Lean in High-Mix Low-Volume Manufacturing Training Course

Professional Development Training Course Outline

Category	Manufacturing	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

High-Mix Low-Volume (HMLV) manufacturing environments are rapidly becoming the dominant production model in aerospace, medical devices, automotive components, electronics, and precision engineering industries. Unlike mass production systems, HMLV operations demand extreme flexibility, rapid changeovers, efficient scheduling, and waste-free processes while maintaining world-class quality standards. Lean in High-Mix Low-Volume Manufacturing Training Course is designed to equip professionals with advanced Lean Manufacturing, Operational Excellence, and Industry 4.0-aligned methodologies to optimize complex, variable production systems.

This training integrates Lean principles such as Value Stream Mapping (VSM), Kaizen, 5S, SMED (Single-Minute Exchange of Dies), Just-in-Time (JIT), and Digital Lean Manufacturing to solve real-world HMLV challenges. Participants will learn how to reduce lead time, eliminate bottlenecks, improve throughput, enhance flexibility, and build resilient smart factories. The course emphasizes data-driven decision-making, AI-enabled production planning, and continuous improvement culture to achieve operational agility and competitive advantage in dynamic manufacturing environments.

Programme Curriculum

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Course Duration

5 days

Course Objectives

1. Master Lean Manufacturing principles for High-Mix Low-Volume production systems
2. Implement Value Stream Mapping (VSM) for process optimization
3. Reduce setup time using SMED (Single-Minute Exchange of Dies) techniques
4. Improve production flexibility in agile manufacturing environments
5. Eliminate waste (Muda, Mura, Muri) in complex workflows
6. Optimize production scheduling using Advanced Planning & Scheduling (APS) tools
7. Enhance OEE (Overall Equipment Effectiveness) in HMLV operations
8. Deploy Kaizen continuous improvement culture across shop floors
9. Integrate Industry 4.0 and Smart Factory technologies in Lean systems
10. Improve demand forecasting accuracy using data-driven analytics
11. Strengthen Just-in-Time (JIT) inventory management systems
12. Reduce lead time and improve customer responsiveness
13. Build resilient, scalable, and digitally enabled Lean manufacturing ecosystems

Target Audience

1. Manufacturing Engineers & Process Engineers
2. Production Managers & Operations Leaders
3. Lean Six Sigma Professionals
4. Industrial Engineers & Plant Supervisors
5. Supply Chain & Logistics Managers
6. Quality Assurance & Quality Control Specialists
7. Continuous Improvement (CI) Teams
8. Senior Executives in Manufacturing & Operations

Course Modules

Module 1: Fundamentals of Lean in HMLV Systems

- Lean philosophy in customized production environments
- Differences between Mass Production vs HMLV systems
- Identification of value-added vs non-value-added activities
- **Case Study:** Lean transformation roadmap for variable demand environments
- Real-time production variability management

Module 2: Value Stream Mapping (VSM) for Complex Production

- Mapping multi-product flow systems
- Identifying bottlenecks in job-shop environments
- Future state mapping for agile production
- Lead time vs cycle time optimization
- **Case Study:** Digital VSM tools and simulation techniques

Module 3: SMED & Setup Time Reduction

- Internal vs external setup classification
- Quick changeover techniques for batch production
- Setup time benchmarking strategies
- Standardized work for tool change efficiency
- **Case Study:** Case-based SMED implementation models

Module 4: Lean Scheduling & Demand Variability Management

- Heijunka (production leveling) in HMLV systems
- Advanced scheduling techniques (APS systems)
- Managing fluctuating customer demand
- Constraint-based scheduling optimization
- **Case Study:** Real-time rescheduling strategies

Module 5: Waste Elimination in HMLV Environments

- Identifying hidden wastes in custom production
- Motion, waiting, and overprocessing reduction
- Lean layout optimization strategies
- Process standardization techniques
- **Case Study:** Digital waste tracking systems

Module 6: Kaizen & Continuous Improvement Culture

- Building Kaizen-driven organizations
- Daily management systems (DMS)
- Employee engagement in improvement cycles
- Problem-solving A3 methodology
- **Case Study:** KPI-driven continuous improvement tracking

Module 7: Industry 4.0 & Smart Lean Manufacturing

- IoT integration in production monitoring
- AI-driven predictive maintenance
- Digital twin applications in HMLV systems
- **Case Study:** Real-time dashboards and analytics
- Cyber-physical production systems

Module 8: Lean Supply Chain & Inventory Optimization

- Just-in-Time (JIT) inventory strategies
- Supplier integration in HMLV systems
- Demand-driven material planning
- Reducing excess inventory and stockouts

- **Case Study:** End-to-end supply chain visibility

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now

Email: info@fineskilltrainingcenter.com | Website: www.fineskilltrainingcenter.com