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Productivity Analysis of a Flexible Manufacturing Cell

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Abstract

This paper considers a Flexible Manufacturing Cell (FMC), which consists of CNC machines capable of operating on a variety of parts. A common pallet handling system delivers a batch of n parts into the system and robots perform loading and unloading operations. After completion of all parts on the pallet, batch of completed parts are moved out and a new batch of blanks are delivered to the FMC by the pallet handling system. Machine operation times are variable due to variety in incoming part types. Machines are unreliable and subject to random failures in addition to scheduled maintenance and tool changes. FMC system is analyzed by a simulation model and its productivity is determined under various operational conditions. The results obtained could help managers and engineers in planning operational activities for FMC systems.

Biography

Mehmet Savsar is professor of Industrial & Management Systems Engineering at Kuwait University since 1997. He has been a faculty member since 1982 in different universities in different countries after receieving his PhD from the Pewnnsylvania State University in the areas of Industrial Engineering and Operations Research in 1982. He has published more than 170 publications in international journals and conference proceedings, including books and book chapters. His main research interests are modeling and analysis of production systems, flexible manufacturing, simulation, reliability and maintenance, and facilities panning. He is a senior member of IIE. He is on editorial board in several journals and committee member of several conference organizations.