

# Introduction to Lean Production and Six-Sigma

## Objectives:

The objectives of this course are to introduce participants to the concepts of lean production and six-sigma to understand both concepts and appreciate what they can do for them. The course will also reveal the link between the two concepts and introduce a plan for their implementation. The course is equivalent to white belt six-sigma training with the added discussion of the basics of lean production and the role of six-sigma in achieving it. By combining the two concepts, participants will have plenty of sources for selecting improvement projects and for addressing the define phase of the six-sigma DMAIC process.

## Contents:

### Day 1: Introduction

- The Concept of Lean Production
- Waste Elimination
- The Quality Link
- Total Quality Management (TQM)
- Overview of Six-Sigma
- Why Six-Sigma?

### Day 2: Six-Sigma basics

- Random variation
- Data collection
- Basic data analysis
- How to deploy Six Sigma
- Basic Six Sigma tools
- Problem Solving Approaches
- Process Mapping

### Day 3: The Six-Sigma Process

- DMAIC: Define

- Voice of the customer
- Project definitions
- Project financials
- Matrices and deliverables
- Project scheduling
- Change management
- DMAIC: Measure
  - Process definition
  - Process matrices
  - Establishing process baseline
  - Control charts for variables and attributes
  - Analyzing sources of variation

#### **Day 4: The Six-Sigma Tools**

- DMAIC: Analyze
  - Lean thinking
  - Sampling
  - Hypothesis testing
  - Linear regression
  - Multiple linear regression
  - The role of DOE
  - Design Selection
- DMAIC: Improve
  - Tools
  - Models
  - Transformations
  - Response surface
- DMAIC: Control
  - Tools
  - Serial Correlation
  - Multivariate Control Charts
  - Design for Six Sigma
  - Control Plan

#### **Day 5: Implementation and Integration**

- Lean Production Tools
- The Role of Six-Sigma in Lean Production Implementation

- Review Exercises and Discussion
- Success Factors.

### **Target group:**

This training program can be used as a foundational learning experience for all staff in an organization. It may be particularly useful for those involved in improvement projects or improvement initiatives, including:

- Executives
- Senior managers
- Project managers
- Improvement project facilitators or coaches.
- A bachelor degree in business or engineering is required for participating in this course.

### **Language:**

- The materials for the trainees will be in English.
- The language of instruction will be in Arabic / English.