MAWA EVENTS

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

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DIGITAL TRANSFORMATION IN OIL AND GAS (DOWNSTREAM)

"Harnessing Emerging Technologies to Revolutionize Downstream Oil & Gas Operations"

Schedule

Date	Venue	Fees (Face-to-Face)
10 – 14 Aug 2026	London, UK	USD 3495 per delegate

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

Introduction

The downstream oil and gas sector is undergoing a profound transformation, driven by advancements in digital technologies such as IoT, AI, machine learning, and predictive analytics. Digitalization has become essential to enhance operational efficiency, reduce costs, optimize maintenance, and improve safety in refineries, petrochemical plants, and distribution networks.

This intensive training program provides participants with a comprehensive understanding of how to implement digital transformation strategies within the downstream segment. It explores real-world use cases, key enabling technologies, change management considerations, and practical tools to successfully digitize downstream processes.

Objectives

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

- Understand the digital transformation landscape in the downstream oil and gas sector
- Identify and apply key enabling technologies such as AI, IoT, and digital twins
- Map digital solutions to refining, processing, and distribution operations
- Improve asset performance and predictive maintenance using digital tools
- Develop a digital transformation roadmap aligned with organizational goals

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Why Attend

- Gain exposure to cutting-edge technologies reshaping downstream operations
- Learn from real-world examples and case studies from the energy sector
- Understand how to reduce operational costs and downtime using digital tools
- Acquire practical skills to drive technology adoption and cultural change
- Prepare for future energy transition challenges with digital innovation

Target Audience

This program is designed for:

- Engineers and managers in downstream operations and maintenance
- Digital transformation leads and innovation managers
- IT and OT professionals in the oil and gas sector
- Process engineers and refinery professionals
- Strategy and planning executives within energy companies

Individual Benefits

Key competencies that will be developed include:

- Enhanced digital literacy in emerging oil and gas technologies
- Ability to lead and support digital change initiatives
- Improved understanding of data-driven decision-making
- Practical skills in asset optimization and predictive analytics
- Confidence in building a digital transformation strategy

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Improved operational efficiency and cost reduction through digitalization
- Greater reliability and safety in downstream operations
- Better alignment of digital initiatives with business goals
- Enhanced collaboration between IT, OT, and operational teams
- Strengthened capacity for innovation and competitive advantage

Instructional Methodology

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

- Strategy Briefings – Deep dive into digital transformation frameworks, industry 4.0, and downstream-specific use cases
- Case Studies – Real-world examples of digital success in refining and petrochemicals
- Workshops – Practical exercises on mapping technology to operations and risk mitigation
- Peer Exchange – Discussions on transformation roadblocks and lessons learned
- Tools – Checklists, diagnostic tools, maturity models, and digital roadmap templates

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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: The Digital Future of Downstream Oil & Gas

- Module 1: Introduction to Digital Transformation (07:30 – 09:30)
- Defining digital transformation in the context of downstream operations
- Key drivers: market volatility, regulatory pressure, efficiency demands
- Overview of the digital maturity model in oil and gas
- Module 2: Digital Value Chain Mapping (09:45 – 11:15)
- Identifying digital touchpoints across refining, distribution, and retail
- Role of integrated platforms and systems
- Quick wins and long-term strategic opportunities
- Module 3: Case Study – Refinery 4.0 Implementation (11:30 – 01:00)
- Lessons from a leading refinery\'s transformation journey
- Technology stack and implementation challenges
- Operational improvements and KPIs
- Module 4: Workshop – Assessing Digital Readiness (02:00 – 03:30)
- Conduct a digital readiness self-assessment
- Identify key gaps and risk factors
- Build stakeholder buy-in

Day 2: Enabling Technologies in Downstream Operations

- Module 1: Internet of Things (IoT) and Sensor Networks (07:30 – 09:30)
- Role of IoT in real-time monitoring and process optimization
- Wireless sensors, edge computing, and data integration
- Use cases in storage tanks, pipelines, and refineries
- Module 2: Artificial Intelligence & Machine Learning (09:45 – 11:15)
- Predictive analytics for process control and asset health
- AI-driven anomaly detection and optimization
- ML models in quality and yield improvement
- Module 3: Digital Twin Technology (11:30 – 01:00)
- Concept and applications of digital twins in oil and gas
- Simulation and virtual commissioning
- Benefits in maintenance and operations planning
- Module 4: Workshop – Matching Technologies to Pain Points (02:00 – 03:30)
- Map enabling technologies to operational challenges
- Evaluate ROI and implementation feasibility
- Create use-case scenarios

Day 3: Asset Integrity and Predictive Maintenance

- Module 1: Smart Maintenance Strategies (07:30 – 09:30)
- From reactive to predictive maintenance models
- Condition monitoring and real-time alerts
- Maintenance optimization using analytics
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Module 2: Using AI for Failure Prediction (09:45 – 11:15)

- Identifying root causes and early failure signals
- Building AI models for critical equipment
- Integration with existing CMMS
- Module 3: Case Study – Reducing Downtime with Digital Tools (11:30 – 01:00)
- Downtime reduction strategy using analytics
- Data collection, processing, and visualization
- Maintenance KPIs and reporting dashboards
- Module 4: Workshop – Designing a Predictive Maintenance Plan (02:00 – 03:30)
- Develop a predictive maintenance workflow
- Select monitoring tools and define data points
- Outline success metrics and reporting

Day 4: Digital Risk, Safety, and Sustainability

- Module 1: Digital Safety Management Systems (07:30 – 09:30)
- Automation of safety reporting and compliance
- Real-time alerts and incident management
- Remote monitoring of safety-critical equipment
- Module 2: ESG and Digital Sustainability Tools (09:45 – 11:15)
- Role of digital tools in emissions monitoring and reduction
- Energy efficiency dashboards
- Sustainability KPIs and tracking
- Module 3: Cybersecurity in OT and Industrial Networks (11:30 – 01:00)
- Key risks in digitalized downstream environments
- Cybersecurity best practices and frameworks (NIST, ISA/IEC 62443)
- OT-IT convergence risks and mitigation strategies
- Module 4: Workshop – Creating a Digital Risk Plan (02:00 – 03:30)
- Identify digital risks across the operational landscape
- Develop mitigation strategies
- Define monitoring and governance mechanisms

Day 5: Building the Transformation Roadmap

- Module 1: Change Management and Culture Shift (07:30 – 09:30)
- Driving adoption of digital tools and systems
- Upskilling and capability building
- Managing resistance to change
- Module 2: Building the Business Case (09:45 – 11:15)
- Aligning digital initiatives with strategic goals
- Quantifying benefits and calculating ROI
- Communicating value to stakeholders
- Module 3: Final Roadmap and Action Plan (11:30 – 01:00)
- Prioritizing initiatives based on impact and feasibility
- Timeline, milestones, and governance
- Final peer feedback and refinement
- Module 4: Presentations and Wrap-Up (02:00 – 03:30)

Participant presentations on proposed transformation plans

- Group discussion and expert feedback
- Certificate awarding and conclusion

Certification

Participants will receive a Certificate of Completion in Digital Transformation for Downstream Oil & Gas, demonstrating their knowledge of how to implement emerging technologies to improve efficiency, safety, and profitability in downstream operations.

Why Choose MAWA Events

- **Global Expertise:** More than 17 years of experience in professional training and consulting.
- **Industry-Leading Faculty:** Courses delivered by seasoned professionals with hands-on experience.
- **Practical Insights:** Learn to turn theory into actionable strategies for real-world business impact.
- **Client-Focused Solutions:** Customized programs designed to achieve your organisation’s unique goals.

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