



# Quality-One International

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## Design FMEA Training Course Outline

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- Introduction to Design Failure Mode and Effects Analysis (DFMEA)
- What is Risk?
  - History and Purpose of FMEA
  - Standards and Guidelines to be followed
  - DFMEA – Where it fits in the Product Development Process
  - System / Subsystem / Component DFMEA
- DFMEA Development Methodology
  - Failure Mode Avoidance (FMA) & Failure Prevention Analysis (FPA)
  - Team Structure and rules for efficiency – Cross Functional Team (CFT)
- Links Between Design and Process FMEA
  - Special Characteristics (Critical and Significant)
    - Collaboration on Special Characteristics
    - Characteristics as Inputs to PFMEA
- Practical Application of the Design FMEA Technique
- Pre-work / Robustness Tools: Interface Analysis / Boundary (Block) Diagrams; Parameter Diagram (P Diagram)
- FMEA Development Methodology – Three Path Model
  - Path 1
    - Functions / Failure Modes / Effects of Failure / Severity
    - Severity Ranking Guidelines
    - Actions for High Severity (9 and 10)
  - Path 2
    - Causes / Prevention Controls / Occurrence
    - Occurrence Ranking Guidelines
    - Inputs to Fault Tree Analysis (FTA)
    - Actions to eliminate and / or reduce cause probability
  - Path 3
    - Test and Verification Methods
    - Detection Ranking Guidelines
    - Links to DVP&R
    - Actions to improve tests / verification techniques
- Risk Priority Number (RPN)
- Action Follow-up
- Legacy and Lessons Learned Capture