Syllabus
Course description

Course title | Statistics
Course code | 43078
Scientific sector | SECS-S/02
Degree | Bachelor in Industrial and Mechanical Engineering
Semester | 1
Year | 2
Academic year | 2019/2020
Credits | 3
Modular | No

Total lecturing hours | 18
Total lab hours |
Total exercise hours | 12
Attendance | recommended
Prerequisites | Solid basic knowledge of mathematics
Course page |

Specific educational objectives
Through the course the students will be enabled to:
- collect own data
- analyse own data statistically and present them graphically
- use the statistical software package R

Scientific sector of the lecturer | SECS-S/02
Teaching language | English
Office hours | According to individual arrangement
Teaching assistant (if any) |
Office hours | According to individual arrangement
List of topics covered
Descriptive statistics:
Basic notions
Variables, scales
Data collection
Frequency measures
Graphical representation of data
Measures of central tendency and dispersion
Association of two variables
Elements of linear regression
Teaching format | Frontal lectures, exercises on paper and PC

Learning outcomes
Knowledge and understanding
Knowledge of the basic statistical terminology (variables, data matrix, distribution), fundamental methods of descriptive statistics (graphical displays, measures of central tendency and dispersion), measures of association of two variables. Meaning of statistics in the context of modern science.
Applying knowledge and understanding
Collection of data for own trials; Assessment of data quality; Identification of appropriate statistical method for data analysis; independent application of treated methods using a software package

Making judgements
Critical reviewing of own scientific work and of original publications; plausibility deliberations; interpretation of statistical key-figures in the context of own scientific field

Communication skills
Ability to present results of statistical analyses correctly and intelligibly

Learning skills
Ability to generalize and to transfer what has been learned to similar situations

Assessment
Exam:
Written exam, 60 minutes, No support allowed, except one formula sheet and a simple calculator.

Assessment language
English

Evaluation criteria and criteria for awarding marks
The final mark will be determined only in the final exam. The exam consists of about 8 to 10 questions. A total of 30 points can be obtained for all correct answers. For each task, it is important to point out the computational path leading to the final result. This allows the review of the knowledge and understanding of the topics covered.

Special hint:
In the examination simple calculations, which are processed with a standard calculator, can be required. The focus is always on the outline of the calculation path and not on the numerical correctness of the calculation. While concrete commands of the programming language R are not subject of the statistics partial examination, typical results generated with R or graphics should be interpreted with own words of the everyday language.

Required readings
Teacher's script and exercises in the electronic reserve collection.

Supplementary readings