Programa de Engenharia Mecânica - COPPE
Course: Design of Experiments - COM 767

Professor: Anna Carla Araujo - anna@mecanica.ufrj.br

Class Times: Tuesday & Thursday (3-5 pm) (march-june)
Location: G-219

1 - Course Description

The course aims to give an introduction to the design of experiments (DOE) including analysis of variance and factorial design. The analysis of research papers on the field of mechanics and manufacturing. Experimental data is used as examples of technical analysis. Students from other mechanical and industrial engineering areas are welcome.

2 - Learning Objectives

- Review on Basic Statistics
- Introduction to Experimental Acquisition Data
- Analysis and Design of One factor Experiments;
- Analysis and Design of Multiple Factors, Randomization and Blocking, ANOVA
- Experimental Acquisition on the Lab and Analysis of Real Data

3 - Grading policy

Classwork - 25% (Class attendance is mandatory)
Homework - 25% (Data analysis and reading scientific articles)
Assessment - 50% (One final exam)

4 - References

"Experiments - Planning, Analysis and Parameters Design Optimization" - C. F. Jeff Wu and M. Hamada, Ed. Wiley Insterscience, 2000.

"Design and Analysis of Experiments" - D. C. Montgomery, Ed. John Wiley and Sons, 2001.

"Planejamento de Experimentos usando a Statistica" - Calado, V. and Montgomery, D. - Ed. e-papers, 2003.

"Statistiques avec R" - Presses Universitaires de Rennes, 2012.

"Estatistica Basica" - Pinheiro, J.I, Cunha, S.B., Carvajal, S.R. e Gomes, G.C., Ed. Campus Elsevier, 2009.

"Manufacturing Automation" - Yusuf Altintas, 2000;