ABSTRACTS

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MATERIAL FLOW OPTIMIZATION THROUGH MODELLING AND SIMULATION IN THE SOFTWARE TOOL TX PLANT SIMULATION

(pages 1-10)

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Keywords: modelling and simulation, optimization, efficiency, cost, return on investment
Abstract: The article is oriented on the optimization of material flow through modelling and simulation in the software tool Tx Plant Simulation. The company in which optimization was realized is engaged in production of plastic and aluminum windows and doors. The aim of optimization was to propose production disposition which would provide the production productivity increase, since company expands its activity portfolio also to foreign markets. Part of the proposal is evaluation and return on investment of the proposed production disposition, specifically, the calculation of economic efficiency of investments through indicators: net present value, index present value, discounted payback period, discounted economic value added DEVA. The estimated values of these characteristics are further used for the economic evaluation of investment costs and benefits of these proposals.

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MONTE CARLO SIMULATION FOR ANOVA

(pages 11-15)

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Keywords: One-way ANOVA, simulation, Monte Carlo method
Abstract: The article we will present Monte Carlo simulation for assessing consequences of data non assumption. Analysis of variance (ANOVA)) is used to determine whether there are any significant differences between the means of three or more independent (unrelated) groups. Fundamental assumption for ANOVA is that the independent variable is normaly distributed and groups with equal variances. Monte Carlo simulation we observed Type I. error rate of analysis of variance.

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MATHEMATICAL METHOD FOR FORECASTING AIDS PROGRESSION IN HIV-INFECTED PATIENTS

(pages 17-20)

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Keywords: mathematical modeling, linear regression model, human immunodeficiency virus, acquired immunodeficiency syndrome.
Abstract: The article features a method developed for forecasting the development of AIDS in HIV-infected patients. Mathematical model is drafted and probability of the disease determined per stages. Method helps in the diagnosis and treatment of HIV infection and can be used in daily medical practice. Currently, the method is going through patent registration procedures (registration number of the application RU 2015123255 dated 18 June 2015). It is expected that the use of this technique will help penitentiary doctors take appropriate therapeutic measures for patients with high prognostic index on time thus preventing implementation of a negative prediction.