MTBM

MEASUREMENT SYSTEM ANALYSIS (MSA) TRAINING

MTBM Group Sdn. Bhd. (1600656-M)

Level 8, MCT Tower, Sky Park, One City, Jalan USJ 25/1, 47650 Subang Jaya, Selangor

+603 8022 8330 +603 8022 8201 info@mtbmgroup.com mtbmgroup.com

Course Title: Measurement System Analysis (MSA) Training

Course Validity: 2 Days

Validity: Not Applicable

HRD Corp Scheme: Claimable

INTRODUCTION

This training provides participants with a complete and practical understanding of Measurement System Analysis (MSA), focusing on how to evaluate, control and improve measurement systems used in quality, production, laboratory and inspection environments. The course explains the principles of variation, measurement error, gauge capability and statistical reliability, helping participants identify weaknesses in measurement methods, instruments and human factors. Through hands-on exercises, data analysis workshops and real case examples, participants will learn how to interpret MSA results, select appropriate corrective actions and implement improvements that enhance accuracy, reduce uncertainty and strengthen overall measurement integrity across operations.

OBJECTIVE(S):

- Understand the purpose and importance of Measurement System Analysis.
- Learn sources of variation in measurement systems.
- Perform MSA studies including Gauge R&R, bias, linearity and stability.
- Analyse and interpret MSA results using statistical tools.
- Identify measurement errors caused by equipment, methods and operators.
- Improve measurement capability to support process control and decision-making.
- Strengthen organisational measurement reliability and product quality.

TARGET GROUP(S):

- Quality managers and quality control personnel
- Production and manufacturing personnel
- Laboratory and inspection staff
- Engineers and technical officers
- Internal auditors
- Anyone involved in measurement and data collection

ENTRY REQUIREMENT(S):

- Able to read, write and communicate verbally in Malay/English

TOPIC(S):

1. Introduction to Variation and Measurement System Concepts
2. Types of Measurement Errors and Sources of Variation
3. MSA Requirements and Key Terminology
4. Gauge Repeatability and Reproducibility (Gauge R&R)
5. Bias, Linearity and Stability Studies
6. Data Analysis and Interpretation of MSA Results
7. Corrective Action, Improvement Methods and Documentation
8. Implementing MSA in Quality and Process Control Systems

LIST OF REFERENCE BOOK(S):

- AIAG Measurement System Analysis Manual
- Statistical quality control and measurement guidelines
- ISO/IEC 17025 and ISO 9001 measurement requirements

LIST OF TEACHING AID(S):

- LCD projector
- Computer
- Whiteboard with accessories
- Flip chart with accessories
- MSA worksheets, templates and sample datasets

METHODOLOGY(S):

- Lecture
- Group discussions
- Case studies
- Statistical analysis workshop
- Hands-on exercises using measurement data

TRAINING SCHEDULE

Day 1

Time	Activity / Topic
8:30 am – 9:00 am	Registration and Introduction
9:00 am – 10:15 am	Topic 1: Introduction to Variation and Measurement System Concepts
10:15 am – 10:30 am	**Morning Tea Break**
10:30 am – 12:30 pm	Topic 2: Types of Measurement Errors and Sources of Variation
12:30 pm – 1:30 pm	**Lunch Break**
1:30 pm – 3:30 pm	Topic 3: MSA Requirements and Key Terminology
3:30 pm – 3:45 pm	**Afternoon Tea Break**
3:45 pm – 5:00 pm	Topic 4: Gauge Repeatability and Reproducibility (Gauge R&R)

TRAINING SCHEDULE

Day 2

Time	Activity / Topic
8:30 am – 9:00 am	Recap of Day 1
9:00 am – 10:15 am	Topic 5: Bias, Linearity and Stability Studies
10:15 am – 10:30 am	**Morning Tea Break**
10:30 am – 12:30 pm	Topic 6: Data Analysis and Interpretation of MSA Results
12:30 pm – 1:30 pm	**Lunch Break**
1:30 pm – 3:30 pm	Topic 7: Corrective Action, Improvement Methods and Documentation
3:30 pm – 3:45 pm	**Afternoon Tea Break**
3:45 pm – 5:00 pm	Topic 8: Implementing MSA in Quality and Process Control Systems