

## **Scheduling Methods for the Statistical Setup Adjustment Problem**

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### **ABSTRACT**

Feedback control methods have been proposed in recent literature to regulate the quality characteristic of parts or products in a manufacturing process. Depending on the costs involved, adjustments may not be needed at each time instant (i.e., for every part or product). This paper presents scheduling methods to determine the optimal time instants for adjusting a process. The focus is on the setup adjustment problem, in which it is necessary to adjust in order to compensate for an initial offset that occurs due to an incorrect setup operation. The performance of three scheduling methods are compared in terms of the expected manufacturing cost and computational effort of each method. The adjustment methods considered are based on estimates of the process variance and the size of the offset. The robustness of these methods with respect to biased estimates of the process variance and of the setup error or offset are discussed. One simple method, a backward implementation of the Silver-Meal heuristic used for inventory control is recommended based on a performance analysis.