Course: Statistical Process Control — credits: 5

Course code	WBVB25SPC-EN
Name	Statistical Process Control
Study year	2026-2027
ECTS credits	5
Language	English
Coordinator	T.J. Vlaar
Modes of delivery	Education
Assessments	Statistical Process Control - Assignment

Learning outcomes

The student:

- Collects data for a statistical analysis where the data is described graphically (for example using a histogram) and numerically (for example using a measure for central tendency or spread) using a digital tool (for example Excel, Minitab, or Python).
- Describes a collection of population using discrete (such as the binomial or Poisson distribution) and continuous probability distributions (such as the normal distribution) and can make statistical statements about it.3. Determines confidence intervals for the mean and standard deviation and makes a statement about a population and/or sample size.
- Investigate with (linear) regression analysis the relationship between two variables in a small data set
- Determines, based on measured quality criteria, whether a production process is technically and statistically controlled
- By using samples from a production line, draw up control charts for the average, deviation, or a discrete criterion and, based on the control charts, provide advice on whether production needs to be adjusted.

Content

In (mass) production processes, controlling the process is crucial for the quality of the products. Controlling processes requires knowledge about variation that will always be present. This variation can be displayed and taken into account using statistics. With a self-collected dataset, topics from descriptive statistics are discussed. In addition, with inferential statistics static statements will be made about the sample and population. Finally, a production process will be analyzed in which statements are made as to whether the process is statistically and technically controlled and whether the process may need to be adjusted to have sufficiently low failure rates.

Included in programme(s)

Mechanical Engineering VWO a 3-year variant

School(s)

Engineering, Life Sciences & ICT

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