

WORKSHOPS

Experiment Design Made Easy

August 5-8, Minneapolis
Sept. 16-19, Minneapolis
Nov. 11-14, Philadelphia, PA

This workshop covers the practical aspects of Design of Experiments (DOE). Learn about simple but very powerful two-level factorial designs.

Response Surface Methods for Process Optimization

October 7-10, Minneapolis

This workshop builds from factorial DOEs into Response Surface Methods (RSM), which produce maps to help you find the optimum and/or robust conditions for your process.

Mixture Design for Optimal Formulations

October 21-24, Minneapolis

If you do product formulation, you know standard factorial designs just don't work. You need the mixture design skills presented here.

Robust Design for Quality Improvement

December 9-11, Minneapolis

Learn to meet your tightest specifications with minimal variation. Push the envelope with saturated fractional factorials.

Real-life DOE (NEW!)

Sept. 23-25, Minneapolis

Advanced techniques and practical applications bring together the best of training and real life.

Attendance limited to 24.
Reserve your place by calling
Carol at:

800-801-7191

Direct Dial: 612-378-9449

Toll Free: 800-801-7191

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e-mail: info@statease.com

Website: www.statease.com

July 1997

Stat-Teaser



S t a t - E a s e C o r p o r a t i o n

LOW-COST UPGRADE NOW AVAILABLE!

Easiest graphic analysis yet! It's **Design-Ease® v.5**

Not all users need each feature found in our highly praised Design-Expert® v5 for Windows. Therefore, we've released a subset called Design-Ease v5.

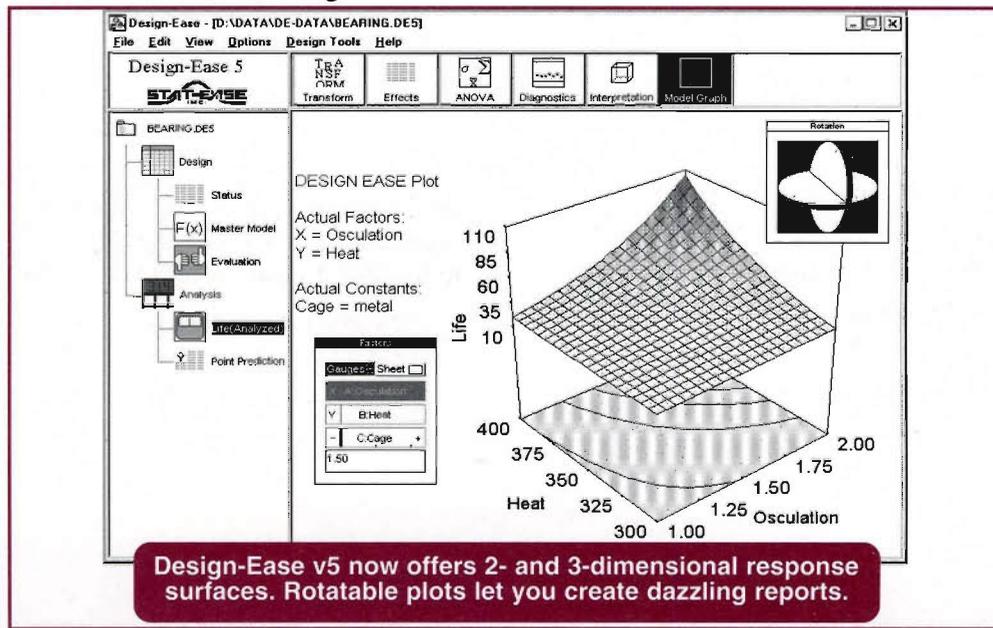
Our programmers built a new interface -- totally redesigned for graphic simplicity. Progressive toolbar icons make analysis easy. A push-button interface displays pop-out views to enhance ease-of-use. Plus, 2- and 3-dimensional response surfaces are available for the first time ever in Design-Ease v5.

The software offers several new statistical features, including:

- Scatter plots to visualize data;
- Irregular (minimum) fractions (see case study on back page);
- Alias structures for Plackett-Burman (or any other design);
- Automatic selection of significant effects.

But the best feature of Design-Ease v5 is its incredible ease of use.

Design-Ease v5 upgrades are \$195 in exchange for any prior version's serial number. A brand new package costs \$395. Both include a manual, tutorials, plus free technical and statistical phone help.



Design-Ease v5 now offers 2- and 3-dimensional response surfaces. Rotatable plots let you create dazzling reports.

“Tailored software helps plan experiments”

“Version 5 of Design-Expert, from Stat-Ease in the USA, is the latest addition to the growing but relatively recent array of software aimed at improving study design.

The market for this software has diverged into three clear approaches. One is the provision of a value-added extension to conventional statistical handling software. A second is the creation of free-standing tools for small teams. The third is a full-blown computerization of the design process. Design-Expert represents the current high-water mark of this last category. For this review it was used alongside representatives from the other two categories in several, varied project design tasks by teams whose experience varied from extensive to non-existent.

The single pane structure with “pop out view” option offers a practical blending

of the best in single-pane and multi-window approaches.

