



Maintenance & Reliability Management

Lean Manufacturing Process Analysis and Improvement

Course Introduction

Becoming a lean organization is not an easy feat and cannot be done overnight. The lean manufacturing process allows organizations to eliminate wasteful practices and improve efficiency. Its focus is on improving products and services based on what customers want and value.

This training course is designed to provide participants with the essential lean manufacturing processes and ways of workplace improvement using tools and techniques. This course will introduce topics such as the 5S, TPM, MUDA, SIPOC, advanced manufacturing analysis, measuring and prioritizing improvements, improvement of material flow by right plant layouts, and lean workplace improvement.

Target Audience

- Facilities Engineer
- Facilities Engineering Manager
- Facilities Manager
- Facilities Specialist / Coordinator
- Health and Safety Engineer
- Maintenance Group Leader
- Maintenance Helper / Assistant
- Maintenance Manager
- Maintenance Superintendent
- Maintenance Supervisor
- Mechanical Reliability Engineer
- Network Reliability Engineer
- Operations and Maintenance Specialist
- Reliability Engineer

Learning Objectives

- Gain a comprehensive understanding of the key lean manufacturing processes.
- Explore the lean manufacturing tools and their impact on Plant Productivity and Product Cost
- Choose tools and techniques in the efforts to introduce lean practices within the organization.
- Conduct analysis and periodical lean audits to check for opportunities for improvement and enhancements of lean implementation
- Obtain in-depth understanding of advanced analysis in improvement of manufacturing processes and the difference between discrete manufacturing and continuous manufacturing.
- Apply strategies and ways of workplace improvement in the organization.

Course Outline

- **01 DAY ONE**

- Introduction to Lean Manufacturing**

- Continuous Improvement
 - Improvement Philosophies and Methodologies
 - Principles of Lean
 - Thinking Revolution
 - Getting Customer Focus – Understand Value
 - Understand the High-Level Process Flow (SIPOC)
 - Map the Value Stream
 - Improve Flow – Remove non-value-added steps and wastes
 - Create Pull – Manage by fact and reduce variation
 - Seek Perfection
 - Manufacturing Case Study

MUDA, MURI and MURA as per Lean (Manufacturing Examples)

- Understanding MUDA
- Defects
- Overproduction
- Waiting
- Non-utilised talent
- Transportation
- Inventory
- Motion
- Extra processing
- MURI
- MURA

• 02 DAY TWO

5S

- The 5S
- Preparation
- 1st Pillar – Sorting
- 2nd Pillar- Set in Order
- 3rd Pillar – Shine
- 4th Pillar – Standardize
- 5th Pillar – Sustain
- 5S Tools
- Red Tagging
- Signs
- Painting
- Preventive
- Promotion
- Poka-Yoke
- Inspection
- Statistical Quality Control
- Zero Defects
- Design Methodology
- Examples

- Standard Operations
- Jidoka

TPM

- Equipment Efficiency – Performance
- Equipment Efficiency – Motion Study
- Motion Study
- Value Analysis
- 5W and 2H Analysis
- 5 Why Analysis
- Worker – Machine Diagram
- Machine – Worker Ratio
- Machine – Machine Diagram
- Equipment Efficiency – Availability, Performance and Maintenance
- Equipment Maintenance – Preventive
- Systematic Preventive Maintenance
- Conditional Preventive Maintenance /Predictive Maintenance
- Equipment Maintenance – Corrective
- Urgent Repairs
- Schedule Corrective
- Autonomous Maintenance
-

• 03 DAY THREE

- Reliability Centred Maintenance
- Maintenance Tools
- FMEA
- MTBF
- MTTR
- One-Piece Flow
- Multi-functional workers
- Kanban
- Levelling Production
- SMED
- What is SMED?
- Set-Up Time

- Set-Up Process
- 3 Steps SMED Process
- 1st, 2nd and 3rd Stage Set-Up Tools
- Zero Changeover
- Benefits
- Visual Control
- Workforce Optimization
- JUST IN TIME

Manufacturing Process Analysis

- The Data Analysis Process
- Data Collection in Different Manufacturing Settings
- Data Storage
- Data Analysis: Computational Techniques and Platforms

Measuring and Prioritizing Improvements

- Radar Chart – Measuring Improvements in Twenty Areas
- OEE (Overall Equipment Efficiency-Availability, Performance, Quality)
- Available Work Time
- Load Time
- Six Types of Equipment Losses

• 04 DAY FOUR

Improvement of Material Flow by Right Plant Layouts

- Understanding Different Types of Manufacturing Industries
- Understanding Different Types of Layouts
- Four Signs and Reasons for a Need to Change the Layout
- Six-Step Process to a Good Layout
- Eight Factors Consideration for a Good Layout
- Equipment Losses

- One-Piece Flow
- Transfer Batch and Production Batch

Material Flow and Design of Cellular Layouts

- Material Flow in Assembly Lines and Mass Production
- Cell Layout Justification
- Basic Cell Design Nomenclature
- TAKT Time
- Cycle Time
- Cell Design Methodology
- Cell Design Tools
- Line Balancing
- Group Technology
- Time Study

• 05 DAY FIVE

Lean Workplace Improvement

- Cleaning and Organizing
- Rationalizing the System
- Improvement Team Activities
- Reducing Inventory
- Quick Changeover Technology
- Method Improvement (Motion Study)
- Zero Monitor Manufacturing
- Coupled Manufacturing
- Maintaining Equipment
- Time Control and Commitment
- Quality Assurance System
- Developing Your Suppliers
- Eliminating Waste
- Empowering Workers to Make Improvements
- Cross-Training
- Production Scheduling

- Efficiency Control
- Using Information System
- Conserving Energy and Materials
- Leading Technology

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
May 5, 2025	May 9, 2025	5 days	4250.00 \$	UAE - Dubai
Aug. 18, 2025	Aug. 22, 2025	5 days	4250.00 \$	UAE - Abu Dhabi
Nov. 17, 2025	Nov. 21, 2025	5 days	4950.00 \$	France - Paris