

Abstract

Nowadays, with the population increase, the manufacturing of wooden furniture manufacturing centers has increased sharply. Increasingly larger factory was built and the production increases. With the enlargement of production units, production planning is one of the strategic activities, so choose the optimal order an important role in increasing the efficiency and profitability in production. The purpose of this research, the introduction of artificial neural networks and genetic algorithms to select the optimal order to provide the maximum benefit to the business. Due to limitations of raw materials, the number of master and time variables such as the type of order, order number, the duration of the order, the amount of materials, labor, depreciation, cost of raw materials, price, percentage or amount of added value, and the difference in value the cost price and the selling price could have an impact on the selection order. These data correspond to each other to collect different orders for data normalization and then identify variables and non-linear models were created using artificial neural network. Models are created with minimal error. The optimal conditions of the order determined based on the maximum benefit. The results show that the network structure of 1-12-6 with Gaussian activation function and the absolute forecast error is acceptable and has the highest correlation coefficient 1 is 22.8 percent. The use of genetic algorithms in optimal choice for production at the plant will benefit 3-fold increase compared to non-optimized the order. The results show that the method of production of Astan Quds Razavi complex product like 10cm strips folded tool can be used to maximum benefit more than other products, and products such as table near the podium, spraying Deer coffee table base and wood base , bookshelf and encased Shoes boxes to less production and also products such as wood seat and veneered panels and simple tool should not be produced. The results show the ability of artificial neural networks and genetic algorithms optimization in order to maximize profit forecast.

Key words: Artificial Neural Network, Wooden Furniture Manufacturing, Optimal Order, Initial Cost



University of Zabol

Graduate School

Faculty of Natural Resources

Wood and paper science and technology

The Thesis Submitted for the Degree of Master of science

(In composite and products)

Optimal selection of order on the basis
of variables influence onto wooden
furniture manufacturing with artificial
neural network method

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October 2015