INTISARI

GRAFIK PENGENDALI *NONPARAMETRIC MIXED EXPONENTIALLY WEIGHTED MOVING AVERAGE-CUMMULATIVE SUM* (NPMEC)

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Grafik pengendali *nonparametric mixed Exponentially Weighted Moving Average-Cummulative Sum* (NPMEC) merupakan salah satu grafik pengendali yang dapat digunakan dalam pengendalian kualitas statistik tanpa asumsi normalitas. Grafik ini menggunakan statistik EWMA nonparametrik sebagai input CUSUM. Performa grafik dievalusi dengan a*verage run length* (ARL) dan diperoleh hasil bahwa grafik ini lebih efisien dalam mendeteksi pergeseran proses yang sedang hingga besar dan sedikit terlambat dalam pergeseran yang kecil dibandingkan grafik pengendali EWMA nonparametrik. Selanjutnya dilakukan penaksiran kemampuan proses dengan analisis kapabilitas proses secara nonparametrik berdasarkan pendekatan fungsi densitas kernel menggunakan kernel Epanechnikov dan *unbiased cross validation* (UCV) dalam pemilihan *bandwith.*

Kata kunci: Grafik pengendali NPMEC, ARL, EWMA nonparametrik, Kapabilitas proses, Fungsi densitas kernel, UCV.

ABSTRACT

NONPARAMETRIC MIXED EXPONENTIALLY WEIGHTED MOVING AVERAGE-CUMMULATIVE SUM (NPMEC) *CONTROL CHART*

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Nonparametric mixed Exponentially Weighted Moving Average-Cummulative Sum (NPMEC) control chart is one of the control charts that can be used in statistical quality control without the assumption of normality. This graph uses nonparametric EWMA statistics as CUSUM inputs. Graphical performance is evaluated with average run length (ARL) and the results show that this graph is more efficient in detecting medium to large process shifts and is slightly late in small shifts compared to nonparametric EWMA control charts. Then the process capability is estimated by nonparametric capability process analysis based on the kernel density function approach using kernel Epanechnikov and unbiased cross validation (UCV) in bandwidth selection.

Kata kunci: NPMEC, ARL, Nonparametric EWMA, Capability process, Kernel density function, UCV.