WORK FORCE ASSIGNMENT IN A GLASS MOULD MANUFACTURING COMPANY USING ARTIFICIAL NEURAL NETWORK

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ABSTRACT

Workforce assignments into manufacturing cells under virtual cellular manufacturing system (VCMS) environments are Nondeterministic Polynomial time(NP)hard, quite non-linear and highly dynamic in nature. The groundwork on development and application of an artificial neural networks (ANNs) model for these tasks is already laid out previously. In this paper, an extension of the ground work is developed by considering a real time worker assignment problem with relevant production data and solving it by ANN technique in order to reaffirm that worker assignment tasks can be effectively carried out with proposed ANN framework. Industrial datasets corresponding to two cell configuration problem from a glass mould manufacturing company are used with the previously proposed multilayered perceptron with feed forward (MLP-FF) neural network model to predict worker assignments. Results of worker assignments from the industrial problem and predicted assignments from the ANN model are then compared, analysed and discussed.

KEYWORDS: Virtual Cellular Manufacturing, Workers Assignment, Artificial Neural Networks, MLP Feed Forward Networks