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MEASUREMENT SYSTEM ANALYSIS (MSA)

BY ELITE INDIGO

Walk away with a list of key "quick wins" cases you can start right away in the organization!

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Measurement System Analysis (MSA)

Program Overview

The objective of this course is to provide participants the concepts and methodology to plan, execute or analyze MSA by quantifying the size of the measurement variation, determining the contribution from each source of measurement variation, assessing the capability of the measurement system, determining if two measurement systems are correlated or matched and assessing the stability of the measurement system for getting speedy feedback about a process to improve the quality of the product, reduce costs and strengthen market position.

Learning Objectives

By the end of the course, participants will be able to:

- Good understanding in basic Statistics
- Understand & apply Measurement System Analysis
- Identify steps to improve current and future processes

Who Should Attend

Anyone who will plan, execute or analyze a Measurement System Analysis to qualify a metrology, including Metrology Lab Engineers, Process Engineers, Statisticians, Material Engineers and Material Supplier Engineers.

Methodology

PowerPoint presentation, hands-on activities, and Q&A.

Duration

Two (2) Full-Days Workshop;

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• Course Content

Day 1

Time	Details	Activity
30 Minutes	**Short Introduction by Trainer**	Learning + Debrief: • Introduction • Key takeaways
1 Hour 30 Minutes	**Chapter 1: MSA Introduction**	Learning + Debrief: • What Do We Measure? - Process vs. Metrology • Why Do We Measure? • How Do We Measure? - Impact of Measurement • Variability • Why Do Measurements Vary? - Sources of Variation
2 Hours	**Chapter 2: MSA Terminology**	Learning + Debrief: • What is Accuracy? - Bias • What is Precision? - Repeatability: Static & Dynamic - Reproducibility • What is Stability? • What is Capability? - Precision/Tolerance (P/T) Ratio • What is Linearity? • What is Correlation & Matching?
1 Hour	**Lunch**	Lunch is served
3 Hour 30 Minutes	**Chapter 3: MSA Procedures**	Learning + Debrief: • Process Characterization - Overall Methodology • Measurement System Analysis Procedures - Accuracy - Linearity in Accuracy - Repeatability - Reproducibility

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Day 2

Time	Details	Activity
30 Minutes	**Short Introduction by Trainer**	Learning + Debrief: • Introduction • Key takeaways
1 Hour 30 Minutes	**Chapter 4: Metrology Correlation and Matching**	Learning + Debrief: • What is Metrology Correlation & Matching? • Preliminary Requirements • Sample Selection • Data Collection • Decision • Analysis Strategy - Impact of Measurement • Variability • Why Do Measurements Vary? - Sources of Variation
2 Hours	**Chapter 5: Metrology Monitors**	Learning + Debrief: • PCS Model for Metrology Monitors • Sampling Plan - Sample Material - Sample Size - Sampling Frequency • Control Charts • Response Flow Checklist (RFC) • Round Robins • Offline Analysis
1 Hour	**Lunch**	Lunch is served
1 Hour 30 Minutes	**Chapter 6: Attributes MSA for Pass/Fail Data**	Learning + Debrief: • Introduction: Attribute (pass/fail) MSA is a manual or automated inspection system whereby the measurement value is having a finite number of categories. • Objective: To determine if the inspection system is effective and if it needs fixes to reduce under-rejection and/or over-rejection. Effectiveness refers to - Accuracy - Repeatability - Reproducibility

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ABOUT ELITE INDIGO

We are dedicated to empowering businesses to achieve their full potential. With a team of seasoned professionals and a wealth of industry experience, we offer tailored consulting services to help organizations overcome challenges and seize opportunities.

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