



CQE Training & Consultancy Plt (Reg. No. : LLP 003668 LGN)

(HRDF Approved Training Service Provider)

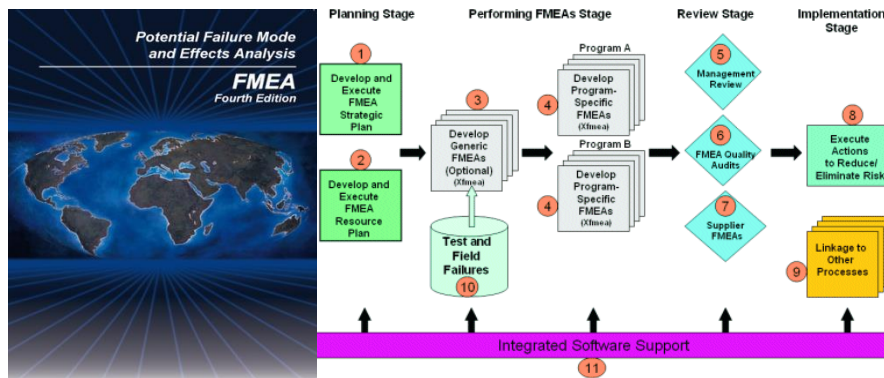
Registered Office : No. 46, Lorong Bintang, Taman Tasik Permai, 34000 Taiping, Perak. Malaysia.

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Failure Mode & Effects Analysis (FMEA) & Hazard Identification, Risk Assessment, Risk Control (HIRARC) (In-House / Public Training Programme)



INTRODUCTION

Since its introduction into U.S. industry, **Failure Mode and Effects Analysis** have generated widespread interest as a means of improving reliability, avoiding costs and shortening lead times. FMEA's appeal lies in its versatility: Its principles and techniques can be applied to virtually any product or process, making it a valuable tool for companies in any industry.

An FMEA can be described as a systematic group of activities intended to recognize and evaluate the potential failure of a product/process and the effects of the failure, identify actions that could eliminate or reduce the chance of the potential failure occurring, and document the entire process. It is complementary to the process of defining what a design or process must do to satisfy the customer.

Because of the general trend industry to continually improve products and processes whenever possible, using the FMEA as disciplined techniques to identify and help minimize potential concern is as important as ever. One of the most important factors for the successful implementation of an FMEA program is timeliness. It is meant to be a "before-the-event" action, not an "after-the-fact" exercise. To achieve greatest value, the FMEA must be done before a product or process failure mode has been incorporated into a product or process. Up-front time spent properly completing an FMEA, when product/process changes can be most easily and inexpensively implemented, will minimize late change crises. An FMEA can reduce or eliminate the chance of implementing a preventive/corrective change that would create even large concerns.

The establishment of **Occupational Health and Safety Management System Standard (such as OHSAS 18001)** requires organization to identify the occupational risk and health of their process and workplace to determine those that have or can have an intolerable risk to the interested parties.



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Further to that, as required by the law, each organization needs to have safe system of work to ensure harm is prevented to all employees including visitors and contractors. Safe system of work includes safe work procedures and instructions. In order to know that safe system of work is adequate, **hazard identification and risk assessment** need to be conducted.

This course provide delegates with an introduction to the practical approaches to identifying the occupational health and safety (OHS) hazard of your company's process & workplace, their actual or potential intolerable risk as a basis of minimizing or eliminating risks through systematic approach.

LEARNING OBJECTIVES

At the end of this training session, participants will be able to:-

- a) Define Failure Mode and Effect Analysis (4th. Edition released on 28 June 2008)
- b) Understand the Guidelines for HIRARC from Ministry of Human Resource 2008
- c) Explain how FMEA helps improve reliability, cost and lead time
- d) Identify the 3 stages of "Bathtub Curve" and types of failures they represent
- e) Explain and illustrate the purpose of Design, Process and Service FMEAs.
- f) Understand the purpose of HIRARC to Occupational, Safety and Health Management Systems
- g) Use and practice appropriate FMEAs and HIRARC at workplace
- h) Identify several potential benefits of using FMEA & HIRARC
- i) Identify the key imperatives of an effective FMEA & HIRARC implementation
- j) Differences between FMEA 3rd. and 4th. Edition
- k) Major changes in FMEA 4th. Edition
- l) The major impacts of the new changes in current QMS and Occupational, Safety and Health Management Systems.
- m) How to address and implement the changes requirements

