MERCURY

Management Engineering Course

1 – 12 February 2027
Zanzibar (Tanzania)



Dubai - UAE: +971 4 450 5697
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Ref: 15630_1065326 **Date:** 1 – 12 February 2027 **Location:** Zanzibar (Tanzania) **Fees:** 9500 Euro

Introduction:

Principles of Management Engineering, where precision meets innovation in project oversight and industrial maintenance. Delve into frameworks such as Project Management PM, Condition Monitoring, Root Cause Analysis, Maintenance Audit, and Site Inspection. Explore the domains of Health and Safety Management, Hazards Identification and Risk Assessment, and the intricate art of interpreting Engineering Drawings.

Participants in this Management Engineering course will apply recognized project management tools, techniques, and methodologies essential for navigating the complexities of the engineering landscape. Uncover the nuances of machinery failure, vibration analysis, and predictive maintenance, understanding their role in operational reliability.

In this Management Engineering training, participants will Prepare to confront and conquer challenges by learning about failure types and investigation protocols and deriving insights from accidents. They will gain proficiency in hazard identification and risk assessment practices vital for ensuring workplace safety and regulatory compliance.

Participants will immerse themselves in electrical engineering diagrams' intricacies and practical applications, fostering an understanding of machine failure analysis techniques. This Management Engineering course is the gateway to mastering the interdisciplinary skills demanded by the dynamic field of Management Engineering.

Management Engineering combines organizational management principles with engineering expertise to streamline systems and optimize project outcomes. Explore what Management Engineering entails, how it intersects with project management engineering, and its applications in the business and industrial realms.

Targeted Groups:

- Engineering Managers are seeking advanced project management skills.
- Maintenance Engineers aim to enhance predictive maintenance capabilities.
- Safety Officers focusing on health and safety management in industrial settings.
- Technical Supervisors are responsible for machinery inspection and maintenance audits.
- Project engineers interested in root cause analysis and failure investigation techniques.

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Course Objectives:

At the end of this Management Engineering course, the participants will be able to:

- Master the PM framework to manage engineering projects effectively.
- Acquire skills in condition monitoring for proactive equipment maintenance.
- Learn root cause analysis techniques to address underlying issues.
- Conduct thorough maintenance audits and site inspections for operational efficiency.
- Implement health and safety management practices to ensure workplace well-being.
- Develop expertise in hazard identification and risk assessment for risk mitigation.
- Interpret various types of engineering drawings to support project execution.
- Understand machinery failure, vibration analysis, and predictive maintenance for reliability improvement.

Targeted Competencies:

By the end of this Management Engineering training, participants competencies will:

- Proficiency in implementing PM frameworks for efficient project management.
- Expertise in conducting condition monitoring to optimize equipment performance.
- Skill in conducting root cause analysis to identify underlying issues.
- Competence in performing maintenance audits and site inspections.
- Master health and safety management practices in engineering environments.
- Ability to identify hazards and conduct comprehensive risk assessments.
- Capability to interpret and utilize various types of engineering drawings effectively.
- Knowledge of machinery failure, vibration analysis, and predictive maintenance techniques.

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Course Content:

Unit 1: PM Framework:

- Introduction to project management principles and methodologies.
- Understanding project life cycles and phases.
- Tools and techniques for project planning, scheduling, and budgeting.
- Project risk management and mitigation strategies.
- Leadership and communication skills in project management.

Unit 2: Condition Monitoring:

- Techniques for monitoring equipment condition in real-time.
- Use of sensors and data analytics for predictive maintenance.
- Implementing condition-based maintenance strategies.
- Case studies on flourishing condition tracking implementations.
- Integration of condition monitoring with overall asset management.

Unit 3: Root Cause Analysis:

- Methods for identifying root causes of equipment failures.
- Application of fishbone diagrams and fault tree analysis.
- Conducting effective investigations using the 5 Whys technique.
- Preventive actions and corrective measures on the outcomes of the analysis.
- Continuous improvement through feedback and learning from incidents.

Unit 4: Maintenance Audit And Site Inspection:

- Planning and conducting comprehensive maintenance audits.
- Techniques for assessing equipment reliability and performance.
- Compliance with regulatory standards and industry best practices.
- Documentation and reporting of audit findings.
- Site inspections are essential to ensure operational integrity.

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Unit 5: Health And Safety Management:

- Legal requirements and regulations related to workplace safety.
- Implementing safety policies and procedures in engineering environments.
- Training programs for hazard identification and emergency response.
- Monitoring and evaluating safety performance metrics.
- Promoting a culture of safety among employees and stakeholders.

Unit 6: Hazards Identification And Risk Assessment:

- Identifying potential hazards in engineering operations.
- Conducting qualitative and quantitative risk assessments.
- Risk evaluation and prioritization techniques.
- Developing risk mitigation strategies and contingency plans.
- Reviewing and updating risk assessments based on changing conditions.

Unit 7: Reading Engineering Drawings:

- Types of engineering drawings e.g., mechanical, electrical, structural.
- Symbols, conventions, and standards for interpreting drawings.
- Dimensioning and tolerancing specifications.
- Using CAD software to view and edit drawings.
- Applications of engineering drawings in project planning and execution.

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Unit 8: Machinery Failure, Vibration, and Predictive Maintenance:

- Understanding different types of machinery failures e.g., mechanical, electrical.
- Analysis of vibration patterns and frequency spectra.
- Predictive maintenance techniques using vibration data.
- Implementing condition monitoring for early fault detection.
- Case studies on successful predictive maintenance programs.

Unit 9: Types of Electrical Engineering Drawings and Diagrams:

- Schematic diagrams for electrical circuits and systems.
- Wiring diagrams and layout drawings for installations.
- Control and instrumentation diagrams e.g., P&ID, PFD.
- Interpreting symbols and annotations on electrical drawings.
- Applications of electrical drawings in troubleshooting and maintenance.

Unit 10: Machine Failure Analysis Techniques:

- Failure mode and effects analysis FMEA for systematic analysis.
- Reliability-centered maintenance RCM methodologies.
- Case studies on failure analysis and problem-solving approaches.
- Implementing corrective actions based on failure analysis outcomes.
- Continuous improvement through lessons learned from past failures.