Modelling flexible manufacturing systems using mean-value analysis.

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Abstract

Flexible manufacturing systems (FMS) represent an important new development in automated manufacturing of parts with mid-volume demand. In the design and operation of these complex systems, it is useful to have tools that predict their performance under various conditions. This paper describes one such tool called MVAQ, a computer program based on mean-value analysis of queues. Part production rates, machine utilization and average work-in-process sizes are all easily obtained using MVAQ. The reader is advised on when MVAQ should be used for modelling FMSs and how the program can be used. A simple design example is given to illustrate the use of MVAQ. A brief tutorial on the theory behind MVAQ is also included.

Keywords

Design Evaluation; Scheduling; Production Control; Queueing Models; Machine Utilization; Production Rate

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