

Course No. 1638

World-Class Manufacturing & Lean Production Training Course

MANUFACTURING & PRODUCTION ENGINEERING
INDUSTRIAL ENGINEERING, MAINTENANCE & OPERATIONS

DURATION

5 Days

DELIVERY

Classroom



Course Overview

The World-Class Manufacturing & Lean Production Training Course is an advanced professional program designed to develop the capabilities required to build high-performing manufacturing operations that consistently focus on productivity, quality, cost efficiency, delivery performance, flexibility, and operational stability. The course provides a structured approach to understanding how world-class manufacturing principles and Lean production practices can be integrated into daily operations to create sustainable operational improvements.

Modern manufacturing organizations face increasing pressure to improve productivity, reduce operating costs, respond quickly to changing customer requirements, and maintain consistent quality and reliability. Achieving these objectives requires more than isolated improvement projects. It requires an integrated production system that eliminates waste, improves process flow, strengthens standardization, optimizes resources, and establishes continuous improvement as part of the operating culture.

This World-Class Manufacturing & Lean Production Training Course explores the key principles and practices used to improve manufacturing performance, including Lean production, value stream mapping, waste elimination, continuous flow, production line balancing, bottleneck management, setup and changeover reduction, standardized work, visual management, quality at source, Total Productive Maintenance, and operational performance measurement. Participants will learn how these practices can be connected into a coherent system rather than implemented as disconnected tools.

The program is suitable for manufacturing organizations, oil and gas companies, petrochemical operations, energy and utilities organizations, engineering companies, industrial services, and large corporations. It is also relevant to government and public-sector organizations managing operationally intensive environments. Through practical exercises, case studies, and workplace applications, participants will learn how to assess current manufacturing performance, identify improvement priorities, design Lean initiatives, and develop practical roadmaps for achieving world-class manufacturing performance.

Objectives

- Analyze the principles of World-Class Manufacturing and their relationship with productivity, quality, cost, flexibility, and operational performance during the course.
- Evaluate the maturity of Lean production practices within selected manufacturing operations and identify key performance gaps.
- Apply structured techniques to identify operational waste and non-value-adding activities across manufacturing processes.
- Develop value stream maps to assess current-state performance and identify opportunities for improving production flow.
- Analyze material and information flow to reduce waiting time, work-in-process, unnecessary movement, and process delays.
- Design practical solutions for improving production line balance, workload distribution, resource utilization, and process flow.
- Apply setup and changeover reduction techniques to improve production flexibility and equipment availability.
- Strengthen standardized work, visual management, workplace organization, and process discipline to support consistent performance.
- Evaluate production performance using relevant indicators for productivity, quality, cost, delivery, equipment effectiveness, and resource utilization.
- Apply continuous improvement and structured problem-solving approaches to recurring operational challenges.
- Develop prioritized Lean manufacturing and operational excellence initiatives based on operational impact, feasibility, risk, and organizational priorities.
- Prepare a practical roadmap for implementing World-Class Manufacturing and Lean Production principles within a selected operational environment by the end of the course.

Who Should Attend

The World-Class Manufacturing & Lean Production Training Course is designed for managers, engineers, supervisors, and specialists responsible for manufacturing, production, operations, engineering, maintenance, quality, and operational excellence. It is particularly suitable for Plant Managers, Production Managers, Manufacturing Managers, Operations Managers, Engineering Managers, Maintenance Managers, Quality Managers, Continuous Improvement Managers, Industrial Engineers, Manufacturing Engineers, Production Engineers, Process Engineers, Lean

Specialists, and Production Supervisors.

The course is also relevant to Supply Chain Managers, Production Planning Managers, Materials Managers, Warehouse Managers, Operations Leaders, improvement team leaders, and professionals involved in Lean transformation and productivity initiatives. Executives, department heads, and decision makers in manufacturing, oil and gas, petrochemical, energy, engineering, and industrial organizations can benefit from the program by developing a stronger understanding of how Lean production and World-Class Manufacturing practices contribute to operational efficiency, productivity improvement, quality performance, resource optimization, and sustainable operational excellence.

Learning Outcomes

- Explain the core principles of World-Class Manufacturing and connect them with organizational and operational objectives.
- Evaluate the maturity of Lean production practices and identify the most important improvement gaps within manufacturing operations.
- Identify major categories and sources of waste across production processes.
- Develop and interpret value stream maps to identify bottlenecks, delays, waste, and opportunities for improving production flow.
- Analyze material, information, and workflow to reduce lead time and improve production continuity.
- Apply production line balancing techniques to improve workload distribution and resource utilization.
- Develop practical approaches for reducing setup and changeover time and improving manufacturing flexibility.
- Apply standardized work and visual management practices to strengthen process stability and operational discipline.
- Select and use appropriate performance indicators for productivity, quality, cost, delivery, capacity utilization, and equipment effectiveness.
- Apply continuous improvement and structured problem-solving methods to address manufacturing performance issues.
- Prioritize improvement initiatives according to operational impact, feasibility, risk, required resources, and strategic importance.

