EDITORIAL

Reliability and Industrial Engineering Problems: Theory & Applications

In the present era of industrial growth, optimal efficiency and minimum hazards are more challenging to maintain. To overcome these issues, reliability technology can play an important role. Reliability is measured as the ability of a system to perform its intended function successfully, for a specified period, under predetermined conditions. This attribute has far-reaching consequences on the durability, availability, and life cycle cost of a product or system and is of great importance to the end-user/engineer. To improve the system reliability and availability, the implementation of appropriate maintenance strategies plays an important role. High performance of these units can be achieved with highly reliable subunits and perfect maintenance. To this end, it is customary to have knowledge of the system's behaviour and its component(s) in order to plan and adapt suitable maintenance strategies.

Therefore, in recent years, the importance of reliability and maintenance theory has been increasing greatly with the innovation of recent technology to make good products with high quality and design highly reliable systems.

This special issue includes three papers on the application of reliability and industrial problems. They have been selected after a peer-review process with at least three reviewers per paper.

The first paper *Inspecting Briquette Machine with Different Faults*, Garg et al., presented a framework for analyzing, modeling, and predicting the biomass briquette machine reliability using the regenerative point graphical technique [1]. In this framework, the authors developed a mathematical model based on the Markov birth-death process and considered the repairmen factor. The study reveals that the mean-time for system failure of the system model decreases as the failure rate increases, and the availability decreases as the failure rate increases. This finding will help the decision-maker set the failure/repair/inspection rate limits with effective profitability.

The second paper *IFWG-TOPSIS Model for Supporting Infant Failure Assessment in an Offshore Wind Turbine System*, whose authors are Aikhuele et al., developed the IFWG-TOPSIS model by integrating the concept of Intuitionistic Fuzzy Weighted Geometric (IFWG) and Intuitionistic Fuzzy Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS) methods. The developed method is implemented to analyze the infant failure assessment [2]. In the model, a fuzzy-based model was used to establish the connection between the criteria and the components.

The third paper, *Effect of Human Errors on an Inventory Model Under Two Warehouse Environments* whose authors are Mittal et al., studied the effect of human errors under the two-warehouse environments [3]. In this study, the authors considered the two-warehouse inventory models with shortages by observing the effect of human error. Furthermore, in order to meet the entire load, shortages are considered permissible and are fully backlogged. Also, the authors find the expected total profit with the effect of Type I and Type II errors and conclude that as the percentage of error increases, the expected total profit decreases with respect to time.

I hope this issue will provide a useful resource of ideas, techniques, and methods for the research on the theory and applications of reliability and industrial problems. I thank all the authors whose contributions and efforts made the publication of this issue possible. I am also grateful to the referees for their valuable and highly appreciated works contributed to selecting the high quality of papers published in this issue. Finally, my sincere thanks go to the Editor-in-Chief and Staff of the journal for their support throughout the process of editing this issue.

REFERENCES


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