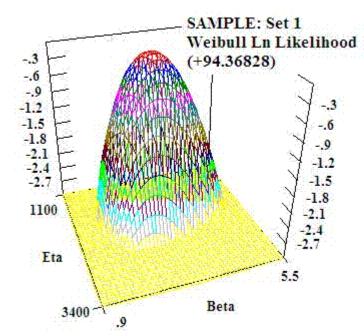
# WEIBULL FOR THE 21st CENTURY



For Workshop Prices ...

For Key Activity Schedule ...

For a Complete List of Authorized Instructors ...

>>> Go to
WeibullNEWS.com

Smaller classes available.
Exclusive problem-solving techniques.
All workshop students receive the FULL SuperSMITH(R) software with the latest Weibull engineering programs and the latest Weibull engineering tutorial

"Every Engineer, Regardless of Their Endeavors Could Benefit from This Course".

John Lee, Senior Process Engineer LAM Research

CONTACT: 1-310-548-6358 Wes33@pacbell.net WeibullNEWS.com FultonFindings.com

NEW... ½ Day Overview
Session for Management
Available with Any
Workshop!

"This is THE Dream Package for Weibull Practicioners".

C. Julius Wang, USA Director RMCtech



NOTE: SuperSMITH includes Weibull software, Visual Software, YBath(TM) software, plus the free online PlayTIME(TM) tutorial booklet. Dr. Bob Abernethy's Weibull Handbook is available from AMAZON.COM and is easy to find and purchase.

#### 2-DAY BASIC WORKSHOP

A Weibull / Lognormal introduction. Brings the novice up to working level. Covers analysis of good data, messy data, forecasting, optimum replacements, inspections, grouped data, Weibayes, test planning, and reliability growth modeling. Training includes hours of hands-on problem solving with SuperSMITH software to analyze example data found in the PlayTIME Computer Tutorial for SuperSMITH.

#### 2 DAY ADVANCED WORKSHOP

Extends coverage to alternate fitting solutions such as maximum likelihood estimation (mle), distribution comparison, system and mixture solutions, confidence, significant differences, and related models. More time is included for student hands-on problem solving using SuperSMITH. There is additional time for details concerning simulation models or for follow-up consulting on data brought by each student.

#### 3 DAY COMPLETE WORKSHOP

This time-tested complete workshop by Dr. Bob Abernethy is useful for most applications. From the beginning to the end with case studies for Automotive, Aerospace, Electric Power Plant, Chemical & Petro-Chemical Plant, Medical, and every type of commercial product or service. Coverage of the complete New Weibull Handbook(c) by Dr. Bob.



# 4 DAY EXTENDED WORKSHOP (BASIC + ADVANCED + SIMULATION + CONSULTING)

The complete workshop including both 2-Day sessions above. There is a discount for hosting the advanced workshop immediately after the basic workshop for the same people.



# OTHER CLASSES, OTHER FORMATS AVAILABLE (SIMULATION + CONSULTING)

Contact us for more information.

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# WORKSHOPS ONLINE OR HELD AT YOUR SITE

#### DAY 1 BASIC

Weibull analysis overview
23-minute video short course
How to do a Weibull analysis
Interpretation of Good Weibulls
Interpretation of Bad Weibulls - Cusps,
dog-legs, curves, t0, Lognormal
Extremely small sample analysis. . .what
are the risks?

Suspensions & sample size effects on uncertainty

Predicting failures with and without renewal Case studies. . .customer usage. . .maintenance planning. . .goodness-of-fit with ccc and the new pve% Crow-AMSAA reliability growth modeling. . for tracking development testing and repairable systems maintainability Weibull Experiments. . .wire data. . .classwork problems and solutions

### **DAY 2 BASIC**

Experimental wire data distribution analysis Optimal replacement intervals Weibull analysis. . . improving accuracy, smaller samples, Weibayes Weibayes weibayes substantiation tests. . . Have we fixed the problem? Zero-failure testing, sudden death tests, Simple models related to Weibull. PlayTIME with SuperSMITH software tutorial . . . hands-on computer experience solving problems. . . students may bring their own data for analysis with the software

# **DAY 2 ADVANCED**

Emphasizes and expands basic concepts to cover likelihood solution, confidence methods, design comparison for significant difference, techniques for establishing goodness of fit (GOF), outlier detection, aggregate cumulative hazard, accelerated testing, degradation analysis, Monte Carlo simulation, Crow-AMSAA trending. More SuperSMITH software usage. . .hands-on computer experience solving problems. . .students may bring their own data for analysis with the software

# DAY 3 (DAY 1 ADVANCED) CONFIDENCE + MODELS

Maximum likelihood Weibull theory and application Rank regression (rr) vs. Maximum likelihood Estimation (mle).

.advantages/disadvantages

Alternate types of data . . . inspection and grouped with probit solutions

Interval mle

Confidence intervals

Are two Weibull data sets significantly different?

Additional PlayTIME tutorial work

Dauser shift

PlayTIME with SuperSMITH computer use tutorial plus time for participants to analyze their own data and problems.

# DAY 4 (DAY 2 ADVANCED) YOUR DATA

Binomial & Poisson solutions
The exponential related to Poisson and
Weibull

Kaplan-Meier survival for warranty analysis System models - independent modes Warranty analysis

Crow-AMSAA details

Monte Carlo simulaton. . . History and Principles

Monte Carlo simulation solutions

Example: The Cliff Walker Transforming random numbers into real

variables, like time to failure

Example: Ssystem simulation with renewal Case Studies: Reliability, maintainability, safety systems models - dependent modes

PC hands-on simulation

Reliability and maintainability with RAPTOR and MONTE

Students receive copies of simulator software

And/Or time to analyze your data

# 1 DAY REFRESHER

The New Weibull Handbook latest edition Failure forecasting (risk analysis)

By part, component, system A month, a year, 5 years, 10 years ahead

Labor costs forecasting Spare parts forecasting

Optimal renewal interval new capabilities Crow-AMSAA . . . modeling updates Tracking fleets for maintainability Classic bi-Weibull and YBath solutions New cost-effective test planning Inspection data. . . new methods

Monte Carlo research. . . & surprises Kaplan Meier survival analysis

Inspection data

Warranty analysis Modified likelihood ratio tests for multiple

data sets

The latest SuperSMITH software Hands-on computer tutorial with your own problems and your own data

#### **LECTURER**

Wes Fulton is founder and CEO of Fulton Findings (TM) and the creator of SuperSMITH Weibull, SuperSMITH Visual, and several special programs for statistical research such as MonteCarloSMITH(TM) and BiWeibullSMITH(TM) software packages. He has 16 years experience as Program Engineer for Garrett Aiesearch aerospace systems. He supervised development and production engineering of aircraft flight control projects, and manueuvering fly-by-wire actuation systems. He co-patented the multi-fuseable shaft (a highperformance drive-train device) and is a member of ASME, ASQ, IEEE, and SAE. A lecturer in statistical modeling, he developed the Fulton Factor used in set comparison and originated the concept of assurance that equates reliability and confidence.

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