

LEAN AI MANUFACTURING



Introduction

Break through the productivity ceiling with Lean AI Manufacturing. While traditional Lean methods revolutionized shop floors worldwide, global industrial productivity growth has stagnated over the past decade. This course empowers professionals to supercharge Lean principles through seamless Artificial Intelligence (AI) integration.

Lean Manufacturing provides the systematic framework needed to cultivate a continuous improvement culture and eliminate waste (Muda). As organizations lower the 'water level' to expose deep-seated operational challenges, incorporating AI-driven capabilities enables teams to resolve complex issues faster and with greater precision.

This course highlights vital Lean considerations prior to AI adoption, helping organizations avoid the common pitfall of 'automating waste'. Through interactive workgroup problem-solving, hands-on exercises with Large Language Models (LLMs), and an introduction to AI Governance frameworks, participants will gain practical insights to lead the next wave of operational excellence.

Objectives

- Understand Lean methodology & philosophy through the lens of AI integration
- Apply Lean tools alongside AI Co-Pilots to diagnose real operation challenges
- Combine Lean Kaizen event with LLM to yield highly productive event outcome for process optimization and cycle time reduction
- Understand all Lean concepts ranging from JIT, Takt time and Kanban
- Conduct AI-enhanced Value Stream Mapping (VSM) for accurate analysis and future-state roadmap planning

Duration

2 days | 9am – 5pm | 14 learning hours

Who Should Attend

Management and Supervisors in manufacturing facilities, Process and Quality Engineers, Professionals who are involved in project for productivity, quality or efficiency improvement in their organizations.

Device Requirement

To ensure an optimal experience, participants are strongly **encouraged to bring a laptop** for downloading information (data set) & trying prompts and accessing shared materials via Zoom or Google Drive. **Tablet** (e.g. iPads) **may be used as alternatives**, though screen size and tool performance may not be ideal.

There is no requirement to download any software and the LLM used are mainly web based - Gemini (incl Gemini Notebook), ChatGPT & Claude.



SQI
INTERNATIONAL



enquiries@sqi.org.sg



www.sqi.org.sg



+65-6467 4225



401 MacPherson Road #03-16/17 MacPherson
Mall Singapore 368125

Course Fees

Member: S\$684.52

Non-Member: S\$758.64

All fees stated are inclusive of Registration Fee and 9% GST

Award of Certificate

Certificate of Completion will be issued to participants who have attended at least 75% of the course.

Course Content

Introduction to Toyota Production System

- **TPS & Industry 4.0:** Toyota Way principles in the era of AI.
- **Long-Term Strategy:** Balancing human-led improvement (*Genchi Genbutsu*) with AI decision systems.
- **AI Consideration:** Establishing governance to prevent automating Waste.

GAI LLM and Prompt framework

- **Intro to LLM :** Understanding LLM and configuration and Gemini Notebook
- **CRAFT & COSTAR:** Prompting technique and framework

Create Flow and establish Pull

- **Dynamic VSM:** Live value stream mapping via IoT and process mining
- **Flow & Lead Time:** Understanding principles for Flow, Pull, Push, JIT & Takt time
- **AI Consideration:** Scenario modelling and e-Kanban reorder triggers using LLM Co-Pilots

Waste identification and elimination

- **Wastes & QC Tools:** Standard waste elimination
- **Case Studies:** Best practices for Lean + AI deployment
- **AI Consideration:** Waste identifications using LLM prompt



Please refer to this URL
<https://www.sqi.org.sg/courses/>
or QR Code for soft copy and
updated training schedule

Thomas Ho / Low Khee Siang
+65-6467 4225
enquiries@sqi.org.sg



Membership Application

Register membership online at
www.sqi.org.sg/membership-join/ or
contact us to get the membership
application form.

Membership Categories:

- ~ Organization membership
- ~ Individual membership

SQI International is a subsidiary of Singapore Quality Institute (SQI). SQI operates as a non-profit professional institute that promotes and advances excellence in the field of quality in Singapore; and actively champions quality initiatives in the region and around the world through networking and collaborating with other international quality organizations.

SQI is a World Partner of the American Society for Quality (ASQ); and a Board Member of both the Asian Network for Quality (ANQ) and the World Alliance for Chinese Quality (WACQ).

