

IASSC Lean Six Sigma Green Belt Study Guide

The IASSC Lean Six Sigma Green Belt Study Guide is a free, quick-reference list of essential material to prepare for and pass the certification exam. Master the IASSC Six Sigma Greenbelt Body of Knowledge with this Study Guide.

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IASSC Universally Accepted Lean Six Sigma Body of Knowledge for Green Belts

1.0 Define Phase

1.1 [The Basics of Six Sigma](#)

1.1.1 [Meanings of Six Sigma](#)

1.1.2 [General History of Six Sigma & Continuous Improvement](#)

1.1.3 [Deliverables of a Lean Six Sigma Project](#)

1.1.4 [The Problem Solving Strategy \$Y = f\(x\)\$](#)

1.1.5 [Voice of the Customer, Business and Employee](#)

1.1.6 [Six Sigma Roles & Responsibilities](#)

1.2 The Fundamentals of Six Sigma

1.2.1 [Defining a Process](#)

1.2.2 [Critical to Quality Characteristics \(CTQ's\)](#)

1.2.3 [Cost of Poor Quality \(COPQ\)](#)

1.2.4 [Pareto Analysis \(80:20 rule\)](#)

1.2.5 [Basic Six Sigma Metrics](#)

a. including DPU, DPMO, FTY, RTY Cycle Time, deriving these metrics and these metrics. ([Also see lean metrics](#))

1.3 [Selecting Lean Six Sigma Projects](#)

1.3.1 [Building a Business Case & Project Charter](#)

1.3.2 [Developing Project Metrics](#)

1.3.3 [Financial Evaluation & Benefits Capture](#)

1.4 [The Lean Enterprise](#)

1.4.1 [Understanding Lean](#)

1.4.2 [The History of Lean](#)

1.4.3 [Lean & Six Sigma](#)

1.4.4 [The Seven Elements of Waste](#)

a. Overproduction, Correction, Inventory, Motion, Overprocessing, Conveyance, Waiting.

1.4.5 5S

a. [Straighten, Shine, Standardize, Self-Discipline, Sort](#)

2.0 Measure Phase

2.1 Process Definition

2.1.1 [Cause & Effect / Fishbone Diagrams](#)

2.1.2 [Process Mapping, SIPOC, Value Stream Map](#) (Also see: [Process Map](#), [Difference between Process Map and Value Stream Map](#))

2.1.3 [X-Y Diagram](#)

2.1.4 [Failure Modes & Effects Analysis \(FMEA\)](#)

2.2 Six Sigma Statistics

2.2.1 [Basic Statistics](#)

2.2.2 [Descriptive Statistics](#)

2.2.3 [Normal Distributions](#) & [Normality](#)

2.2.4 [Graphical Analysis](#)

2.3 [Measurement System Analysis](#)

2.3.1 Precision & Accuracy

2.3.2 Bias, Linearity & Stability

2.3.3 [Gage Repeatability & Reproducibility](#)

2.3.4 Variable & Attribute MSA

2.4 [Process Capability](#)

2.4.1 Capability Analysis

2.4.2 Concept of Stability

2.4.3 Attribute & Discrete Capability

2.4.4 Monitoring Techniques

3.0 Analyze Phase

3.1 [Patterns of Variation](#)

3.1.1 [Multi-Vari Analysis](#)

3.1.2 [Classes of Distributions](#)

3.2 Inferential Statistics

3.2.1 Understanding Inference

3.2.2 [Sampling Techniques & Uses](#)

3.2.3 [Central Limit Theorem](#)

3.3 [Hypothesis Testing](#)

3.3.1 [General Concepts & Goals of Hypothesis Testing](#)

3.3.2 [Significance; Practical vs. Statistical](#)

3.3.3 [Risk; Alpha & Beta](#)

3.3.4 [Types of Hypothesis Test](#)

3.4 [Hypothesis Testing with Normal Data](#)

3.4.1 [1 & 2 sample t-tests](#)

3.4.2 1 sample variance

3.4.3 [One Way ANOVA](#)

a. Including Tests of Equal Variance, [Normality Testing](#) and [Sample Size calculation](#), performing tests and interpreting results.

3.5 [Hypothesis Testing with Non-Normal Data](#)

3.5.1 [Mann-Whitney](#)

3.5.2 [Kruskal-Wallis](#)

3.5.3 [Mood's Median](#)

3.5.4 [Friedman](#)

3.5.5 [1 Sample Sign](#)

3.5.6 [1 Sample Wilcoxon](#)

3.5.7 [One and Two Sample Proportion](#)

3.5.8 [Chi-Squared](#) (Contingency Tables)

a. Including Tests of Equal Variance, Normality Testing and Sample Size calculation, performing tests and interpreting results.

4.0 Improve Phase

4.1 [Simple Linear Regression](#)

4.1.1 [Correlation](#)

4.1.2 [Regression Equations](#)

4.1.3 [Residuals Analysis](#)

4.2 Multiple Regression Analysis

4.2.1 [Non- Linear Regression](#)

4.2.2 [Multiple Linear Regression](#)

4.2.3 [Confidence & Prediction Intervals](#)

4.2.4 [Residuals Analysis](#)

4.2.5 [Data Transformation, Box Cox](#)

5.0 Control Phase

5.1 Lean Controls

5.1.1 [Control Methods for 5S](#)

5.1.2 [Kanban](#)

5.1.3 [Poka-Yoke \(Mistake Proofing\)](#)

5.2 [Statistical Process Control \(SPC\)](#)

5.2.1 [Data Collection for SPC](#)

5.2.2 [I-MR Chart](#)

5.2.3 [Xbar-R Chart](#)

5.2.4 [U Chart](#) | 5.2.5 [P Chart](#) | 5.2.6 [NP Chart](#) *See attribute charts

5.2.7 [X-S chart](#)

5.2.8 [CumSum Chart](#)

5.2.9 [EWMA Chart](#)

5.2.10 [Control Chart Anatomy](#)

5.3 [Six Sigma Control Plans](#)

5.3.1 [Cost Benefit Analysis](#)

5.3.2 [Elements of the Control Plan](#)

5.3.3 Elements of the [Response Plan](#)