Lean Digital Transformation in 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

Lean Digital Transformation in Manufacturing is a strategic integration of Lean Manufacturing principles with advanced Industry 4.0 technologies to optimize operational efficiency, reduce waste, and enhance end-to-end productivity. Lean Digital Transformation in Manufacturing Training Course is designed to equip professionals with the knowledge and tools required to drive smart factory transformation, leveraging IoT, AI-driven analytics, automation, and real-time data intelligence. As global manufacturing shifts toward digital ecosystems, organizations must adopt lean-agile digital frameworks that enable continuous improvement, predictive decision-making, and agile production systems.

This course provides a comprehensive roadmap for implementing digital lean strategies, aligning operational excellence with cutting-edge technologies such as digital twins, robotics process automation (RPA), cloud manufacturing systems, and machine learning-based predictive maintenance. Participants will gain hands-on insights into eliminating process inefficiencies, enhancing value stream mapping through digital tools, and building resilient, data-driven manufacturing environments. The program ultimately empowers organizations to achieve cost reduction, quality enhancement, sustainability, and competitive advantage in smart manufacturing ecosystems.

Programme Curriculum

Lean Digital Transformation in Manufacturing Training Course

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automation, and real-time data intelligence. As global manufacturing shifts toward digital ecosystems, organizations must adopt lean-agile digital frameworks that enable continuous improvement, predictive decision-making, and agile production systems.

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Course Duration

5 days

Course Objectives

1. Master Lean Manufacturing 4.0 integration strategies
2. Implement Smart Factory transformation frameworks
3. Apply Industrial IoT (IIoT) for real-time production monitoring
4. Utilize AI-powered predictive maintenance systems
5. Design digital value stream mapping (VSM) models
6. Optimize workflows using automation and robotics integration
7. Enable data-driven decision-making in manufacturing
8. Reduce waste through Lean Six Sigma digital tools
9. Build cyber-physical production systems (CPPS)
10. Enhance efficiency using cloud-based manufacturing platforms
11. Deploy digital twin technology for process simulation
12. Improve quality control using machine vision systems
13. Achieve operational excellence through agile manufacturing transformation

Target Audience

1. Manufacturing Plant Managers
2. Industrial Engineers
3. Operations Managers
4. Supply Chain Professionals
5. Lean Six Sigma Practitioners
6. Automation Engineers
7. Digital Transformation Leaders
8. Quality Assurance Managers

Course Modules

Module 1: Foundations of Lean Digital Transformation

- Lean principles in modern manufacturing environments
- Evolution from Lean to Industry 4.0
- Waste elimination using digital tools
- Value stream mapping digitization

- KPI-driven operational excellence
- **Case Study:** Toyota Production System digital enhancement using IoT dashboards

Module 2: Smart Factory & Industry 4.0 Integration

- Smart factory architecture design
- Cyber-physical systems implementation
- Connected manufacturing ecosystems
- Real-time production analytics
- Digital workflow automation
- **Case Study:** Siemens Amberg smart factory transformation

Module 3: Industrial IoT (IIoT) in Manufacturing

- Sensor-based machine monitoring
- Real-time data acquisition systems
- Predictive maintenance using IoT
- Edge computing applications
- Machine-to-machine communication
- **Case Study:** General Electric predictive maintenance system in aviation manufacturing

Module 4: AI, Machine Learning & Predictive Analytics

- AI-driven production optimization
- Machine learning for defect detection
- Predictive quality analytics
- Demand forecasting models
- Cognitive manufacturing systems
- **Case Study:** Bosch AI-based defect detection in assembly lines

Module 5: Digital Twin & Simulation Technologies

- Digital twin modeling principles
- Virtual factory simulation tools
- Process optimization through simulation
- Scenario-based production testing
- Lifecycle performance monitoring
- **Case Study:** Boeing digital twin implementation for aircraft production

Module 6: Automation, Robotics & RPA in Manufacturing

- Industrial robotics integration
- Collaborative robots (cobots) deployment
- RPA for administrative manufacturing processes
- Automated quality inspection systems
- Workflow orchestration automation
- **Case Study:** Tesla Gigafactory robotics automation system

Module 7: Lean Six Sigma Digital Integration

- DMAIC in digital environment
- Data-driven process improvement

- Statistical process control using software
- Defect reduction using analytics
- Continuous improvement automation
- **Case Study:** Motorola Lean Six Sigma digital transformation program

Module 8: Cloud Manufacturing & Data-Driven Operations

- Cloud-based ERP systems
- Manufacturing execution systems (MES)
- Big data analytics in production
- Cybersecurity in smart factories
- Scalable digital infrastructure
- **Case Study:** Foxconn cloud manufacturing optimization model

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
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