

962-62-868

**Maria E. Calzada\*** (calzada@loyno.edu), Mathematics and Computer Science Department,  
6363 St. Charles Ave., New Orleans, LA 70118, and **Stephen Scariano** (scariano@loyno.edu).

*On the Robustness of the Synthetic Control Chart.*

Wu and Spedding (Journal of Quality Technology, Vol. 32, No.2, 2000) introduced the synthetic control chart for detecting small shifts in a process mean for a normally distributed process. The synthetic chart is an integration of the Shewhart  $\bar{X}$  chart and the conforming control length chart. The synthetic chart outperforms the Shewhart  $\bar{X}$  chart by consistently producing smaller out of control run lengths. For deviations in the mean greater than  $.8\sigma$ , the synthetic chart also outperforms the Exponentially Moving Average Chart (EWMA) and the joint  $\bar{X}$ -EWMA chart. The robustness of the synthetic chart to violations of the normality assumption is the central theme of this study. (Received September 28, 2000)