COURSE OUTLINE

Day 1

Fundamentals of FMEA

- ⇒ Definition and Purpose of FMEA
- ⇒ FMEA Approach & Benefits
- ⇒ Definition of Failure Modes
- ⇒ Failure Causes
- ⇒ Failure Effects
- ⇒ Mitigation and Controls
- ⇒ Common Manufacturing Practice on the Production Shop Floor
- ⇒ Common Engineering Practices in the Product Life Cycle
- ⇒ Risk Assessment
- ⇒ Risk Priority Number (RPN)
- ⇒ Reaction Plan



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- ⇒ Design FMEA
- ⇒ Process FMEA
 - a. Workshop
 - b. Presentation
- ⇒ Control Plan
- ⇒ FMEA and Control Plan Integration
- ⇒ Differences in FMEA 4th. Edition
- ⇒ Critical and major changes in 4th. Edition
- ⇒ Common Problem Faced in Workplace

Day 2

Occupational Health and Safety Management System and HIRARC

- ⇒ Overview of Occupational Health and Safety Management System
- ⇒ HIRAC – Definitions and concepts
- ⇒ Process of HIRAC
- ⇒ Hazard identification tools
- ⇒ Types of hazards
- ⇒ Risk assessment
- ⇒ Analyzing risk
- ⇒ Evaluation of risk
- ⇒ Risk control approach
- ⇒ Practical Workshop
- ⇒ Common Problem Faced in Workplace
- ⇒ Question & Answer Session

DURATION

2 Days

WHO SHOULD ATTEND

Managers, Engineers, Executives and Supervisors from Quality and Production Departments, ESH Department, Maintenance and Store/Warehouse will find this course relevant to their job function. Members from ESH and Quality Steering and Working Committees will find this training course beneficial.

CLASS SIZE

Maximum 20~25



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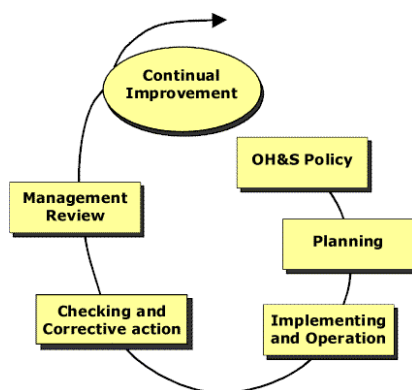
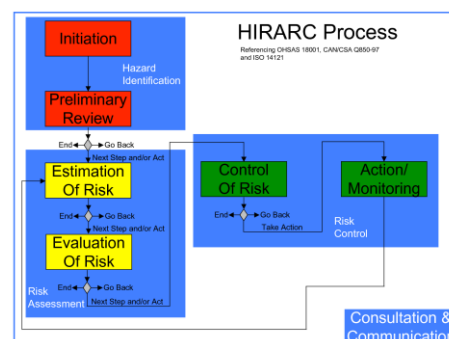
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METHODOLOGY

- ⇒ Course Notes
- ⇒ OHP
- ⇒ Exercise
- ⇒ Lecturettes
- ⇒ Case Study



for Hazard Identification, Risk Assessment and Risk Control (HIRARC)



| HIRARC FORM | | | | | | | | |
|--------------------------|------------------------------|--|---------------------------------------|--------------------------------|---------------------|----------------------------|--|-------------------------|
| Company: | | Sumber Teknologi Utara | | Conducted by: | | Ramil Alias (Process Eng) | | |
| Process/Location: | | Operation/Technical Support | | Date (from... to...): | | 15/JUN/2010 to 18/JUN/2010 | | |
| Approved by: | | Ishak Abu Bakar (Sr Superintendent) | | Date: | | 18/JUN/2010 | | |
| Date: | | 18/JUN/2010 | | Review Date: | | | | |
| 1. Hazard Identification | | | 2. Risk Analysis | | | 3. Risk Control | | |
| No | Work Activity | Hazard | Which can cause/ effect | Existing Risk Control (if any) | Likelihood/Severity | Risk | Recommended Control Measures | PIC (Due date/ status) |
| 1 | Remove debris from reservoir | Inadequate Access | Hitting objects with part of the body | - | 4 4 | 16 (High) | Practice good housekeeping | 03/JUN/2010 / |
| | | Contaminated air in the work space | Exposure to toxic contaminants | - | 4 4 | 16 (High) | Ventilate area prior to entry. Monitor contamination level | 03/JUN/2010 /On going |
| 2 | Scrape reservoir walls | Inadequate illumination for the particular work being done | Limited visual capabilities | - | 3 2 | 6 (Medium) | Increase illumination | Ramil (30/JUN/2010) /KV |