Course overview

This one day course provides detailed guidance on the application of Failure Modes and Effects Analysis (FMEA) and Failure Modes, Effects and Criticality Analysis (FMECA) to support design and delivery of reliable equipment.

The course is based on industry best practice for the application of FMEA/FMECA to support the implementation of IEC 60812, ISO 20815, DNV RP A203 and API RP 17N. It provides:

- Knowledge of the FMEA/FMECA approach and how it can be used to support system design and delivery
- Knowledge of the different types of FMEA/FMECA, their purpose and when they are best applied
- An understanding of essential preparation and responsibilities for effective implementation
- An understanding of how to identify failure modes, mechanisms, causes and effects
- An understanding of how to assess failure criticality and the need for follow-up actions
- Hands on experience of working through the FMECA process with group exercises

This course is aimed at engineers and technical specialists working with project teams, system and equipment designers, vendors and delivery teams wanting to apply FMEA/FMECA to manage reliability, integrity and technical risks as part of developing and delivering reliable technology. Where possible, examples and exercises are adapted to reflect the industry perspective of the course attendees with priority given to early bird and group bookings.

Our instructors

Our dedicated team is an internationally recognised authority in the field of reliability engineering, and have been providing training to industry for a number of years. We have considerable experience in the application of reliability techniques to manage technical risk and have worked with asset operators, design teams and equipment suppliers across a number of industries, including oil and gas production, energy and utilities distribution.

First and foremost we are highly experienced engineers, and we want to ensure that your company benefits from recognised technical expertise and experience.
Course programme

Session 1
Introduction to FMEA/FMECA
- What is meant by the terms "FMEA" and "FMECA"
- The basic FMEA/FMECA structure
- Definitions and understanding the fundamentals
- How the use of FMEA and FMECA can support design and delivery of reliable technology
- Industry standards and recommended practices

Session 2
Management for effective analysis
- Roles and responsibilities
- Preparatory information and definitions
- Reporting and follow up actions

Session 3
Types and uses of FMECA
- When to apply different types of FMEA/FMECA:
  - Design
  - Manufacture and assembly
  - Construction and installation

Break

Session 4
Methodology part 1: Failure identification
- System breakdown
- Identification of failure modes, mechanisms and causes
- Identification of failure effects

Session 5
Workshop 1
- Overview of case study
- Development of a FMECA for the case study - Part 1: failure identification
- Feedback from exercise and discussion

Lunch

Session 6
Methodology Part 2: criticality analysis
- Quantitative assessment of failure modes and effects
  - Failure mode frequency
  - Prevention, mitigations and detectability
  - Consequence severity
  - Risk Priority Numbers
- Identifying follow-up actions
- Completion, reporting and follow-up

Session 7
Workshop 2
- Development of FMECA for the case study - Part 2: quantitative assessment and follow up actions
- Feedback from exercise and discussion

Break

Session 8
Review of key learning points, discussion and questions

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