



## **2-Day SBT (System Behavior Testing, MTS (Mahalanobis Taguchi System), T-Method Outline**

### **SBT System Behavior Testing**

- Method to test if Software (and Functional System) behaves as intended during Development and/or Validation.
- Intention is to define the fewest number of tests with the most amount of coverage.
- Look further than just the tests we can think of or things that have failed in the past.
- Full coverage of all 2-Factor Interactions, including unusual (but possible) combinations.
- Also has the benefit of identifying Test Cases where Behavior is unknown ... allows team to consider and define Expected Behavior and to verify understanding of Functional Coupling.

Topics:

1. Introduction to SBT
2. Orthogonal Arrays for SBT
3. How to generate multi-level columns in Orthogonal Array
4. Exercise

### **MTS Mahalanobis Taguchi System**

MTS is to optimize a diagnosis system where two types of error exists. Two types of error are “False Positive” and “False Negative”.

Applications include:

- Medical Diagnosis
- Fire Detection System
- Complex System Monitoring
- End of Line Inspection System
- Manufacturing Process Monitoring
- Etc.

Topics:

1. Introduction to MTS
2. Exercise



## T-Method

T-Method is a modeling technique to predict a response.

Applications include:

- Prediction of Consumer Repost Rating for Automotive Handling Quality
- Prediction of J. D. Power Score
- Prediction of Winning Percentage for MLB Teams and Identification of Critical Variables

Topics:

1. Introduction to T-Method
2. Exercise

## Who Should Attend:

- DFSS Green Belts/Black Belts/Master Black Belts
- Product Development Engineers
- Engineering Management
- Software System Engineers
- Software System Test Engineers
- Engineers working on Diagnostic System
- Marketing

**Prerequisites:** Basic Math Skills

## Learning Objectives:

### SBT System Behavior Testing

- Understand how to identify test scenarios such that hard-to-detect failure modes and be detected, if they exist.
- Learn how to analyze and interpret the test results.
- Learn how iterations can be executed until all failure modes are detected.

### MTS Mahalanobis Taguchi System

- Learn how to identify “Normal Group” and “Abnormal Group”
- Learn strategy to identify variables to discriminate “Normal” and “Abnormal”
- Learn approaches to improve the discrimination power.

### T-Method

- Learn how to develop a model equation to predict the true value of response such as Consumer Report Score, JD Power Rating, NFL Quarterback Rating, Manufacturing Yield, etc.