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Nota di contenuto	Response Surfaces, Mixtures, and Ridge Analyses; Contents; Preface to the Second Edition; 1. Introduction to Response Surface Methodology; 1.1. Response Surface Methodology (RSM); 1.2. Indeterminancy of Experimentation; 1.3. Iterative Nature of the Experimental Learning Process; 1.4. Some Classes of Problems (Which, How, Why); 1.5. Need for Experimental Design; 1.6. Geometric Representation of Response Relationships; 1.7. Three Kinds of Applications; 2. The Use Of Graduating Functions; 2.1. Approximating Response Functions; 2.2. An Example; Appendix 2A. A Theoretical Response Function 3. Least Squares for Response Surface Work3.1. The Method of Least Squares; 3.2. Linear Models; 3.3. Matrix Formulas for Least Squares; 3.4. Geometry of Least Squares; 3.5. Analysis of Variance for One Regressor; 3.6. Least Squares for Two Regressors; 3.7. Geometry of the Analysis of Variance for Two Regressors; 3.8. Orthogonalizing the Second Regressor, Extra Sum of Squares Principle; 3.9. Generalization to p Regressors; 3.10. Bias in Least-Squares Estimators Arising from an Inadequate Model; 3.11. Pure Error and Lack of Fit; 3.12. Confidence

Intervals and Confidence Regions
3.13. Robust Estimation, Maximum Likelihood, and Least SquaresAppendix 3A. Iteratively Reweighted Least Squares; Appendix 3B. Justification of Least Squares by the Gauss-Markov Theorem; Robustness; Appendix 3C. Matrix Theory; Appendix 3D. Nonlinear Estimation; Appendix 3E. Results Involving V(y); Exercises; 4. Factorial Designs at Two Levels; 4.1. The Value of Factorial Designs; 4.2. Two-Level Factorials; 4.3. A 2(6) Design Used in a Study of Dyestuffs Manufacture; 4.4. Diagnostic Checking of the Fitted Models, 2(6) Dyestuffs Example; 4.5. Response Surface Analysis of the 2(6) Design Data
Appendix 4A. Yates' Method for Obtaining the Factorial Effects for a Two-Level DesignAppendix 4B. Normal Plots on Probability Paper; Appendix 4C. Confidence Regions for Contour Planes (see Section 4.5); Exercises; 5. Blocking and Fractionating 2(k) Factorial Designs; 5.1. Blocking the 2(6) Design; 5.2. Fractionating the 2(6) Design; 5.3. Resolution of a 2(k-p) Factorial Design; 5.4. Construction of 2(k-p) Designs of Resolution III and IV; 5.5. Combination of Designs from the Same Family; 5.6. Screening, Using 2(k-p) Designs (Involving Projections to Lower Dimensions)
5.7. Complete Factorials Within Fractional Factorial Designs5.8. Plackett and Burman Designs for n = 12 to 60 (but not 52); 5.9. Screening, Using Plackett and Burman Designs (Involving Projections to Lower Dimensions); 5.10. Efficient Estimation of Main Effects and Two-Factor Interactions Using Relatively Small Two-Level Designs; 5.11. Designs of Resolution V and of Higher Resolution; 5.12. Application of Fractional Factorial Designs to Response Surface Methodology; 5.13. Plotting Effects from Fractional Factorials on Probability Paper; Exercises
6. The Use of Steepest Ascent to Achieve Process Improvement

Sommario/riassunto

The authority on building empirical models and the fitting of such surfaces to data-completely updated and revised Revising and updating a volume that represents the essential source on building empirical models, George Box and Norman Draper-renowned authorities in this field-continue to set the standard with the Second Edition of Response Surfaces, Mixtures, and Ridge Analyses, providing timely new techniques, new exercises, and expanded material. A comprehensive introduction to building empirical models, this book presents the general philosophy and computational details of a number o