



## دورة تدريبية في المواد المركبة ومعالجتها



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المرجع: 36306\_50255 التاريخ: 13 - 17 Sep 2026 الموقع: اسطنبول الرسوم: Euro 4500

### Course Overview:

This course offers an in-depth exploration of composite materials, covering Fiber-Reinforced Composites, Polymer Matrix Composites, Metal Matrix Composites, and Ceramic Matrix Composites. This course delves into the latest advances in Nanocomposites and provides hands-on experience with Composite Processing Techniques, including Resin Transfer Molding, Autoclave Processing, and the Pultrusion Process. Participants will gain insights into the diverse applications of composites in industries such as aerospace and automotive, focusing on Composite -Recycling and Structural Health Monitoring. The course also explores Smart Composites Technology and High Performance Composite Materials, emphasizing Sustainable Composites and Lightweight Composite Materials. With a focus on Composite Material Properties and Classification, this course equips participants with the skills needed to innovate in the field of composite engineering, addressing current trends and challenges in Composite Material Development and Research.

### Target Audience:

- Engineers and technicians in the different industries
- R&D professionals in materials science
- Quality control and production managers
- Individuals aiming to specialize in areas like Nano-Enhanced Composites and Smart Composites Technology

### Targeted Organizational Departments:

- R&D and Innovation Departments
- Manufacturing and Production Units
- Quality Control and Assurance
- Engineering and Design Teams
- Sustainability and Environmental Compliance Units

### Targeted Industries:

- Plastic and Chemical Industries
- Automotive and Transportation
- Marine and Shipbuilding
- Construction and Infrastructure
- Renewable Energy

## Course Offerings:

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

- Understand the fundamental principles of Composite Materials
- Classify and differentiate between Fiber-Reinforced, Polymer Matrix, Metal Matrix, and Ceramic Matrix Composites
- Apply Composite Processing Techniques in practical scenarios
- Identify and evaluate the properties and applications of Advanced Composites
- Implement sustainable practices in Composite Recycling and Material Selection

## Training Methodology:

This course employs a blend of interactive lectures, hands-on workshops, and real-world case studies. Participants will engage in group work to explore the Mechanical Properties of Composites, participate in practical sessions on Composite Fabrication Methods, and receive personalized feedback during Structured Reflection sessions. The course also features industry expert-led sessions on Composite Material Innovations and Sustainable Composites.

## Course Toolbox:

- Comprehensive workbooks on Composite Materials
- Reading materials covering the latest research in Composite Material Trends
- Checklists and templates for Composite Processing Techniques

## Course Agenda:

### Day 1: Introduction to Composite Materials

- Definition and Basic Concepts of Composite Materials Topic 1:
- Brief History of Composite Materials Topic 2:
- Classification of Composite Materials Topic 3:
- Advantages of Composites Topic 4:
- Disadvantages of Composites Topic 5:
- Properties of Composites Topic 6:
- Discuss the fundamental concepts and the evolution of composites, highlighting their Reflection & Review: advantages and disadvantages.



## Day 2: Fiber and Particulate Composites

- Fiber-Reinforced Composites: Types and Applications Topic 1: •
  - Elastic Behavior under Longitudinal and Transverse Loading Topic 2: •
  - Tensile Strength and Mechanical Properties Topic 3: •
  - Discontinuous Fiber-Reinforced Composites Topic 4: •
  - Particulate Composites: Materials and Uses Topic 5: •
  - Applications of Fiber and Particulate Composites Topic 6: •
- Explore the characteristics and mechanical properties of fiber and particulate composites, including case studies on their applications. Reflection & Review: •

## Day 3: Matrix Materials and Processing Techniques

- Polymer Matrix Materials: Thermosets vs. Thermoplastics Topic 1: •
  - Properties of Polymers in Composite Matrices Topic 2: •
  - Resin Transfer Molding and Hand Lay-Up Process Topic 3: •
  - Autoclave Processing and Advanced Curing Techniques Topic 4: •
  - Filament Winding and Pultrusion Processes Topic 5: •
  - Compression Molding Techniques Topic 6: •
- Review the key processing techniques and the role of matrix materials in defining the properties of composites. Reflection & Review: •

## Day 4: Advanced Composites and Nanotechnology

- Nano-Reinforcements: Nanofibers, Nanotubes, and Nanoclays Topic 1: •
  - Metal Matrix Composites: Processing and Applications Topic 2: •
  - Ceramic Matrix Composites: Toughening Mechanisms Topic 3: •
  - Smart Composites and Structural Health Monitoring Topic 4: •
  - Environmental Effects on Composites and Recycling Topic 5: •
  - Sustainable Composites and Future Trends Topic 6: •
- Delve into the latest advancements in composite materials, including nanotechnology and sustainable practices. Reflection & Review: •

