Design of Experiments for CNC Turning

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This paper follows on research on published in the Journal of the Academy of Business & Economics [1] (authors Hron and Macak) and complements previous research on the area of design of experiments using a factorial design. Further results are compared between Fuzzy Logic and Design of experiment approaches.The main purpose of this paper is to compare the results between the mathematical model of optimization of CNC turning and the optimization using the fuzzy-logic method for multi-criteria optimization of cutting conditions. The comparison in this paper verifies these two approaches. In the case of an inconsistency, the objective of this paper would be to suggest a new approach where the incorporation of the mathematical model (as an approximation form) and the optimization of fuzzy-logic would be consistent.

Keywords: Design of experiments, cutting conditions, fuzzy logic, the surface roughness of workpiece.

Acknowledgements

The paper was elaborated in the framework of solving project of GACR P403/12/1950. We would like to express our gratitude to Dr Zhao Shi Jun, quality manager of the Yuncheng Platemaking Ltd. for enabling execution of the experiment. The author also gratefully acknowledge the anonymous reviewers for carefully reading the manuscript and providing several useful suggestions.

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Paper number: M201578