Data Analysis in Engineering: A Decision Making Approach
(This workshop needs to be conducted in a computer lab with Excel installed on the computers, this a hands-on course)
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1. Overview of Decision Making and Data Structures
    a. Research/Engineering Questions for Single Data Sets
    b. Research/Engineering Question for Two Data Sets
    c. Research/Engineering Question for Multiple Data Sets
2. Random Variables and Probability Distributions
    a. Continuous Random Variables
    b. Discrete Random Variables
    c. Most Commonly Used Distributions
    d. Computation for Probability Distributions in Excel
3. Decision Making about Single Parameters
    a. Confidence Interval
        i. Mean
        ii. Standard Deviation
    b. Other Intervals
        i. Predication Intervals
        ii. Tolerance Intervals
4. Decision Making about Two Samples
    a. Confidence Intervals for the Difference between Two Means
    b. Confidence Intervals for the Ratio
5. Simple Linear and Multiple Linear Regression
    a. Simple Linear Regression
        i. Parameter Estimation
        ii. Analysis of Variance of Regression Model
    b. Multiple Linear Regression
        i. Parameter Estimation
        ii. Step-wise Linear Regression for Selecting Variables
        iii. Other Regression Model Performance
6. Analysis of Variance
7. Design of Experiments