## Day 5: Applications, Testing, and Industry Integration

- Applications of Composites in Industries Topic 1: •
  - Testing and Evaluation of Composite Materials Topic 2: •
  - Fatigue, Creep, and Mechanical Properties Analysis Topic 3: •
  - Composite Material Design and Innovation Topic 4: •
  - Integration of Composites in Industrial Applications Topic 5: •
  - Future Directions in Composite Research and Development Topic 6: •
- Summarize the course, emphasizing practical applications, testing methodologies, and future research opportunities in the field of composites. Reflection & Review: •

## How This Course is Different from Other Composite Materials Courses:

The course distinguishes itself through a complete curriculum that not only covers traditional composite materials but also dives deep into emerging fields like Nanocomposites and Smart Composites Technology. Unlike other courses, this program emphasizes practical applications and industry-specific challenges, offering tailored insights into Composite Material Properties and Environmental Effects on Composites. Participants benefit from a blend of theoretical knowledge and hands-on experience, guided by industry experts. The course's focus on sustainability and cutting-edge innovations ensures that participants are equipped to meet the demands of modern composite engineering, making it a unique and invaluable educational experience.



## فئات الدورات التدريبية



HR TRAINING & DEVELOPMENT

دورات إدارة و تطوير الموارد البشرية



دورات إدارة و تحليل البيانات ودورات علم البيانات



دورات إدارة الجودة وتطوير العمليات



الدورات التدريبية في مجال البيئة والاستدامة



دورات التسويق وإدارة علاقات العملاء وإدارة المبيعات



دورات التدريب القانوني والمشتريات والتعاقدات



دورات الاتصال الجماهيري و السياسات والعلاقات العامة



دورات النظم السبراني ودورات تقنية المعلومات



دورات الصيانة ودورات المجالات الهندسية المتنوعة



دورات الصحة والسلامة والأمن المهني



دورات السكرتارية و إدارة المكاتب



دورات الحوكمة وإدارة المخاطر والامتثال



**AGILE LEADERS**  
Training Center

## فئات الدورات التدريبية



دورات معتمدة من قبل هيئات دولية



دورات في مجالات القيادة والإدارة



دورات المهارات الشخصية وتطوير الذات



دورات المحاسبة و التمويل و دورات الإدارة  
المالية



دورات مكتب إدارة المشاريع وإدارة المشاريع  
الرشيقية

## مدن التدريب



اسطنبول - تركيا



أموستردام - هولندا



أنقرة - تركيا



أثينا - اليونان



الرياض - المملكة العربية السعودية



الدوحة - قطر



الدار البيضاء - المغرب



الجبيل - المملكة العربية السعودية



باريس - فرنسا



المنامة - مملكة البحرين



الكويت - الكويت



القاهرة - مصر



براغ - جمهورية التشيك



بانكوك - تايلاند



بالي - جمهورية إندونيسيا



باكو - أذربيجان

## مدن التدريب



جاكرتا - جمهورية اندونيسيا



تيليسي - جورجيا



بوكيت - تايلاند



برشلونة - اسبانيا



روما - ايطاليا



دبي - الامارات العربية المتحدة



جوهانسبرغ - جنوب افريقيا



جنيف - سويسرا



شهر الشيخ - مصر



سيول - كوريا الجنوبية



سان دييغو - الولايات المتحدة  
الامريكية



زنبار - تنزانيا



طوكيو - اليابان



طشقند - اوزبكستان



طرابزون - تركيا



شيكاغو - الولايات المتحدة  
الامريكية

## مدن التدريب



كوالالمبور - ماليزيا



فيينا - النمسا



عن بعد - منصة زووم



عمان - المملكة الأردنية الهاشمية



ماربيا - اسبانيا



لندن - المملكة المتحدة



لانكاوي - ماليزيا



كيب تاون - جنوب إفريقيا



ميلان - إيطاليا



مونترال - سويسرا



مسقط - سلطنة عمان



مدريد - إسبانيا



نيس - فرنسا



نيروبي - كينيا



ميونخ - ألمانيا

# WHO WE ARE

Agile Leaders is a renowned training center with a team of experienced experts in vocational training and development. With 20 years of industry experience, we are committed to helping executives and managers replace traditional practices with more effective and agile approaches.

## OUR VISION

We aspire to be the top choice training provider for organizations seeking to embrace agile business practices. As we progress towards our vision, our focus becomes increasingly customer-centric and agile.

## OUR MISSION

We are dedicated to developing value-adding, customer-centric agile training courses that deliver a clear return on investment. Guided by our core agile values, we ensure our training is actionable and impactful.

## WHAT DO WE OFFER

At Agile Leaders, we offer agile, bite-sized training courses that provide a real-life return on investment. Our courses focus on enhancing knowledge, improving skills, and changing attitudes. We achieve this through engaging and interactive training techniques, including Q&As, live discussions, games, and puzzles.



**AGILE LEADERS**  
Training Center

## CONTACT US

 UAE, Dubai Investment Park First

 +971585964727  
 +447700176600

 [sales@agile4training.com](mailto:sales@agile4training.com)