MAWA EVENTS

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

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

COMPOSITE REPAIRS FOR STRUCTURAL INTEGRITY

"Enhance Structural Life and Safety Through Advanced Composite Repair Technologies."

Schedule

Venue (InHouse)	Fees
At Your Organization Premises	Ask For The Quotation

► **Available delivery methods:** In-House Training

Introduction

This comprehensive course provides participants with a practical and technical understanding of composite repair methods used to restore the structural integrity of metallic and non-metallic systems. The training focuses on the design, selection, application, and inspection of composite repair systems in accordance with industry standards such as ISO, ASME PCC-2, and API 653. Participants will gain hands-on knowledge of repair techniques, surface preparation, adhesive bonding, material compatibility, and performance verification through inspection and testing.

Objectives

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

- Understand the principles and benefits of composite repairs for structural components
- Select appropriate materials and repair systems for different applications
- Apply composite wraps and bonded repair techniques effectively
- Comply with standards and codes governing composite repairs (e.g., ASME, ISO, API)
- Perform inspection and testing of repaired areas to ensure long-term reliability

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Why Attend

Composite repairs offer a non-intrusive, cost-effective alternative to traditional welding and replacement. This course empowers professionals to implement cutting-edge repair strategies that extend asset life and reduce downtime—critical in industries such as oil & gas, marine, utilities, and aerospace.

Target Audience

- Mechanical, Structural, and Maintenance Engineers
- Asset Integrity and Reliability Professionals
- QA/QC Inspectors and Coating Specialists
- Plant Managers and Operations Supervisors
- Technicians and Contractors involved in repair execution
- Anyone responsible for pressure systems, piping, tanks, or structural supports

Individual Benefits

- Acquire specialized skills in composite repair application and validation
- Boost your confidence in managing critical repair scopes
- Learn to interpret damage types and recommend repair methods
- Gain insights into the latest advancements in non-metallic repair systems

Organizational Benefits

- Reduce costly unplanned downtime with rapid repair options
- Improve structural safety and regulatory compliance
- Minimize hot work risk and enhance workplace safety
- Extend the operational life of critical infrastructure at reduced costs

Instructional Methodology

- Technical lectures and visual demonstrations
- Real-world case studies from offshore, refinery, and process sectors
- Hands-on workshop exercises for surface prep and wrap application
- Interactive quizzes, video tutorials, and group discussions
- Guidelines and templates for repair design and documentation

Course Outline

DETAILED 5-DAY COURSE OUTLINE (CUSTOMIZABLE)

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 Composite Repairs

- Module 1: Overview of Structural Integrity and Damage Mechanisms (07:30 – 09:30)
- Module 2: Introduction to Composite Repair Technology & Standards (09:45 – 11:15)
- Module 3: Material Types: Resins, Fibers, and Adhesives (11:30 – 01:00)
- Module 4: Case Studies in Composite Repair Applications (02:00 – 03:30)

Day 2: Design & Engineering Considerations

- Module 1: Failure Assessment Diagrams & Fitness-for-Service (07:30 – 09:30)
- Module 2: Repair Design Principles: Load Transfer, Stiffness, Thickness (09:45 – 11:15)
- Module 3: Environmental Factors and Long-Term Behavior (11:30 – 01:00)
- Module 4: Standards Review: ASME PCC-2, ISO 24817, API 653 (02:00 – 03:30)

Day 3: Surface Preparation and Application Techniques

- Module 1: Surface Preparation Standards and Methods (07:30 – 09:30)
- Module 2: Wet Lay-Up, Prepreg, and Cold Cure Systems (09:45 – 11:15)
- Module 3: Wrapping Techniques and Curing Processes (11:30 – 01:00)
- Module 4: Workshop: Demonstration of Repair Kit Application (02:00 – 03:30)

Day 4: Inspection, Testing, and Validation

- Module 1: Visual Inspection and Ultrasonic Testing of Repairs (07:30 – 09:30)
- Module 2: Pressure Testing, Hardness, and Bond Strength Checks (09:45 – 11:15)
- Module 3: NDT Techniques: IR Thermography, AE, and Shearography (11:30 – 01:00)
- Module 4: Failure Modes, Debonding, and Life Expectancy (02:00 – 03:30)

Day 5: Risk Assessment and Case Analysis

- Module 1: Risk-Based Inspection (RBI) and Criticality Ranking (07:30 – 09:30)
- Module 2: Decision-Making: Repair vs. Replacement (09:45 – 11:15)
- Module 3: Documentation, QA/QC, and Regulatory Considerations (11:30 – 01:00)
- Module 4: Final Assessment, Certificate Wrap-Up, and Action Planning (02:00 – 03:30)

Certification

Participants will be awarded a Certificate of Completion – Composite Repairs for Structural Integrity upon fulfilling attendance, practical exercises, and assessment requirements. This course aligns with global repair and integrity standards and supports further qualification in asset integrity and repair engineering.

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.

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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**