I. GENERAL INFORMATION

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II. TEXTBOOK & ADDITIONAL MATERIAL (AVAILABLE IN BLACKBOARD)

1. PRINCIPLES OF EXPERIMENTAL DESIGN AND ANALYSIS
   Alberto Garcia-Diaz and D.T. Phillips
   Chapman & Hall, New York, 1995

2. READING GUIDE
   To accompany PRINCIPLES OF EXPERIMENTAL DESIGN AND ANALYSIS
   Alberto Garcia-Diaz

3. AN INTRODUCTION TO LINEAR MODELS
   Adapted from An Introduction to Linear Statistical Models, Graybill, F.A., McGraw-Hill, 1961

4. POWER POINT PRESENTATION
   Alberto Garcia-Diaz

III. RECOMMENDED BOOKS

1. Statistics for Experimenters
   Box, Hunter and Hunter; John Wiley & Sons.

2. The Design and Analysis of Industrial Experiments
   Edited by O.L. Davies; Hafner Publishing Company.

3. An Introduction to Linear Statistical Models
IV. OFFICE HOURS

TBA

V. GRADE DISTRIBUTION

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V. COURSE CONTENT

1. After-ANOVA Tests (Chapter 4)
   A. Orthogonal Contrasts (Section 4.1)
   B. Scheffe’s Method (Section 4.2)

2. Blocking in Factorial Designs
   - Introduction, Block Size and Blocking Variables for Two-Level Designs (Section 9.2)
   - Partial Confounding and Total Confounding for Two-Level Designs (Section 9.3)
     A. ANOVA for Partial Confounding
     B. Recovery of Inter-Block Information

3. Replication of Latin Square, Graeco-Latin Square, Balanced Incomplete Block and Youden Square Designs (Section 6.1.2)

4. Fundamental Theory of Linear Statistical Models
   - Theoretical Results (Reading Guide provided through Blackboard)
   - Least-Squares Significance Test with Linear Models (Section 5.6)
     A. One-Factor Experiments without Restriction on Randomization (Section 3.5)
     B. Complete Block Designs without Interaction (Section 5.6.1)
     C. Balanced Incomplete Blocks (Section 5.6.2)
     D. Block Designs with Interaction (Section 5.6.3)
     E. Missing Values (Section 5.7)
5. Introduction to Orthogonal Arrays (Reading Guide)
   - Full and Fractional Symmetric and Mixed Designs
   - Blocking in General Factorial Designs (Mixed Orthogonal Arrays)
   - Linear Models: Mixed designs with different sample sizes for the experimental conditions

6. Orthogonal Main-Effect Plans (Reading Guide)

VI. PRE-REQUISITES

1. EM 542 (DOE for Engineering Managers)
2. Linear Algebra