

391: Process Design

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1 Catalog Description

Processing of materials. Design and analysis of experiments to identify and optimize key parameters to control properties and performance. Resolving conflicting requirements. Statistical process control.

2 Course Outcomes

3 391: Process Design

At the conclusion of the course students will be able to:

1. Identify sources of variation in a given process when provided with appropriate data.
2. Understand the need to randomize and replicate experiments.
3. Pose and test hypothesis using appropriate statistical distributions and confidence levels.
4. Pose and test hypothesis using the analysis of variation (ANOVA) method.
5. Select an appropriate experimental design and apply to the problem at hand.
6. Analyze results of a designed experiment using appropriate statistical methods (ANOVA, R^2 , residuals, etc).

7. Express results of experiments in the form of models or equations (regression analysis).
8. Design processing schemes to minimize the variation of properties (regression coefficients).

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4 391 Problems

Subtopic goes here

First problem here.

Second problem here, etc. Just cut and past the previous note before each problem, and everything will get formatted appropriately.

References