Extract of the paper "Control charts based on MATLAB statistical and visualization tools as a compatible with e-learning methodology in the context of quality control."

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Abstract

The advanced tools for statistical process control in the context of management and quality control are very important for students of technology degrees, even more so in the current industry 4.0 context and considering the new strategies and quality philosophies like Six Sigma. This work shows a learning activity compatible with e-learning methodology based on the use of Matlab® to improve the teaching-learning process for quality control based on the generation of different random datasets in matrix form so that they are processed by each student using different statistical and data visualization tools. Three different real situations are addressed based on the nature of the data: one case of a fully statistically controlled process, one case of a process with a violation in the variability, and finally, one case of a process with violation either in the centering and variability. A pilot study with a small group of students is addressed and subsequently the perception of the activity is evaluated using a questionnaire. The activity was perceived by the students as useful and scalable.

Citation

Keywords

Computer Education; Industrial Engineering; Quality Assurance; Quality management; Statistics; Industrial Processes

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