

AIAG Failure Mode and Effects Analysis (FMEA)

Course Duration: 2-day; Instructor-led

Time Schedule: 9am-5pm

Lunch: 1:00pm- 2:00pm

Morning Tea-break: 10:30am-10:45am

Afternoon Tea-break: 3:30pm -3:45pm

INTRODUCTION

Customers are placing increased demands on companies for high quality, 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 design in quality and reliability early in the development cycle.

Therefore, the Failure Modes and Effects Analysis (FMEA) is the most preferable 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 and development of system, product or process. 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.

This course is also available for in-house presentation with or without the IATF 16949 certification. This training course may be used in its original presentation format or it may be customized by referring to the degree of business nature.

OBJECTIVE

This program is designed to help participants apply the FMEA through the 10 Steps of FMEA implementation. Here are the learning objectives for the two days training program; after completing this program, participants will be able to:

- Understand the purpose and scope of FMEA.
- Understand the legal approach to liability
- Identify the types of FMEA and their applications.
- Describe the rating scale of FMEA rating.
- Develop the Severity, Occurrence and Detection rating tables.
- Anticipate failures systematically by using the FMEA.
- Identify the quality tools for FMEA.
- Prepare the Cost-Benefits Analysis for effective preventive actions
- Carry out Preventive Action based on the prioritization as the results from the FMEA.

TARGET AUDIENCE

QA Managers, Product Development Managers, Internal QMS Auditors, NPI Engineers, Cross functional team members of implementation project and Suppliers to the organization

METHODOLOGY

This program involves a wide range of learning approaches, including self - assessment, case studies, small group activities and discussions, interactive lectures, experimental learning group assignments and exercises and presentation and critique.

COURSE CONTENTS

Day 1

Module 1: Introduction

- Purpose
- Contents Overview
- Why conduct FMEA
- Quality as Today
- Benefits of FMEA
- The FMEA 10 Steps

Module 2: Legal Approach To Liability

- Responsibility for Safe Products
- Product liability
- Types of Defects

Module 3: Language Of FMEA

- Vocabulary in FMEA
- Function
- Failure Modes
- Effects of Failures
- Causes of Failures
- Case Study

Module 4: FMEA Team Mechanics

- Teams and Expectations
- Team Formation and Consensus
- Planning the FMEA Team Meeting
- Managing Team Meeting
- 5. DAY 1 WRAP-UP

Day 2

DAY 1 REVIEW

Module 5: Tools Used In FMEA

- FMEA Stages
- Typical Tools and Applications
- Forecasting Rules

Module 6: FMEA Step-By-Step Approach - PRACTICAL STUDY

- The FMEA Form
- Setting the FMEA Ranking
- Systems.
- Identifying Process
- d) Defining the Scope of FMEA
- e) Identifying the Potential Failure Mode
- f) Understanding the Effects of Failures
- g) Defining the Critical Characteristics
- h) Identifying the Potential Cause(s) of Failure
- Understanding the Detection/ Preventive Methods
- j) Prioritizing the Risk
- k) Actions and Cost-Benefits Analysis
- l) Revising the FMEA
- m) Case Study & Team Presentation

WRAP-UP & Q&A SESSION

- a) Q&A
- b) Summary
- c) Course Evaluation
- d) Recommendation for action