MAWA EVENTS

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

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

MATERIALS ENGINEERING

"Optimizing Material Selection, Performance, and Lifecycle for Industrial Applications"

Schedule

Date	Venue	Fees (Face-to-Face)
21 – 25 Jun 2026	Manama, Bahrain	USD 3495 per delegate

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

Introduction

Materials engineering plays a critical role in the performance, safety, cost, and sustainability of products and industrial systems. From raw material selection to failure prevention and lifecycle optimization, engineers and managers must understand material behavior under different operational conditions.

This intensive 5-day training provides participants with a comprehensive understanding of materials engineering principles, material selection strategies, and performance analysis. The course emphasizes practical applications across manufacturing, logistics, supply chain, and asset-intensive industries, enabling organizations to improve reliability, reduce costs, and enhance operational efficiency.

Objectives

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

- Understand fundamental concepts of materials science and engineering
- Identify and select appropriate materials for industrial applications
- Analyze material properties and behavior under service conditions
- Prevent material degradation, corrosion, and failure
- Improve product quality, durability, and lifecycle performance
- Apply materials engineering principles in logistics and supply chain decisions
- Optimize material usage to reduce costs and operational risks

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Why Attend

- Gain practical knowledge of materials used in modern industries
- Improve decision-making in material selection and sourcing
- Reduce failures, defects, and downtime caused by material issues
- Enhance collaboration between engineering, procurement, and operations
- Strengthen supply chain reliability and asset performance
- Build technical competence applicable across multiple industries

Target Audience

This program is designed for:

- Materials, mechanical, and industrial engineers
- Supply chain, logistics, and procurement professionals
- Maintenance, reliability, and asset management professionals
- Quality assurance and quality control personnel
- Operations and production managers
- Technical professionals involved in material selection and evaluation

Individual Benefits

Key competencies that will be developed include:

- Strong understanding of material properties and classifications
- Ability to evaluate materials for strength, durability, and cost
- Skills to identify causes of material failure and degradation
- Improved analytical and problem-solving capabilities
- Enhanced technical communication with suppliers and stakeholders
- Broader understanding of material impact on logistics and lifecycle costs

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Improved material selection and procurement decisions
- Reduced failure rates and maintenance costs
- Enhanced product quality and operational reliability
- Optimized inventory and material lifecycle management
- Stronger supplier evaluation and control processes
- Increased efficiency across production and supply chain operations

Instructional Methodology

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

- Strategy Briefings – Core principles of materials engineering, material behavior, and industrial applications
- Case Studies – Real-world examples of material selection, failures, and performance optimization
- Workshops – Hands-on exercises in material selection, failure analysis, and lifecycle evaluation
- Peer Exchange – Group discussions on challenges, best practices, and lessons learned
- Tools – Practical frameworks, material selection matrices, and evaluation checklists

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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: Fundamentals of Materials Engineering

Module 1: Introduction to Materials Engineering (07:30 – 09:30)

- Role of materials engineering in industry and supply chains
- Classification of engineering materials

Module 2: Atomic Structure & Material Properties (09:45 – 11:15)

- Atomic bonding and crystal structures
- Mechanical, thermal, and electrical properties

Module 3: Material Testing & Characterization (11:30 – 01:00)

- Tensile, hardness, impact, and fatigue testing

Module 4: Material Selection Principles (02:00 – 03:30)

- Selection criteria based on performance, cost, and availability

Day 2: Metals and Alloys

- Ferrous and non-ferrous metals
- Heat treatment and its impact on properties
- Corrosion mechanisms and prevention
- Applications in manufacturing and infrastructure

Day 3: Polymers, Ceramics, and Composites

- Properties and applications of polymers
- Ceramics and advanced materials
- Composite materials and lightweight solutions
- Selection for logistics, packaging, and industrial use

Day 4: Material Degradation, Failure & Reliability

- Wear, fatigue, creep, and fracture
- Failure analysis techniques
- Environmental effects on materials
- Improving material reliability and lifespan

Day 5: Materials Engineering in Supply Chain & Lifecycle Management

- Materials in procurement and supplier evaluation
- Inventory, storage, and handling considerations
- Lifecycle costing and sustainability
- Best practices and implementation roadmap

Certification

Participants will receive a Certificate of Completion in Materials Engineering, validating their knowledge and practical skills in material selection, performance analysis, failure prevention, and lifecycle optimization across industrial and supply chain environments.

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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**