

Course Descriptions CiE

Course code:

Course title :

Design and Analysis of Experiments

Hours per week:

4 lecture hours per week, 4 ECTS

Semester:

Only in Summer Semesters

Number of Credits allocated/work load:

4 ECTS / 3 US credits

Course contents:

Full Factorial Designs
Fractional Factorial Designs
Response Surface Designs
Mixture Designs
Randomization/Repetition/Blocking
Contrast Coefficient Method
Analysis of Variance
Multiple Regression

Prerequisites:

A first course in engineering statistics or permission of the instructor.

Objective of the course/learning outcome:

This is an introductory course to the design and analysis of experiments (DOX). The course objective is to learn how to plan, design, and conduct experiments efficiently and effectively, and to analyze the resulting data to obtain objective conclusions. The course will address the basic experimental designs that are useful in quality engineering and industrial experimentation. In addition to the traditional DOX concepts and models, the course will address selected issues in Response Surface Methodology and Mixture Designs. Having the knowledge of the traditional DOX, Response Surface Methodology, and Mixture Designs, the student will be able to choose the proper design and to perform the correct analysis. The software packages Minitab and DesignExpert will be used to do the mathematics.

Recommended Reading:

Montgomery, D.C., Design and Analysis of Experiments (6th ed.)

Teaching methods:

Theory and the use of the software packages will be taught in class and the students are required to practice the material at home.

Software:
Minitab
Design-Expert

Assessment methods:
- final exam

Language of instruction:
English

Name of lecturer:
Richard Strunz

Email:
richard.strunz@gmail.com

Link:
Not applicable