Several classes of experiment design are available. The sturdiest are the two-level factorials, generating base designs of 4 to 128 runs and up to 15 factors. Response surfaces offered vary according to the number of design factors in context.

Coding is well handled and works fluently in real design contexts. After the design is built, coded or actual factor levels can be displayed at any time and operating lows and highs can be manipulated via column headers. Graphics support for decision making is straightforward and direct throughout.

To be effective, software tools must be designed and selected in recognition of the fact that statistical methods are rarely employed rigorously.

Design-Expert inspires unreserved respect in this regard: it encourages good practice, explains itself in ways that educate, and yet avoids oversimplifications that would put sensitive methods too easily into unprepared hands.

For users with the background to understand what Design-Expert is doing, and why, it will pay immeasurable dividends in efficiency of process and quality of results.”

Note from Stat-Ease Corp:

The highlighting is ours. If you wish to read the entire review, please contact us at the toll-free number below.

Design-Expert v5 (DX) for Windows costs \$995 new. Users of Design-Ease (DE) can upgrade to the more advanced DX for \$695. Upgrading from older DX versions is \$295. And if you upgrade any DE and an older DX to a new DX, the cost is only \$195.

Reprints? Questions? Orders? We're here to help. Just dial:

1-800-801-7191 ext.8

Design-Ease and Design-Expert software offer a new choice of two-level factorial design called irregular fractions. These designs are 3/4 or smaller segments of the standard two-level options. They provide clean estimates of main effects and two-factor interactions (resolution V) with minimal runs. New software versions give you these irregular fractions: 4 factors in 12 runs, 5 in 24, 6 in 48, 7 in 48, 8 in 48 and 9 in 96.

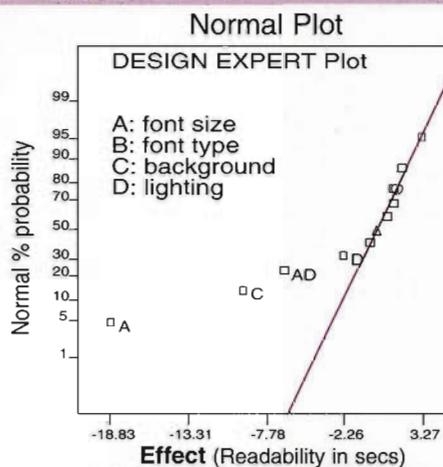
To verify this new design, I set up an in-class experiment on an RGB-projected output from Stat-Ease software. The goal? To improve readability. I chose the following factors: A: font size (14 vs 18 point), B: font type (Arial vs Times New Roman), C: background (black v white) and D: room lighting (off v on). I chose a 12-run irregular fraction, giving me a 25% reduction from a full two-level, 16-run DOE. To measure readability, students transcribed levels for factor (A), then checked their numbers. Their partner timed the operation and counted wrong numbers. Right-clicking the top of the Run column, I re-randomized the order to prevent memorization.

New Design Makes It All Clear

by Mark Anderson

Look below at the normal effects plot of a typical student sitting outside row 2. Increasing font size improved readability. In fact, with the large font size it made no difference whether the lights were on or off. Font type did not affect readability, but the student made fewer errors when Arial was used. Readability improved with a white background.

Using a projector at your next presentation? Try the largest Arial that fits the screen, white background.



New choices from new software! Irregular fractions give you clean estimates of interactions.

You may not need to turn off lights -- much easier for audience notetaking. Irregular fractions gave me information fast. Consider upgrading or obtaining a trial Design-Ease v5 so you can try this new tool.

Our
internet
address
is



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Statistics means never having to say you're certain.

We offer you in every newsletter the opportunity to receive **FREE** informative reprints, helpful guides, and the latest DOE news.

REQUEST HERE:

- CASE STUDY: "Optimization of Paint Formulations Made Easy with Computer-Aided Design of Experiments for Mixtures"** (By Mark Anderson and Patrick J. Whitcomb, Stat-Ease Corporation, Minneapolis, MN) Reprinted from JOURNAL OF COATINGS TECHNOLOGY 7/96. 5pp. Essential aspects of mixture methodology are illustrated. Plenty of graphics and tables. **FREE.**

- CASE STUDY: "Design of Experiments Reveals Quality Breakthroughs"** (No author) Reprinted from THE QUALITY OBSERVER 1/96. 4 pp. In today's competitive environment, quality engineers can't afford to experiment in a trial-and-error manner. Together, SPC and DOE make the quality engineer more effective in assuring quality. **FREE.**

- DOE BOOK: "Experiment Design Made Easy -- Annotated Instructor Notes"** (By Stat-Ease Corp. Instructors.) All the overheads from the workshop are here, plus notes normally available only to instructors. This doesn't substitute for the actual workshop, but you'll gain valuable DOE insights. Includes DESIGN-EASE software (time-limited), answer sheets, case studies, simulations, \$100 coupon to Experiment Design Made Easy workshop! Cost is **\$95** plus shipping if you own any Stat-Ease Corp. product, **\$195** plus shipping if not. (Please call for shipping rates.)

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