

Advanced Statistics

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References

D. Montgomery (2009). *Design and Analysis of Experiments*. 7th Edition, John Wiley & Sons.

D. Montgomery and G. Runger* (2007). *Applied Statistics and Probability for Engineers*. 6th Edition, John Wiley & Sons.

Course Outline:

Mid Exam -----

Chapter Two: Basic Statistical Methods

Chapter Eleven: Simple Linear Regression and Correlation* 4 wks 20%

Chapter Twelve: Multiple Linear Regression*

Chapter Eleven: Response Surface Methodology (Partial)

Chapter Three: Analysis of Variance

Chapter Four: Experiments with Blocking 4 wks 20%

Chapter Five: Factorial Experiments

Final Exam -----

Chapter Six: Two-level Factorial Designs

Chapter Seven: Blocking and Confounding Systems for Two-level factorials 4 wks 20%

Chapter Eight: Two-level Fractional Designs

Chapter Nine: Other topics on factorial and fractional factorial designs

Chapter thirteen: Random Effects Models 4 wks 20%

Chapter Fourteen: Experiments with Nested Factors and Hard-to-change Factors

Evaluation: -----

60 % (40 % Exams and Quizzes; 20 % Project), Final Exam 40 %

Outcomes-----

Understanding and applying the basics and the advances of statistical techniques to improve product/process performance in manufacturing applications with the help of computer software.