (02:00 – 03:30) • Threats, encryption, and access controls in rugged networks

Day 5: Strategy, Implementation, and Innovation Planning

- Module 17: Planning an IoT Deployment Strategy in Mining (07:30 – 09:30) • Business case development, budgeting, and stakeholder alignment
- Module 18: IoT Standards and Interoperability (09:45 – 11:15) • Open standards, vendor compatibility, and integration
- Module 19: Workshop – Drafting a Digital Mining Roadmap (11:30 – 01:00) • From pilot projects to full-site adoption
- Module 20: Wrap-Up and Certification (02:00 – 03:30) • Lessons learned, action planning, and feedback

Certification

Participants will receive a Certificate of Completion in The Internet of Things (IoT) in Mining, validating their expertise in applying IoT solutions to enhance safety, efficiency, and sustainability in mining operations.

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Why Choose MAWA Events

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