

## Article Abstract

<b>Title:</b>	<b>Artificial neural networks based predictive model for worker assignment into virtual cells</b>
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<b>Abstract:</b>	Virtual cellular manufacturing systems (VCMS) have come into existence, replacing traditional cellular manufacturing systems (CMS), to meet highly dynamic production conditions in terms of demand, processing times, product mix and processing sequence. While cell formation phase of VCMS has been dealt quite voluminously, worker assignments phase has gained momentum recently after researchers started realizing the importance of workers' role during implementation of cell-based manufacturing. In the past, worker assignments have been analyzed with development of various heuristics/mathematical models in order to achieve reduced worker costs, improved productivity and quality, effective utilization of workforce and providing adequate levels of worker flexibility. In this paper, a new approach based on artificial neural networks (ANNs) has been proposed to assign workers into virtual cells since ANNs have the ability to model complex relationships between inputs and outputs and find similar patterns effectively. A framework of multilayered perceptron with feed forward (MLP-FF) neural network has been formulated on worker assignment for VCMS under dual resource constrained (DRC) context and its performance under two cell configurations with different time periods is analyzed. A worker assignment model has been developed and applied with cell formation solutions available in the literature in order to generate simulated datasets that drive the training process of proposed ANN framework.
<b>Keywords:</b>	Virtual cellular manufacturing, worker assignments, artificial neural networks