- Develop an integrated roadmap for implementing Lean Production and World-Class Manufacturing practices and sustaining improvement results.

Course Outline

DAY 01

World-Class Manufacturing and High-Performance Production Systems

- Understanding World-Class Manufacturing and its role in modern industrial competitiveness.
- Characteristics and capabilities of high-performing manufacturing organizations.
- Core principles of Lean Production and their connection with operational excellence.
- Aligning manufacturing strategy with organizational objectives and customer requirements.
- Understanding customer value and its role in production process design.
- Evaluating manufacturing performance across quality, cost, delivery, productivity, flexibility, and reliability.
- The role of operational leadership in building a high-performance production culture.
- Components of an integrated manufacturing operating system.
- Assessing gaps between current production performance and desired operational standards.
- Building accountability, discipline, employee engagement, and continuous improvement into production management.

PRACTICAL APPLICATION OR DISCUSSION

Conduct an initial assessment of a selected manufacturing operation and identify key gaps and improvement priorities required to move toward World-Class Manufacturing.

DAY 02

Lean Waste Elimination and Value Stream Improvement

- Understanding value from the customer and operational perspectives.
- Identifying waste and non-value-adding activities in manufacturing.
- Analyzing overproduction, excess inventory, waiting, transportation, motion, overprocessing, defects, and underutilized capabilities.
- Developing current-state value stream maps.

DAY 02 — CONTINUED

- Analyzing material and information flow from suppliers through production to customers.
- Identifying bottlenecks, queues, and work-in-process accumulation.
- Analyzing lead time, cycle time, process time, and waiting time.
- Designing future-state value stream improvements.
- Reducing work-in-process and improving continuous production flow.
- Establishing priorities for Lean process improvement across the value stream.

PRACTICAL APPLICATION OR DISCUSSION

Develop a value stream map for a selected production process and identify waste, bottlenecks, lead-time drivers, and opportunities for improving end-to-end flow.

DAY 03

Production Flow, Line Balancing, and Operational Flexibility

- Principles of continuous flow and their application in different production environments.
- Production line balancing and task distribution across workstations.
- Analyzing workload, production capacity, takt requirements, and process cycle times.
- Identifying production constraints and managing operational bottlenecks.
- Improving production sequencing and workflow.
- Reducing waiting time, queues, and work-in-process accumulation.
- Understanding pull-based production and its relationship with customer demand.
- Setup and changeover reduction for improved manufacturing flexibility.
- Optimizing workstation layouts and material movement.
- Integrating production planning with maintenance, quality, engineering, and supply chain requirements.

PRACTICAL APPLICATION OR DISCUSSION

Analyze a production line, identify opportunities for balancing and flow improvement, and develop actions to reduce bottlenecks and increase operational flexibility.

DAY 04

Standardized Work, Quality, Maintenance, and Continuous Improvement

- Understanding standardized work and its role in maintaining stable manufacturing performance.
- Developing clear and practical standard operating procedures.
- Applying visual management to improve operational visibility and performance control.
- Building quality into the manufacturing process rather than relying solely on final inspection.
- Reducing defects, rework, scrap, and process-related quality losses.
- Integrating production and maintenance to improve equipment availability and process continuity.
- Understanding Total Productive Maintenance and its contribution to equipment performance.
- Reducing equipment-related downtime and operational losses.
- Establishing continuous improvement practices within daily production management.
- Applying root cause analysis to recurring manufacturing problems.
- Building employee involvement and structured improvement participation.

PRACTICAL APPLICATION OR DISCUSSION

Analyze a recurring manufacturing problem and design an integrated improvement solution involving standardized work, quality, maintenance, root cause analysis, and continuous improvement.

DAY 05

Leading World-Class Manufacturing Transformation and Sustaining Results

- Assessing organizational readiness for World-Class Manufacturing and Lean Production implementation.
- Developing key performance indicators for monitoring manufacturing improvement.
- Measuring productivity, efficiency, quality, cost, delivery, equipment effectiveness, and resource utilization.
- Prioritizing Lean improvement projects according to business impact and implementation feasibility.

DAY 05 — CONTINUED

- Building an integrated portfolio of continuous improvement initiatives.
- Aligning Lean initiatives with strategic manufacturing and operational objectives.
- Managing organizational change during Lean Production implementation.
- Strengthening leadership, accountability, employee participation, and improvement ownership.
- Using operational data and digital performance dashboards to support manufacturing decisions.
- Establishing governance and review mechanisms for sustaining improvement results.
- Linking Lean Production with operational excellence, productivity improvement, resource optimization, and long-term manufacturing competitiveness.

FINAL WORKSHOP, ACTION PLAN, OR IMPLEMENTATION EXERCISE

Develop a comprehensive World-Class Manufacturing and Lean Production transformation roadmap for a selected manufacturing operation, covering current-state assessment, waste identification, value stream analysis, bottleneck management, production flow, performance indicators, improvement initiatives, implementation priorities, responsibilities, monitoring mechanisms, and sustainability measures.

Register or Request More Information

Course page: <https://quest-training.com/courses/world-class-manufacturing-lean-production-training-course>

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