

**PENINGKATAN PRESTASI PROSES MELALUI  
PERALATAN KUALITI BERSTATISTIK**  
(Improving Process Performance through Statistical Quality Tools)

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**ABSTRAK**

Persekitaran pasaran yang kompetitif pada hari ini memerlukan syarikat perusahaan kecil dan sederhana (PKS) menekankan kepada kualiti bagi meningkatkan proses dan prestasi pengeluaran. Matlamat ini boleh dicapai dengan mempraktikkan peralatan kualiti berstatistik melalui program-program proses kawalan statistik (SPC). Penggunaan peralatan kualiti seperti carta kawalan membenarkan pihak pengeluar membuat keputusan proses dan memenuhi kualiti produk yang tinggi. Bagaimanapun, terdapat sesetengah pihak PKS gemar menggunakan kaedah SPC secara manual (helaian kertas graf) yang lebih cenderung kepada beberapa kelemahan, seperti kesilapan manusia dan penggunaan masa untuk mengenal pasti masalah. Oleh itu, dalam kajian ini dibincangkan mengenai pembangunan terbaru kaedah SPC berasaskan komputer yang bertujuan untuk melakukan analisis statistik, dan menguruskan data kualiti. Konsep dan maklumat pembangunan sistem ini secara asasnya diperolehi daripada kaedah kajian kes yang dikendalikan ke atas syarikat pembuatan PKS, termasuklah temu ramah, soal selidik serta pemerhatian. Tambahan lagi, pembangunan sistem juga difokuskan kepada set data, operasi statistik yang mudah dan kumpulan pengguna tertentu. Hasil kajian menunjukkan bahawa sistem yang dinamakan *Small and Medium Enterprises - Statistical Process Control* (SMEs-SPC) adalah amat praktikal sebagai alat menganalisis data berbanding dengan penggunaan SPC secara manual. Di samping itu, sistem ini berpotensi tinggi untuk memberi galakan kepada operator atau pekerja pengeluaran dan jurutera perindustrian dalam memahami kepentingan pengumpulan data kualiti demi meningkatkan prestasi pengeluaran.

*Kata kunci:* kualiti; SPC; perusahaan kecil dan sederhana

**ABSTRACT**

Today's competitive market environment requires the small and medium enterprises (SMEs) companies to be concerned with the quality in improving their processing and production performances. This goal can be achieved through using practical statistical quality tools available in the statistical process control (SPC) programmes. The utilisation of quality tools such as the control charts enable manufacturers to lead in the process of decision making and as well as to meet with the high quality of their products. However, some SMEs prefer to use the manual SPC (graph paper sheet) which is tended to a several drawbacks such as creating human errors and time consumed in detecting problems. Therefore, this study highlights the latest development of SPC computer based system with the intention of performing statistical analysis, as well as in managing the quality data. The concept and information for the development of this system are based on the findings gathered from case studies conducted at the SME manufacturing companies through running interviews, questionnaires and observations. Moreover, the system development is also focused on particular data sets, simple statistical operations and user groups. The findings show that the system which is named the *Small and Medium Enterprises - Statistical Process Control* (SMEs-SPC) is a very practical tool for data analysis instead of using the manual SPC application. In addition, this system has the potential to encourage operators or production workers and industrial engineers to really understand the importance of collecting quality data for the purpose of enhancing their production performance.

Keywords: quality; SPC; small and medium enterprises

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*Peningkatan prestasi proses melalui peralatan kualiti berstatistik*

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