ABSTRACTS

https://doi.org/10.22306/asim.v9i1.94

Received: 25 Feb. 2023
Revised: 12 Mar. 2023
Accepted: 19 Mar. 2023

Exploration of 3D objects: methods for simulation, application, and presentation

(pages 1-8)

Marek Kliment
Technical University of Košice, Faculty of Mechanical Engineering, Department of Industrial and Digital Engineering, Park Komenského 9, 04200, Košice, Slovak Republic, EU, marek.kliment@tuke.sk (corresponding author)
Laura Lachvajderova
Technical University of Košice, Faculty of Mechanical Engineering, Department of Business Management and Environmental Engineering, Park Komenského 5, 04200, Košice, Slovak Republic, EU, laura.lachvajderova@tuke.sk
Tomas Svantner
Technical University of Košice, Faculty of Mechanical Engineering, Department of Industrial and Digital Engineering, Park Komenského 9, 04200, Košice, Slovak Republic, EU, tomas.svantner@tuke.sk
Matus Matiscsak
Technical University of Košice, Faculty of Mechanical Engineering, Department of Industrial and Digital Engineering, Park Komenského 9, 04200, Košice, Slovak Republic, EU, matus.matiscsak@tuke.sk

Keywords: manufacturing workflow, Tecnomatix Plant Simulation, design, model.
Abstract: Simulation programs have revolutionized the operations of major corporations in the 21st century. These programs offer meticulous recording and analysis of processes, enabling the identification and resolution of bottlenecks, deficiencies, and errors that could arise during real-world production. Simulations provide comprehensive insights into the entire production process, even before it begins, ensuring optimal efficiency and minimizing downtime and mistakes. They can be customized to varying levels of complexity, encompassing process-oriented perspectives and visually detailed representations. To ensure accuracy, analyzing and evaluating available data is crucial, supplementing it with necessary information to enhance the virtual representation's fidelity. In this discussion, we will primarily explore the modeling of 3D objects within detailed simulations and their subsequent application and interpretation in diverse contexts.

https://doi.org/10.22306/asim.v9i1.97

Received: 27 Feb. 2023
Revised: 15 Mar. 2023
Accepted: 26 Mar. 2023

Use of production process simulation as a verification tool

(pages 9-14)

Jan Kopec
Technical University of Košice, Faculty of Mechanical Engineering, Department of Industrial and Digital Engineering, Park Komenského 9, 04200, Košice, Slovak Republic, EU, jan.kopec@tuke.sk (corresponding author)
Miriam Pekarcikova
Technical University of Košice, Faculty of Mechanical Engineering, Department of Industrial and Digital Engineering, Park Komenského 9, 04200, Košice, Slovak Republic, EU, miriam.pekarcikova@tuke.sk
Marek Mizerak
Technical University of Košice, Faculty of Mechanical Engineering, Department of Industrial and Digital Engineering, Park Komenského 9, 04200, Košice, Slovak Republic, EU, marek.mizerak@tuke.sk
Jozef Trojan
Technical University of Košice, Faculty of Mechanical Engineering, Department of Industrial and Digital Engineering, Park Komenského 9, 04200, Košice, Slovak Republic, EU, jozef.trojan@tuke.sk

Keywords: simulation, SolidWorks, production process.

Volume: 9 2023 Issue: 1 ISSN 1339-9640

ABSTRACTS

Abstract: This article deals with the use of manufacturing process simulation as a verification tool. Simulation proves to be a valuable tool for testing and evaluating production processes and their effectiveness in a controlled virtual environment. The authors discuss the advantages that simulation brings, such as the identification of defects, the optimization of production parameters, and the prevention of problems even before the start of the real production process. The use of simulation of the production process enables the acquisition of valuable knowledge about the influence of various factors on the final product quality, the optimization of production procedures, and the minimization of the risk of errors. The authors emphasize that the simulation provides accurate information that helps in the decision-making process and allows the prediction of possible problems and their solutions before they arise.