



Advanced Engineering and  
Management Course





# Advanced Engineering and Management Course

## Introduction:

The Advanced Engineering and Management Course will equip professionals with the comprehensive skills and knowledge required to excel in the dynamic field of engineering project management.

This course focuses on critical areas such as Project Risk Analysis and Management, Maintenance Strategies, Maintenance Contracting and Outsourcing, Contract Risk Management and Compliance, Service Level Agreements, Quality Assurance and Quality Control, and Optimizing Equipment Maintenance and Replacement Decisions.

Participants will develop the expertise to lead projects involving maintenance, upgrades, replacements, and new developments. The course aims to enhance engineering skills in negotiating and managing agreements with contractors, particularly in outsourcing maintenance.

Additionally, it addresses the complexities of legal cases and complaints related to guarantee claims, ensuring that candidates are well-prepared to handle these challenges effectively. This course is ideal for those seeking to advance their careers as project managers and elevate their proficiency in project risk analysis and engineering management.

## Targeted Groups:

- Project Managers.
- Maintenance Engineers.
- Contract Managers.
- Quality Assurance Professionals.
- Operations Managers.
- Facility Managers.
- Risk Management Professionals.
- Senior Engineers.
- Engineering Consultants.
- Procurement Specialists.

## Course Objectives:

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

- Develop advanced project risk analysis and management skills.
- Formulate and implement effective maintenance strategies.
- Manage maintenance contracting and outsourcing processes.
- Ensure contract risk management and compliance.
- Create and oversee comprehensive service-level agreements.
- Apply quality assurance and quality control techniques.
- Optimize equipment maintenance and replacement decisions.
- Lead projects involving maintenance, upgrades, replacements, and new developments.
- Enhance skills in negotiating contractor agreements during outsourcing maintenance.
- Understand and manage legal cases and complaints in guarantee claims.

## Targeted Competencies:

- Project Risk Analysis.
- Maintenance Strategy Development.
- Contracting and Outsourcing Management.
- Risk Management and Compliance in Contracts.
- Service Level Agreement Formulation.
- Quality Assurance and Quality Control.
- Equipment Maintenance Optimization.
- Replacement Decision-Making.
- Contractor Agreement Negotiation.
- Legal Case Management and Guarantee Claims Handling.

## Course Content:

### Unit 1: Project Risk Analysis & Management:

- Identify potential project risks and their impacts.
- Develop risk mitigation strategies.
- Implement risk management frameworks.
- Monitor and control risks throughout the project lifecycle.
- Conduct risk assessment workshops and simulations.
- Utilize risk analysis tools and techniques.

### Unit 2: Maintenance Strategies:

- Explore different types of maintenance strategies: preventive, predictive, and corrective.
- Develop a maintenance strategy tailored to organizational needs.
- Implement best practices for maintenance planning and scheduling.
- Analyze the cost-effectiveness of various maintenance strategies.
- Integrate maintenance strategies with overall asset management plans.

### Unit 3: Maintenance Contracting & Outsourcing:

- Understand the principles of maintenance contracting and outsourcing.
- Develop criteria for selecting maintenance contractors.
- Negotiate and draft maintenance contracts.
- Manage contractor performance and relationships.
- Evaluate the pros and cons of outsourcing maintenance activities.

### Unit 4: Contract Risk Management & Compliance:

- Identify risks associated with contracts.
- Develop strategies to manage contract risks.
- Ensure compliance with contract terms and conditions.
- Implement contract monitoring and auditing processes.
- Handle disputes and claims related to contracts.

## **Unit 5: Service Level Agreements:**

- Define the purpose and scope of service level agreements SLAs.
- Develop measurable performance indicators for SLAs.
- Negotiate SLAs with service providers.
- Monitor and review SLA performance.
- Adjust SLAs to reflect changing business needs.

## **Unit 6: Quality Assurance QA & Quality Control QC:**

- Differentiate between QA and QC processes.
- Implement QA/QC methodologies in projects.
- Conduct quality audits and inspections.
- Use statistical tools for quality control.
- Develop a continuous improvement culture.

## **Unit 7: Optimizing Equipment Maintenance and Replacement Decisions:**

- Assess the condition and performance of equipment.
- Develop criteria for equipment replacement.
- Use lifecycle cost analysis for decision-making.
- Implement predictive maintenance technologies.
- Optimize maintenance schedules to extend equipment life.

## **Unit 8: Leading Maintenance, Upgrade, and Replacement Projects:**

- Plan and execute maintenance, upgrade, and replacement projects.
- Develop project charters and plans.
- Allocate resources effectively.
- Monitor project progress and performance.
- Manage project stakeholders and communication.

## **Unit 9: Negotiating Contractor Agreements:**

- Develop negotiation skills specific to maintenance contracts.
- Understand key contract clauses and terms.
- Resolve conflicts and negotiate win-win agreements.
- Manage post-contract negotiation adjustments.
- Ensure clarity and precision in contract documentation.

## **Unit 10: Legal Cases and Complaints in Guarantee Claims:**

- Understand the legal framework for guarantee claims.
- Identify common issues in guarantee claims.
- Develop strategies to handle legal disputes.
- Document and present claims effectively.
- Work with legal professionals to resolve complaints.