Description Classroom Training
Reliability Data Analysis

About the topic:

Life data from tests, field data from the warranty period and field data in general can exist in different forms and data quality. Numerous practical exercises are used in the seminar to show how Weibull analyses can be carried out and interpreted for different data structures independently and with the help of Minitab software. The analytical methods for the analysis of complete and censored datasets are covered. The focus of the seminar is the shape and quality of data-dependent, application-oriented selection of appropriate evaluation methods.

Target group:

Engineers, technicians, specialists from the areas of development, testing, construction, research and quality assurance

Training content:

Day 1

- **Introduction**
  Introduction to reliability engineering | Reliability in the product development process

- **Mathematical Description of Reliability**
  Basic concepts of statistics and probability theory | Weibull distribution | Failure probability | Density function | Failure rate | Reliability | Confidence interval | Estimation of distribution parameters | Regression analysis | Maximum likelihood estimation

- **System and Component Reliability**
  Boolean system model | Reliability block diagram | System reliability evaluation and optimization

Day 2

- **Data Analysis I (Complete Data)**
  Median rank method | Weibull probability plot | Weibull analysis | Acceleration factor

- **Data Analysis II (Censored Data)**
  Type I and type II censoring | Multiple censoring | Weibull analysis based on censored data | Mixed Weibull | Batch problems | Competing failure modes | Various exercises

- **Various exercises**
  Various exercises provide an opportunity to apply and expand the knowledge learned practically. Several different applications are analyzed and the results interpreted together. Issues include:
    - When is a two-parameter or a three-parameter Weibull distribution suitable?
    - How big should the correlation coefficient be for a good fit?
    - What are the differences between the least squares method and maximum likelihood?
    - Is it a batch problem?
    - Are there competing failure mechanisms?

Prerequisites:

There are no prerequisites for this topic.

Software requirements:

Each participant must have a laptop with the following software: Microsoft Excel, Adobe Reader and Minitab (Version R15 or above). A demo version of the Minitab software can be downloaded from www.minitab.com.

Certification:

The training will end in all cases with a certificate of participation.

Training duration:

Training 2 Days

Scope of services:

- Training documents in paper form
- Training documents as pdf document
- Exercises and calculation templates
- Certificate of participation
- Catering during the training

Dates / Registration / Training fee:

For more information, please visit our website www.reliability-academy.com

In-house:

We also offer all our seminars and trainings as an in-house event.

Coaching:

Should you so wish, we can put together a time and content tailored coaching concept for you after completion of the training.