

RELIABILITY STATISTICS

OBJECTIVES

A good reliability program can drastically improve product performance and longevity, and can ultimately improve customer satisfaction. This course will go into advanced reliability statistics from sampling plans and confidence limits to hypothesis testing and design of experiments, and will give an understanding about how to apply these statistics in order to develop reliability tests and analyze reliability data.

WHO SHOULD ATTEND

This course is intended for those involved in design, test, or analysis, who want a better understanding of advanced reliability statistics for the purpose of improving the reliability of their product.

OUTLINE

- Probability and Statistics
 - Control Charts
 - Permutations and Combinations
- Probability Functions
 - Probability Density Function
 - Cumulative Distribution Function
 - Reliability Function
 - Hazard Function Continuous Distributions
- Continuous Distributions
 - Normal Distribution
 - Exponential Distribution
 - Weibull Distribution
 - Lognormal Distribution
 - Gamma Distribution
 - Beta Distribution
- Discrete Distributions
 - Poisson Distribution
 - Binomial Distribution
 - Geometric Distribution
 - Hypergeometric Distribution
- Sampling Distributions
 - Chi-Square Distribution

- T Distribution
- F Distribution
- Hypothesis testing
 - Chi-Square Test
 - T-Test
 - F-Test
- Confidence intervals
 - Type I (time censored)
 - Type II (failure censored)
- Probabilistic simulation tools
 - Design of experiments
 - Taguchi Method
 - Analysis of Variance
- Reliability Testing
 - Reliability Test Plans
 - Accelerated Reliability Techniques
 - Step-Stress and continuously increasing stress testing
 - Test, analyze, and fix tests
 - Product Reliability Acceptance Testing (PRAT)
 - Environmental Stress Screening (ESS)