Reliability Academy

Workshop: Reliability Engineering Basics

Date: **9.10.2014 (+FMEA 10.10.2014)**
Venue: **Innopoli 2, Espoo**

The goal of the course is to give the engineers and designers a basic understanding of the Reliability techniques and practical tools which will support system analysis and design. Through exercises and team work the students will be familiarized with the Reliability terms, methods and concepts. Prior knowledge of the basic statistical methods will be helpful. Bring a scientific calculator with you.

Reliability Engineering Basics	
8:00	*WELCOME and introduction to course program + coffee*
8:15	**1. Basic Terms and Concepts** - Terms, concepts and parameters - Reliability calculations: Failure rate, MTBF, MTTF, MTTR
10:15	*COFFEE break*
	2. Reliability of Systems - Series and Parallel systems - Repairable and Non-repairable systems
	- Exercises / team work
12:00	*LUNCH*
13:00	**3. Reliability and Risk Analysis methods** - Overview of the most widely used analysis methods
	4. Reliability of Electronics - Failure modes of electrical components - Parts count and MIL-217 methods: calculation of MTBF - Basics of Reliability Testing
14:15	*COFFEE break*
	- Exercises / team work
	5. Reliability Management - Reliability Engineering activities and timing in Product Development
16:30	*CONCLUSIONS, discussion*

Contact/ Lecturer: Mr. Antti Lyytikäinen, M.Sc., Reliability Academy
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Remarks: Day 1 and 2 can be taken separately. 2 days 850 eur, 1 day 550 eur

Cancellation: If cancellation takes place after 3 calendar days before course start day, 50 % of the fee will be charged. A person may be substituted by another. If the cancellation is not made, the whole fee will is charged.

Reliability Academy

Workshop: FMEA Analysis

Date: **10.10.2014 (+Rel.Basics 9.10.2014)**
Venue: **Innopoli 2, Espoo**

The goal of the course is to introduce the most widely used reliability method FMEA (=Failure Modes and Effects Analysis). Product designs can be improved with Functional FMEA and Component FMEA. Furthermore, the Quality standards describes the methods Design FMEA, including Process FMEA for manufacturing system improvements. The students will learn how to complete a successful FMEA-project, including effective FMEA documenting tools and practices. Bring a scientific calculator with you.

FMEA Analysis	
8:00	*WELCOME and introduction to course program + coffee*
8:30	**1. FMEA and Reliability** - Reliability terms and concepts: failure definitions - Selecting methods, ensuring sufficient risk detection
10:15	*COFFEE break*
	2. Performing FMEA - Generic FMEA, steps to perform FMEA - Risk classification, RPN
	- Exercises: Understanding failures
12:00	*LUNCH*
13:00	- Exercises/ team work: Failure severity ranking using Risk Priority Number (RPN)
	3. Different FMEA types - Functional FMEA, Component FMEA - D-FMEA, P-FMEA, SW-FMEA.
14:15	*COFFEE break*
	- Exercises / team work: System Analysis, a.Functional FMEA, b.Component FMEA
	4. FMEA Organisation - Analysis team, design support, typical mistakes - Tools
	5. Summary - FMEA possibilities in system improvement - Application examples
16:30	*CONCLUSIONS, discussion*

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