

Reliability Academy

Workshop: Reliability Engineering Basics

Date: Feb 7-8, 2012
Venue: Company

Example
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This 2-day course introduces the most widely used reliability engineering methods in design and procurement of technical systems and products. The goal of the course is to give the engineers a basic understanding of the Reliability techniques, including practical tools. Through exercises and team work the students will be familiarized with the terms, methods and concepts. Prior knowledge of the basic statistical methods will be helpful and you need to bring a scientific calculator with you.

Day 1	Tuesday 7.2.
8:45	WELCOME and Introduction of the Course Program (+ coffee/tea)
9:00	A1. Basic Terms in Reliability Engineering <ul style="list-style-type: none"> - Reliability terms and concepts - Failure rate, MTBF
10:00	A2. Basics of the Reliability Calculations <ul style="list-style-type: none"> - Reliability parameters and statistical distributions
10:45	- Exercises / team work
11:30-12:00	<i>LUNCH</i>
12:00	- Exercises / team work
12:30	A3. Reliability of Systems <ul style="list-style-type: none"> - Series and parallel structures - Unrepairable and repairable systems
13:30-13:15	<i>COFFEE/TEA</i>
13:15	- Exercises / team work
14:30	A4. Reliability and Risk Analysis methods <ul style="list-style-type: none"> - Overview of the most widely used analysis methods: FMEA, Fault Tree, Block Diagrams models etc. - System "bottle necks", allocation of unreliability - Production losses and unreliability
15:45-16:00	SUMMARY, discussions

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... Reliability Engineering Basics (day 2)

Day 2	Wednesday 8.2.
8:45	INTRODUCTION to Day 2, Coffee/ Tea
9:00	A5. Reliability Management and timing <ul style="list-style-type: none"> - Reliability management in product development - Timing of the reliability engineering activities in product development - Reliability Program Plan, Reliability Specification - FRACAS – Reliability data collection
09:45	- Exercises / team work
<i>11:30-12:00</i>	<i>LUNCH</i>
12:00	A6. Reliability of Electronics <ul style="list-style-type: none"> - Failure modes of electrical components - Parts count and MIL-217 methods: calculation of MTBF - Basics of Reliability Testing
13:15	- Exercises / team work
<i>14:00-14:15</i>	<i>COFFEE/TEA</i>
14:15	- Exercises / team work
15:00	A7. Safety System Reliability – Functional Safety <ul style="list-style-type: none"> - IEC-61508 –standard: Functional Safety of the Electronic Safety Devices - SIL (Safety Integrity Level) - Failure Modes and hazardous failures, fault diagnostics - Improving reliability of an electronic safety device
16:00-16:15	CONCLUSIONS, discussion

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