MERCURY

Engineering Scaffolding Design Training

14 – 18 December 2026
Rome (Italy)



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Ref: 16230_1011554 **Date:** 14 – 18 December 2026 **Location:** Rome (Italy) **Fees:** 7200 Euro

Introduction:

The Engineering Scaffolding Design course equips engineers, site supervisors, and construction professionals with the essential knowledge and practical skills for the safe and efficient design of scaffolding structures. With safety and compliance being critical in the construction and industrial sectors, this course ensures that participants understand both engineering principles and regulatory requirements for scaffolding systems.

The Engineering Scaffolding Design training course explores various scaffold types, load calculations, risk mitigation strategies, and structural integrity assessments. Participants will gain the ability to interpret scaffold drawings, apply design standards, and manage scaffold installations safely and effectively.

This Engineering Scaffolding Design program aligns with modern industry practices and global safety standards, focusing on both temporary and permanent scaffolding solutions. It emphasizes the importance of inspection, testing, and documentation processes. Whether for industrial plants, high-rise projects, or offshore structures, this training prepares learners to handle diverse scaffolding challenges with confidence.

Targeted Groups:

This Engineering Scaffolding Design training targets professionals seeking specialized knowledge and skills:

- Civil and structural engineers in the construction sector.
- Scaffolding inspectors and safety officers.
- Site and project supervisors.
- Technical consultants and infrastructure engineers.
- HSE and QA/QC professionals.
- Maintenance engineers in industrial facilities.
- Contractors are responsible for scaffolding operations.
- Architects are involved in structural detailing.
- Engineering graduates are entering the construction industry.
- Professionals in oil & gas, marine, and offshore projects.

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Course Objectives:

Participants will achieve the following objectives by completing the Engineering Scaffolding Design course:

- Understand the principles of scaffold design and structural load-bearing.
- Identify the various types of scaffolding systems and their respective applications.
- Calculate permissible loads and material strengths accurately to ensure safety and reliability.
- Interpret engineering drawings and scaffold layout schematics.
- Apply design standards, such as those outlined in EN, BS, and OSHA requirements.
- Conduct structural stability and safety analysis.
- Design scaffolding for various construction and industrial environments.
- Integrate risk management into the planning and execution of scaffold projects to ensure effective project management and control.
- Document design approvals, load calculations, and compliance certifications.
- Enhance scaffold erection planning to reduce downtime and hazards.
- Evaluate environmental impact and site-specific design considerations to ensure a sustainable approach.
- Collaborate effectively with stakeholders across multidisciplinary teams.
- Supervise erection and dismantling operations by approved designs.
- Improve compliance with local and international safety codes.
- Develop strategies for scaffold maintenance, inspection, and documentation to ensure optimal performance and safety.

Targeted Competencies:

Participants will gain the following competencies during the Engineering Scaffolding Design training program:

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- Scaffold design analysis and technical planning.
- Application of structural calculations for load management.
- Understanding scaffold configurations and system selection.
- Risk assessment and hazard control in scaffold operations.
- Interpretation of design standards and regulations.
- Technical drawing and structural layout comprehension.
- Safe supervision of scaffold erection and dismantling.
- Inspection and quality assurance of scaffolding structures.

Course Content:

Unit 1: Fundamentals of Scaffolding Design:

- Overview of scaffolding in construction and industrial settings.
- Definitions, classifications, and functions of scaffolding.
- Load types: dead loads, live loads, environmental loads.
- Introduction to modular, tube-and-coupler, and system scaffolds.
- Scaffold configuration types: independent, suspended, and cantilevered.
- Materials used in scaffolding: steel, aluminum, composites.
- Key design parameters and failure factors.
- Stability, anchorage, and bracing concepts.
- Common design mistakes and how to avoid them.

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Unit 2: Structural Calculations and Load Assessment:

- Principles of structural integrity and load transfer.
- Calculation of vertical, horizontal, and dynamic loads.
- Scaffold component capacity analysis.
- Wind, snow, and seismic load considerations.
- Load-bearing member selection and material factor analysis.
- Use of design software for scaffold load calculations.
- Safety Factor Incorporation and Compliance with Regulations.
- Examples and exercises in calculating scaffold strength.
- Assessing point loads and distributed loads in field scenarios.

Unit 3: Engineering Standards and Regulatory Frameworks:

- Overview of global and regional scaffold codes EN 12811, BS 5975, OSHA.
- Responsibilities of designers and competent persons.
- Design validation and third-party inspection protocols.
- Documentation requirements and compliance records.
- Permitting processes and legal considerations.
- Licensing, insurance, and liability aspects of scaffold design.
- Quality assurance procedures and inspection checklists.
- Health, Safety, and Environmental HSE integration.
- Risk mitigation and control strategy documentation.

Unit 4: Advanced Scaffold Design Applications:

- Scaffold design for high-rise and bridge construction.
- Offshore and marine scaffold design considerations.
- Scaffold access towers and rolling scaffold design.
- Load-sharing techniques and multi-bay scaffold strategies.
- Suspended scaffolds and hanging platforms.
- Temporary roofs and weather protection systems.
- Scaffold adaptations for irregular structures.
- Structural retrofitting and enhancement techniques.
- Designing scaffolds under time and space constraints.

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Unit 5: Inspection, Testing, and Site Implementation:

- Scaffold erection sequence planning and logistics.
- Roles and responsibilities in scaffold assembly.
- On-site testing and verification procedures.
- Inspection schedules and maintenance protocols.
- Fault detection and incident prevention strategies.
- Documentation of scaffold inspection and handover.
- Safety monitoring and real-time risk response.
- Practical case studies from industrial and construction projects.
- Final design review and certification procedures.

Final Insights & Key Takeaways:

This Engineering Scaffolding Design Training empowers professionals with practical skills in structural design, safety, and compliance. Participants complete the course with the ability to engineer scaffold systems tailored to complex site conditions and regulatory demands. The training bridges theory with hands-on implementation, ensuring competence in both design and supervision. They will enhance operational efficiency, ensure safety, and contribute to project success in construction and industrial environments.