

1 Measurement

Segment 1 - Measurement Overview

- Objective 1 - Describe the Measure Phase of a Six Sigma Project
- Objective 2 - Describe the Tools Used to Model a Process for a Six Sigma Project
- Objective 3 - Describe How to Perform an FMEA for a Six Sigma Project

Segment 2 - Data Collection

- Objective 4 - Describe Types of Data Collected for a Six Sigma Project
- Objective 5 - Describe Types of Measurement Scales Used for a Six Sigma Project
- Objective 6 - Describe Guidelines for Collecting Data in a Six Sigma Project
- Objective 7 - Describe the Basic Statistics Used in a Six Sigma Project
- Objective 8 - Describe Graphical Methods for Displaying Data Collected in a Six Sigma Project

Segment 3 - Normal Distribution and Probability

- Objective 9 - Describe a Normal Distribution and Its Importance to Data Collection and Analysis
- Objective 10 - Describe Probability and How It Is Applied to Six Sigma Projects
- Objective 11 - Describe the Tools Used to Determine Multiple Event Probability

Segment 4 - Measurement System Analysis

- Objective 12 - Define the Elements of an Effective Measurement System
- Objective 13 - Define Types of Measurement System Error
- Objective 14 - Describe the Two Most Common Ways to Perform a Measurement System Analysis

Segment 5 - Process Capability

- Objective 15 - Describe Process Capability and Process Performance
- Objective 16 - Describe How to Conduct Process Capability Studies
- Objective 17 - Define the Concept of Shift and Drift and Explain Its Importance

2 Quality Systems Overview

- Define the terms quality and quality management system
- Understand the history of quality management systems
- Identify the benefits of quality management systems to your company, you, and your customers

3 International Standards

- Explain the role of the International Organization for Standardization (ISO)
- Identify various types of quality management systems (QMS)
- Define the uses of the various types of quality management systems

4 Lean Six Sigma Principles

Segment 1 - Six Sigma

- Objective 1 - Define Six Sigma and Explain Its Role and Benefits
- Objective 2 - Define Lean Six Sigma and Explain Its Role and Benefits
- Objective 3 - Describe the History of Lean Six Sigma
- Objective 4 - Describe the Steps of DMAIC
- Objective 5 - Describe the Stages of a Lean Six Sigma Project

Segment 2 - Six Sigma Business Drivers

- Objective 6 - Describe the Basic Operation of a Business
- Objective 7 - Describe the Key Drivers of a Business
- Objective 8 - Define the Balanced Scorecard and Explain Its Importance
- Objective 9 - Describe Two Types of Customers, Internal and External, and Explain Their Importance
- Objective 10 - Define the Voice of the Customer (VOC) and Explain Its Importance

Segment 3 - Six Sigma Projects

- Objective 11 - Describe How to Identify and Select a Project
- Objective 12 - Describe How to Determine If Lean Six Sigma or DMAIC Is Needed for a Given Project
- Objective 13 - Describe the Theory of Constraints

Segment 4 - Processes Similar to Six Sigma

- Objective 14 - Define Design for Six Sigma (DFSS)
- Objective 15 - Define Identify, Design, Optimize, and Verify (IDOV)

5 Introduction to Lean Manufacturing

Objective 1 - Define Lean Manufacturing
Objective 2 - Define Value-Added and Non-Value-Added Activities
Objective 3 - Describe the Eight Deadly Wastes
Objective 4 - Describe the Core Elements of Lean Manufacturing
Objective 5 - Describe Methods of Standardization
Objective 6 - Describe Methods of JIT Production
Objective 7 - Describe Methods of Jidoka
Objective 8 - Define the Characteristics of a Lean Culture
Objective 9 - Describe Lean Methods of Continuous Improvement
Self Review 1

6 5S Workplace Organization

Objective 1 - Define the 5S Program
Objective 2 - Describe How to Perform 5S: Sort
Objective 3 - Describe How to Perform 5S: Straighten
Objective 4 - Describe How to Perform 5S: Shine
Objective 5 - Describe How to Perform 5S: Standardize
Objective 6 - Describe How to Perform 5S: Sustain
Self Review 1

7 Introduction to SPC

Segment 1 - Basic Statistical Concepts

Objective 1 - Define the Function of Statistical Process Control and Give an Application
Objective 2 - Define Two Types of Variation and Explain Their Importance
Objective 3 - Define Central Tendency and Explain How It Is Used
Objective 4 - Define Three Statistical Process Control Measures
Self Review 1

Segment 2 - Histogram Construction

Objective 5 - Describe the Function of a Histogram and Give an Application
Objective 6 - Describe How to Manually Construct a Histogram
Self Review 2

Segment 3 - SPC Software

Objective 7 - Describe How to Create a Histogram Using SPC Software
Objective 8 - Describe the Function of a Historical Data Set
Self Review 3

Segment 4 - Histogram Analysis

Objective 9 - Describe How to Analyze a Histogram
Self Review 4

8 Analysis

Segment 1 - Analysis Overview

Objective 1 - Describe the Analysis Phase of a Six Sigma Project
Objective 2 - Define Descriptive (Exploratory) Analysis
Objective 3 - Define Hypothesis Testing

Segment 2 - Multivariate Analysis

Objective 4 - Define Regression Analysis and Its Applications
Objective 5 - Describe Multivariate Analysis and Its Applications
Objective 6 - Describe How to Use the Method of Least Square to Perform a Regression Analysis

Segment 3 - Hypothesis Testing

Objective 7 - Describe the Basic Concepts of Hypothesis Testing
Objective 8 - Describe How to Determine the Statistical Significance (P-Value) of a Set of Data
Objective 9 - Determine Appropriate Sample Sizes for a Significance Test
Objective 10 - Describe a Hypothesis Test for Means, Variation, and Proportions
Objective 11 - Describe Hypothesis Test for Comparing Two Samples
Objective 12 - Interpret the Results of One-Way and Two-Way ANOVAs

Segment 4 - Non-Parametric Analysis

Objective 13 - Describe Non-Parametric Analysis

Objective 14 - Define a Chi-Square Test and How to Use It to Analyze Statistical Significance

9 Improvement and Control

Segment 1 - Improve Phase of a Six Sigma Project

Objective 1 - Describe the Goals of the Improve Phase of a Project

Objective 2 - Describe the Major Activities of the Improve Phase of a Project

Objective 3 - Describe the Tools Used to Help Implement and Validate Improvement Ideas

Segment 2 - Design of Experiments

Objective 4 - Describe the Primary Experimental Objectives

Objective 5 - Describe the Steps of a Design of Experiment (DOE)

Objective 6 - Define Basic DOE (Variable, Process, Analysis, and Error) Terms

Objective 7 - Describe Full and Fractional Factorial Experimental Design

Objective 8 - Describe Three Specialized Experimental Designs

Segment 3 - Process/Product Improvement

Objective 9 - Describe How to Use F-Test and T-Test to Validate Solutions

Objective 10 - Describe How Statistical Process Control Can Be Used to Maintain Process Improvements

Objective 11 - Describe How to Select a Control Chart to Monitor a Process

Segment 4 - Control Phases of a Six Sigma Project

Objective 12 - Describe the Goals and Activities of the Control Phase of a Project

Objective 13 - Describe How to Close out a Six Sigma Project

Objective 14 - Describe the Company's Post-Project Activities