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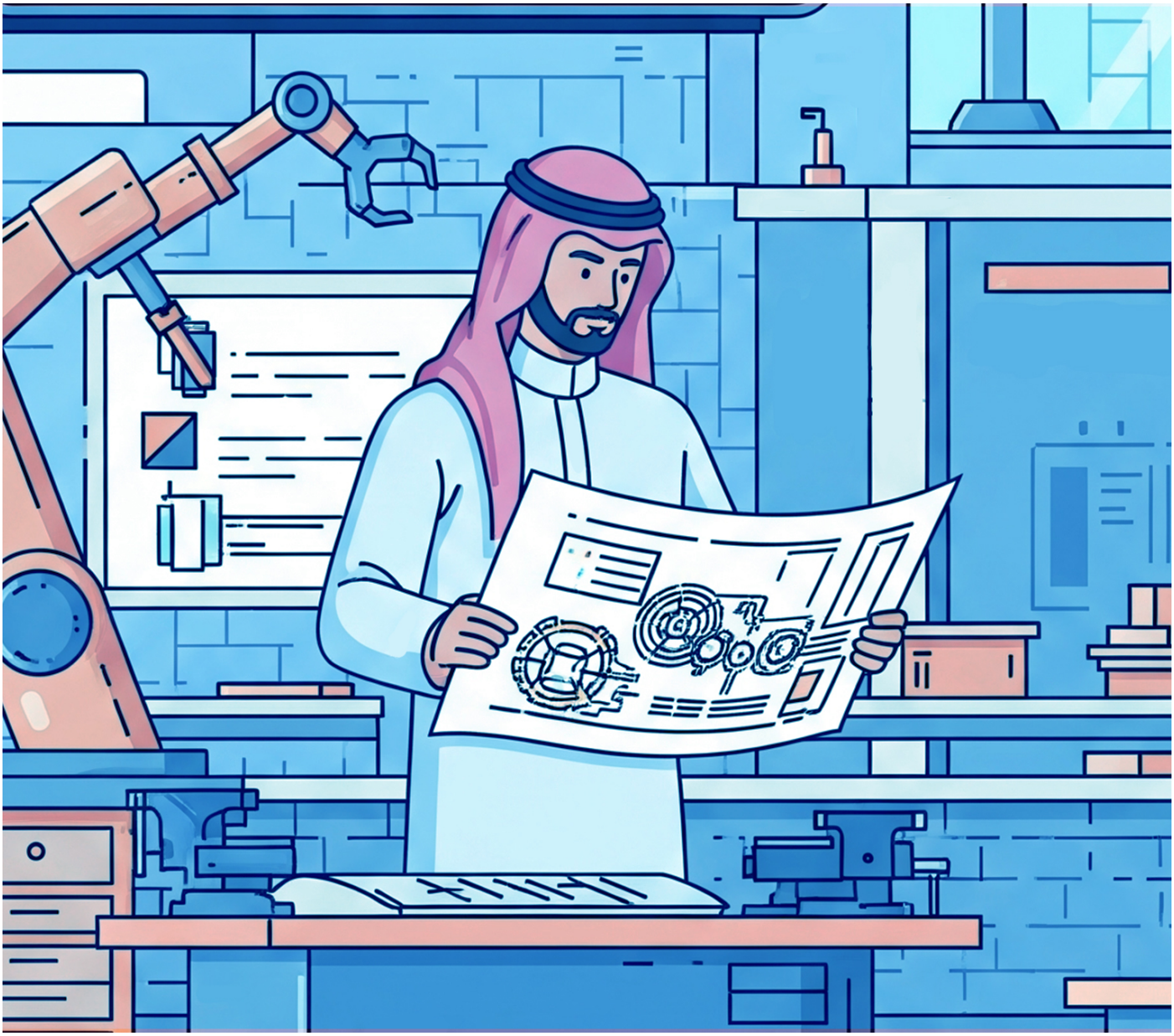

