

## NT02

# Choosing the optimal order within reconfigurable manufacturing systems based on the Earning Power value

**V. Marinescu, F. Teodor, C. Maier, V. Paunoiu, A. Epureanu**

“Dunărea de Jos” University of Galați, Faculty of Engineering, Manufacturing Engineering  
Department

E-mail: catalina.maier@ugal.ro

**Abstract:** In this paper will be presented the method of choosing an optimal order within a Reconfigurable Manufacturing System (RMS). The reconfigurable manufacturing systems for which we perform the analysis of optimal management belong to make-to-order (MTO) production companies. These companies start the manufacturing process based on the needs of the customers. After the content of the customers orders has been known and accepted they will deliver personalized products, provided that the cost of the production is minimum. A Virtual Workshop will be created associated with each manufacturing order with well-specified requirements (DD - DeadDate, TTF - TimeToFinish, EP - Earning Power). The workshops and orders will be transposed into a Petri net based on the new created three-dimensional model RPD3D [2]. The 3D network will be used to simulate the products manufacturing included in the orders in the virtual workshops and then the optimal order that will actually be produced on RMS from several possible orders based on the evaluation of the indicator called specific profit rate "earning power"- EP will be chosen. In this paper, we aim also to calculate the EP value of the RMS, as the most important evaluation criterion, if a certain command or a combination of commands is accepted. A study case is presented.

*The full paper is published in IOP Conf. Series: Materials Science and Engineering, Volume 968:*

<https://iopscience.iop.org/article/10.1088/1757-899X/968/1/012005/pdf>

---