
ABSTRACTS

PROCESS SIMULATION AND METHODS OF GENERATING RANDOM NUMBERS

(pages 1-4)

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Keywords: simulation model, mathematical modelling, random number generation

Abstract: The article deals with the process of the simulation and the random number generation. Simulation, especially computer simulation has been in a rapid growth in recent years. The simulation is experimenting with computer models based on the real production process in order to optimize the production processes or the system. The simulation model allows to perform a number of experiments, analyze them, evaluate, optimize and afterwards apply the results to the real system. Production enterprises investing in technical training, to affect the time between research, development and production. In order to reduce this time interval is used in the design of the technological process by computers with suitable software. The mathematical description of the technological process whose outcome depends on factors entering into the process is defined as a mathematical model of the process. If the outcome of the process can not be expressed mathematically dependent on factors entering into the process it is a simulation.

IMPLEMENTATION OF MONTE CARLO SIMULATION IN INVESTMENT DECISION MAKING

(pages 5-8)

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Keywords: simulation, investment, decision making, risk, efficiency

Abstract: The aim of the paper is to point out to the risk analysis as an integral part of the evaluation of economic efficiency of investment projects. Traditional and probabilistic approaches of evaluation of projects efficiency are briefly characterized. The focus is taken on probabilistic tools, specifically on Monte Carlo simulation. Monte Carlo simulation utilization is demonstrated on a specific example from the economic practise. Businesses, in order to maintain their existence and ensure long-term effective development, must continuously invest into reconstruction and development of their technological base. Given that these investment projects significantly affect the future development of the company, it is important to assess their economic effectiveness in terms of profitability, liquidity and risk. Since the current business environment is developing dynamically and becomes uncertain, risk analysis shall receive in this process greater importance.

PROJECTING OF WORKING ACTIVITY BY USE OF TECHNOMATIC JACK

(pages 9-13)

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Keywords: working activity, physical load, simulation

Abstract: Projecting of workplace and working activity by use of simulation enables flexible adjustment to new conditions and simultaneously implementation of ergonomic principles in the phase of proposal. In the article is given the analysis of working activity by use of tools of program Technomatix Jack and also the creation of the model of workplace as well as simulation of analysed working activity in the given program. By proposal of simple measures, repeated simulation and calculations it points at the possibility of solution of the analysed problem. An advantage of using Computer Aided - CA systems is that all changes in real system may be first simulated with a goal to predict their influence on behaviour and running of the system.

THE REVERSE VALIDATION OF TRAJECTORIES FOR ROBOT

(pages 15-18)

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Keywords: reverse validation, inertial navigation system, robot, operation

Abstract: The paper comments the new possibilities of utilizing the inertial navigation system in a manufacturing technique. It deals with new principles of robots and inertial navigation systems based robotized production systems operating reliability. The inertial navigation is self-supporting navigation technique utilizing for measuring accelerometers and gyroscopes. By them it is possible to watch a position and orientation of an object relative to a known starting point. Currently, for the 3D inertial navigation execution the inertial navigation system (INS) is used and you can encounter it on the board of army or civil airplanes where it is the primary source of navigation information. INS includes one navigation computer at minimum and a platform or module comprising accelerometers and gyroscopes. The reason to use INS for navigation is its autonomy and impossibility of purposeful interrupting its operation from the outside.

OPTIMIZATION OF NON-PRODUCTION PROCESSES

(pages 19-22)

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Keywords: non-production processes, management decisions, process

Abstract: The success of major part of companies depends on offered product, its price and promotion and also on many other factors, e.g.: product innovation, quality of service, reliability, fast and flexible reaction on customers' needs, substitution of sequential processes by parallel, etc. For these reasons, companies should deals with business processes. They should also define and implement business processes accurately because performance of company directly depends on the performance of business processes. The article deals with improving the program of non-manufacturing business processes and defines individual steps that need to be analysed in detail.
