

ESTIMATING THE PRODUCTION RATE OF A MANUFACTURING LINE USING SIMULATION- PROGRAMMING AND FUZZY-LOGIC TECHNIQUES

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Rezumat. *Lucrarea se referă la utilizarea a trei metode alternative pentru modelarea, simularea și estimarea ratei de producție. Metodele de evaluare a performanțelor analitice se bazează pe modelarea stocastică a fluxurilor sistemelor de producție. Procesele care implică fenomene aleatorii au fost în mod tradițional modelate prin utilizarea distribuțiilor statistice. Lucrarea arată că metodele Fuzzy Logic sunt capabile să producă soluții similare metodelor convenționale. Obiectivul acestei lucrări este de a implementa principalele contribuții aduse în domeniul ingineriei industriale prin modelarea, simularea și estimarea ratei de producție, într-un studiu de caz real.*

Abstract. *This paper deals with the use of three alternative methods in order to model, simulate and estimate production rate. The methods for evaluating the analytical performances are based on the stochastic modelling of production systems flows. Processes that imply random phenomena have traditionally been modelled through the use of statistical distributions. The paper shows that the Fuzzy Logic methods are able to achieve similar solutions to conventional methods. The objective of this work is to implement the main contributions brought in the industrial engineering field by modelling, simulating and estimating the production rate, in a real case-study.*

Keywords: mathematical model, Fuzzy method, simulation, estimation, production rate.

1. Introduction

In a competitive environment, like the automotive industry, production control policies play a key role in the success of the company. By the term of “production control policies”, it is necessary to understand the researches on performance analysis based on simulation studies and queuing theory [1].

The research presented in this article tackles the evaluation of a production control policy. Indeed, simulation-programming and fuzzy-logic techniques are used in many fields such as marketing, finance and engineering.

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