

## **Failure Modes & Effects Analysis (FMEA)**

### **OBJECTIVE**

This workshop provides product and process engineers a structured approach to identify design or process deficiencies during product development. The course will give the student "hands on" practice along with instruction on how to correctly and efficiently perform the FMEA.

The program aims to :

- The benefits of a proper FMEA effort. The different types of FMEA (System, Design, & Process).
- When FMEA should be started and completed.
- How to construct an effective FMEA team.
- A working definition of the terms in FMEA.
- Specific step by step How to in completing an effective and efficient FMEA.
- Application, installation and functional failure modes strategies.
- Strategies to determine root causes.
- How to understand and quantitatively assess risk in design and manufacturing.
- What severity, occurrence, and detection mean and how to estimate them.
- Common pitfalls and keys to successful implementation of FMEAs.

### **WHO SHOULD ATTEND**

Manufacturing, process, product, device, test, R & D, quality assurance, assembly area engineers and senior technicians who are involved in the improvement, characterization, control, and maintenance of manufacturing and engineering processes.

### **COURSE OUTLINE**

#### **Day 1**

##### **Module 1 : Introduction to FMEA**

Objectives

- Introduce FMEA concepts and definitions
- Show relationship between Quality and FMEA

##### **Module 2 : Getting FMEA started**

Objectives

- Determine the necessary resources and information required to start the FMEA process
- Discuss how and when to form FMEA teams
- Identify several FMEA types and where to use them

##### **Module 3 : FMEA Process and Probabilistic Risk Assessment**

Objectives

- Describe FMEA Process
- Define Severity, Occurrence, and Detection

- Calculate the Risk Priority Number (RPN)
- Discuss Risk Assessment

## **Day 2**

### **Module 4 : FMEA Types (Process and Service)**

#### Objectives

- Define Process and Service FMEA's
- Review an FMEA Road Map
- Provide Recommended Steps for Performing an FMEA

### **Module 5 : Quality Planning for FMEA**

#### Objectives

- Present guidelines for constructing Control Plan Evaluation Matrix (CPEM)
- Define Process Control Plan(s)

### **Module 6 : FMEA Type (DFMEA)**

#### Objectives

- Define Design
- Review DFMEA
- Provide Recommended DFMEA

## **DURATION**

2 Days

## **METHODOLOGY**

Lecture, Group Discussion, Group Presentation

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