



Failure Mode and Effects Analysis (FMEA)

Two Days Executive Programme

Effective Quality Trainings:

1. Advanced Product Quality Planning (APQP)
2. Production Part Approval Process (PPAP)
3. Failure Mode Effects Analysis (FMEA)
4. Quality Function Deployment (QFD)
5. Design of Experiment (DOE)
6. Measurement System Analysis (MSA)
7. Statistical Process Control (SPC)
8. Control Plan

Customers are placing increased demands on companies for high quality and reliable products. The increasing capabilities and functionality of many products are making it more difficult for manufacturers to maintain the quality and reliability. Traditionally, reliability has been achieved through extensive testing and use of techniques such as probabilistic reliability modeling. These are techniques done in the late stages of development. The challenge is to bring in quality and reliability early in the development cycle. As the Manual says, **'It is meant to be a "before-the-event" action, not an "after-the-fact".'**

Failure Modes and Effects Analysis (FMEA) is a methodology for analyzing potential reliability problems early in the development cycle where it is easier to take actions to overcome these issues, thereby enhancing reliability through design. FMEA is used to identify potential failure modes, determine their effect on the operation of the product, and identify actions to mitigate the failures. A crucial step is anticipating what might go wrong with a product. While anticipating every failure mode is not possible, the development team should formulate as extensive a list of potential failure modes as possible.

Programme Objectives

SSA provides customized modules of training & consultancy services to the Indian Industries at an affordable price to combat international competition.

The contents of the Training will provide a complete insight into:

- Creating awareness about FMEA in your organization
- Training & assisting the Engineer to improve the Quality & the Reliability of the design
- Developing the Team with hands-on for this logical approach of assessing design & processes
- Assisting the team to comply with the TS 16949 Standard requirements

The Programme is Beneficial to

- Companies who need Data Analysis for their Business processes
- Companies who have Measurement systems to monitor & control their processes
- Companies who have adopted Process Quality Improvement Tools in their Business

NOTE: No prior exposure to the subject is essential.

Programme Contents

1. What is FMEA?
2. Purpose & Origin of FMEA
3. Types of FMEA (Explanations with Examples)
 - Systems; Design ; Process FMEAs Relationship with Systems; Design ; Process FMEAs
4. Definitions
5. Basics of FMEA
 - Failure, Failure Mode, Analysis
6. Design FMEA (DFMEA)
 - Design FMEA Foci Design Inputs
 - Design Failure Causes (with examples) Design Controls (with Examples)
 - Benefits of DFMEA
7. Process FMEA (PFMEA)
 - Process Flow Diagram1 Process FMEA Foci
 - Process Failure Causes Process FMEA Benefits
8. FMEA Prerequisites
9. Exercises and Case Studies

Benefits of FMEA

FMEA is designed to assist in improving the quality and reliability of design and process.

If properly used the FMEA provides several benefits. These benefits include:

- Increase in customer satisfaction Documents risk and actions taken to reduce risk
- Early identification and elimination of potential product/process failure modes Improve product/process reliability and quality
- Ensures a logical approach to assessing design & processes Prioritize product/process deficiencies
- Capture engineering/organization knowledge Emphasizes problem prevention
- Catalyst for teamwork and idea exchange between functions Provide focus for improved testing and development
- Minimizes late changes and associated cost