

Introduction to Lean Manufacturing

Catalog No.	3109-0000
Category	Manufacturing and Engineering
Duration	15 Hours

Lesson 1: (Core): Defining Lean Manufacturing

- Objectives
- Defining Manufacturing
- Manufacturing as a Competitive Advantage
- Value and Waste
- The Quest for Manufacturing Optimization
- Defining Lean Manufacturing
- Benefits of Lean Manufacturing

Lesson 2: (Core): Understanding Waste

- Objectives
- Understanding Waste
- Classifications of Waste
- The Three Wastes
- The Seven Wastes
- Identifying Wastes
- Knowledge Check

Lesson 3: (Activity): Identifying Waste in a Workplace

- Introduction
- Instructions
- Submission Requirements

Lesson 4: (Core): Designing the Manufacturing Workplace

Objectives

The Importance of Workplace Design

Workspace Design Tools

The 5 S's

Mistake-proofing

Contact Methods

Counting Methods

Sequence Methods

Useful Technologies

Equipment Effectiveness Studies

Equipment Failures

Setup, Adjusting, and Startup Times

Idling and Minor Stopping

Reduced Speed

Defects in Operation

Equipment Suitability

Quantifying Overall Equipment Effectiveness

Visual Management and Control

Knowledge Check

Lesson 5: (Activity): Redesigning a Workstation

Introduction

Instructions

Submission Requirements

Lesson 6: (Activity): Mistake-proofing

Introduction

Instructions

Submission Requirements

Lesson 7: (Core): Fundamental Concepts in Lean

- Objectives
- One Piece Flow Manufacturing
- Pull Scheduling
- Level Production (Steady Flow)
- Just-in-time Manufacturing
- Work Cells
- Knowledge Check

Lesson 8: (Core): Designing Lean Production Processes

- Objectives
- Value Stream Mapping
- Redesigning the Process
- Leveling Production – Example
- Designing Factory Layout
- Continual Improvement
- Factors that Threaten Lean Success
- Knowledge Check

Lesson 9: (Activity): Applying Lean to a Household Task

- Introduction
- Instructions
- Submission Requirements

Lesson 10: (Activity): Task Analysis and Design

- Introduction
- Instructions
- Submission Requirements

Lesson 11: (Core): Lean Production Scheduling Systems

Objectives

The Role of a Production Scheduling in a Lean Factory

A Simple Example

Kanban Signaling

Setting Kanban Sizes – Overview

Calculating Kanban Sizes for Supplied Parts and Materials

Calculating Kanban Sizes for Work-in-progress Parts

Calculating Kanban Bin Sizes for Finished Goods Stores

Advantages of Kanban Systems

Disadvantages of Kanban Systems

Knowledge Check

Lesson 12: (Core): Problem Solving Tools

Objectives

The Need for Problem Solving Tools

The Problem-solving Process

Step 1: Defining the Problem

Step 2: Generating Possible Solutions

Step 3: Selecting a Solution

Step 4: Implementing a Solution

Knowledge Check

Lesson 13: (Activity): Designing a Lean Production Process

Introduction

Instructions

Submission Requirements

Post-Test