SIMULATION OF MANUFACTURING SYSTEMS

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Simulation is the most widely used technique for designing and analyzing manufacturing systems. However, there is an unfortunate impression that simulation is just a complicated exercise in computer programming. Consequently, many "studies" have been composed of heuristic model building, coding, and a single run of the program to produce the "answers." This attitude, which neglects the important issues of how to build a valid model and how to draw correct statistical inferences from a properly coded model, has led to erroneous conclusions being drawn from many simulation studies.

In this tutorial, we discuss how simulation can be used in a manufacturing context and also the steps in a sound simulation study. In particular, the following topics will be discussed:

1. Manufacturing issues which can be investigated using simulation,
2. Manufacturing measures of performance which can be estimated using simulation,
3. Techniques for building valid and credible models of manufacturing systems,
4. Simulation languages for manufacturing modeling,
5. Statistics aspects of manufacturing simulation,

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