Mechanical Engineering

Lean Manufacturing Principles for Mechanical Engineers

Course Introduction

Lean manufacturing principles are essential for mechanical engineers to optimize production processes, reduce waste, and increase efficiency. By applying lean principles, engineers can streamline workflows, minimize downtime, and improve product quality, all while reducing costs. These principles focus on eliminating non-value-added activities, improving productivity, and delivering more value to customers. Lean manufacturing is especially important in competitive industries, where staying efficient and responsive is key to success. Mechanical engineers who understand lean principles are better equipped to drive innovation and maintain smooth operations in manufacturing environments.

This program will focus on the core principles of lean manufacturing, such as value stream mapping, Kaizen, and 5S. Participants will learn how to identify waste in production processes and implement strategies to reduce it. The course will also cover tools for continuous improvement, such as Kanban and Just-in-Time (JIT).

Target Audience

This course is designed for mechanical engineers and professionals involved in manufacturing process optimization and continuous improvement.

Learning Objectives

- Understand the core principles of lean manufacturing and how they apply to mechanical engineering.

- Learn how to use value stream mapping to identify and eliminate waste in production processes
- Gain expertise in continuous improvement techniques, including Kaizen, to optimize workflows
- Master 5S principles to improve workplace organization and efficiency.
- Develop skills in Just-in-Time (JIT), Kanban, and other lean tools to enhance mechanical manufacturing processes.

Course Outline

- **01 DAY ONE**

  Introduction to Lean Manufacturing Principles

  - What is lean manufacturing and its history
  - Core principles of lean (value, value stream, flow, pull, perfection)
  - Understanding value from the customer's perspective
  - Key concepts: waste reduction and efficiency
  - The 8 types of waste (TIMWOOD: Transportation, Inventory, Motion, Waiting, Overproduction, Overprocessing, Defects, Skills)
  - Lean vs traditional manufacturing approaches

  The role of mechanical engineers in lean manufacturing

- **02 DAY TWO**

  Value Stream Mapping (VSM) and Waste Identification

  - Introduction to value stream mapping (VSM)
  - How to create a value stream map
  - Identifying value-added vs non-value-added activities
  - Techniques for waste identification in production processes
  - Analyzing current state vs future state value streams
  - Prioritizing improvement opportunities based on VSM

- **03 DAY THREE**

  Kaizen and Continuous Improvement

  - What is Kaizen and its importance in lean manufacturing

- Principles of continuous improvement
- Tools for Kaizen: PDCA (Plan-Do-Check-Act) cycle
- How to foster a culture of continuous improvement
- Engaging employees in the Kaizen process
- Kaizen events and rapid improvement cycles

• **04 DAY FOUR**

5S and Workplace Organization

- Introduction to 5S methodology (Sort, Set in order, Shine, Standardize, Sustain)
- The importance of workplace organization for lean manufacturing
- Implementing 5S in the workplace
- Benefits of 5S: efficiency, safety, and quality improvements
- Standardizing processes and creating visual management tools
- Sustaining the 5S principles in daily operations

• **05 DAY FIVE**

Just-in-Time (JIT), Kanban, and Lean Tools for Mechanical Engineers

- What is Just-in-Time (JIT) and how it reduces waste
- Introduction to Kanban for production control
- JIT inventory management and its role in lean manufacturing
- How to implement Kanban in mechanical systems
- Key lean tools for mechanical engineers (root cause analysis, standard work, 5 Whys)
- Performance metrics and monitoring lean progress

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
April 28, 2025	May 2, 2025	5 days	4950.00 $	Ireland - Galway
Sept. 1, 2025	Sept. 5, 2025	5 days	4250.00 $	UAE - Dubai

FROM	TO	DURATION	FEES	LOCATION
Dec. 22, 2025	Dec. 26, 2025	5 days	4250.00 $	UAE - Dubai