





BY ELITE INDIGO

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



www.eliteindigo.com



khenghuat.koay@gmail.com







## **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;



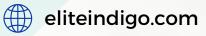


# **Measurement System Analysis (MSA)**

### Course Content

## Day 1

Time	Details	Activity
30 Minutes	Short Introduction by	Learning + Debrief:
	Trainer	Introduction
		Key takeaways
1 Hour 30 Minutes	Chapter 1: MSA	Learning + Debrief:
	Introduction	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	Learning + Debrief:
	Terminology	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	Learning + Debrief:
5 Sur So minutes	Procedures	Process Characterization
		- Overall Methodology
		Measurement System Analysis Procedures
		- Accuracy
		- Linearity in Accuracy
		- Repeatability
		- Reproducibility
		- reproducionity
	I .	





# **Measurement System Analysis (MSA)**

### Course Content

## Day 2

Time	Details	Activity
30 Minutes	Short Introduction by	Learning + Debrief:
	Trainer	Introduction
		Key takeaways
1 Hour 30 Minutes	Chapter 4: Metrology Correlation and	Learning + Debrief:  • What is Metrology Correlation & Matching?
	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	Learning + Debrief:
	Monitors	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	Learning + Debrief:
	MSA for Pass/Fail	<ul> <li>Introduction: Attribute (pass/fail) MSA is a manual or automated inspection</li> </ul>
	Data	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



### **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.

### WHY CHOOSE US?

98% Customer Satisfaction based on Google Reviews



4.9 ★★★★★ 600 Google reviews

All our courses are 100% HRDF claimable and no PO needed.

### **CONTACT US**

For More 100% HRDF Claimable Courses



### **OUR COURSES**



### ARTIFICIAL INTELLIGENCE (AI)

Dive into the cutting-edge world of Al, exploring algorithms, data analysis and more.



#### TECHNICAL SKILL

Sharpen your technical prowess from programming, software and more.



#### **SOFT SKILL**

Develop essential interpersonal skills to excel in any professional setting.



#### LEADERSHIP SKILL

Unleash your leadership potential with our Leadership Skills course



#### TEAMBUILDING

Understand the dynamics of teamwork, communication, and synergy





