Syllabus
Course description

Course title	Statistics
Course code	43078
Scientific sector	SECS-S/02
Degree	Bachelorin 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

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AssessmentExam:
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
Heumann, Christian/ Schomaker, Michael/ Srivastava, Shalabh. Introduction to Statistics and Data Analysis: With Exercises, Solutions and Applications in R, Part I (2016). Web. ISBN 3-319-46162-1, Springer International Publishing
or similar other basic textbooks of applied statistics.