|  |
| --- |
|  |
| Book Name: | [Current Approaches in Engineering Research and Technology](https://www.bookpi.org/bookstore/product/current-approaches-in-engineering-research-and-technology-vol-1/) |
| Manuscript Number: | **Ms\_BPR\_2645** |
| Title of the Manuscript:  | **Taguchi Full Factorial Design of Experiments Optimisation of Cutting Parameters for Energy Efficiency and Surface Roughness during the Dry Turning of EN19 Material** |
| Type of the Article | **Book chapter** |

|  |
| --- |
| PART 1: Review Comments |
| Compulsory REVISION comments | Reviewer’s comment | Author’s Feedback *(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
| **Please write a few sentences regarding the importance of this manuscript for the scientific community. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.** | This manuscript offers valuable insights into sustainable manufacturing practices, particularly in optimizing energy consumption and surface quality during the machining of EN19 steel. By applying the Taguchi method and ANOVA, the study provides a structured approach to minimizing environmental impact while improving production efficiency, which is crucial for industries striving for sustainability. I appreciate the manuscript's focus on practical applications in real-world manufacturing environments and its comprehensive data analysis. However, I would have liked to see a broader comparison with existing research on other materials to strengthen the study's relevance to a wider audience. Also, typos should be corrected and proofreading is needed. |  |
| **Is the title of the article suitable?****(If not please suggest an alternative title)** | The title is lengthy and could be more concise. An alternative title could be:"Optimization of Cutting Parameters in Dry Turning of EN19" |  |
| Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here. | I recommend some points.-Including specific numerical results or findings (e.g., the optimal cutting parameters) would provide more insight into the study's contributions.-The abstract could emphasize more clearly how the findings contribute to sustainable manufacturing practices, linking the results to broader environmental goals. |  |
| **Are subsections and structure of the manuscript appropriate?** | The subsections and structure of the manuscript are generally appropriate, as they follow a logical flow typically expected in scientific papers. However, a few suggestions for improvement could make the manuscript clearer and more reader-friendly:Introduction: The introduction provides necessary background but could be streamlined to focus more on the study's relevance and less on overly broad concepts of machining. More emphasis on the research gap and motivation for the study would strengthen this section. Methodology: The methodology is well-detailed, but it might benefit from clearer subsections, such as "Materials and Equipment," "Experimental Design," and "Data Analysis." This would improve readability and allow readers to find specific information more easily.Results and Discussion: The results are presented effectively, but splitting this section into "Results" and "Discussion" would help distinguish between the presentation of data and the interpretation of those findings. Additionally, more explicit links between the results and sustainability goals could enhance the discussion.Conclusion: This section is well-structured. |  |
| **Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.** | This manuscript appears to be scientifically robust and technically sound due to its systematic approach to optimizing machining parameters using well-established methodologies such as the Taguchi full factorial design and ANOVA. The use of empirical data, collected through controlled experiments, ensures that the findings are grounded in measurable results. Additionally, the analysis of variance and signal-to-noise ratio calculations provide a reliable statistical foundation for interpreting the effects of cutting parameters on energy consumption and surface roughness. The study also considers both the technical aspects of machining and broader sustainability goals, which enhances its relevance and scientific validity. |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.****-** | More recent studies can be added in the introduction section.e.g.-Analysis of machined surface topography of AISI M2 in hard turning based on Box-Behnken Design, Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture-Development of an ANN-based decision-making method for determining optimum parameters in turning operation, Soft computing.-The effect of cutting tool material on chatter vibrations and statistical optimization in turning operations, Soft computing-Multi response optimization of turning operation with self-propelled rotary tool, Procedia-Social and Behavioral Sciences- Multi objective optimization of turning operation using hybrid decision making analysis, Anadolu University of Sciences & Technology-A: Applied Sciences & Engineering |  |
| Minor REVISION commentsIs the language/English quality of the article suitable for scholarly communications? | The manuscript may benefit from a careful review for minor grammatical issues, such as comma placement and subject-verb agreement, which occasionally affect the flow of the text. |  |
| Optional/General comments | Overall, this manuscript contributes valuable insights into sustainable machining practices, particularly in optimizing cutting parameters for EN19 steel. The use of statistical tools like the Taguchi method and ANOVA is commendable, and the focus on energy efficiency aligns well with current industrial sustainability goals. However, the paper could benefit from more concise writing, a clearer structure, and stronger emphasis on how the findings fit into the broader context of sustainable manufacturing. Additionally, including specific numerical outcomes in the abstract and conclusion could enhance the impact of the study's findings. With some minor revisions, this manuscript has the potential to make a meaningful contribution to the field. |  |
| **PART 2:**  |
|  | **Reviewer’s comment** | **Author’s comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
| **Are there ethical issues in this manuscript?**  | *(If yes, Kindly please write down the ethical issues here in details)* |  |

|  |
| --- |
| **Reviewer Details:** |
| Name: | **Mehmet Alper Sofuoglu** |
| Department, University & Country | **Eskisehir Osmangazi University, Turkey** |