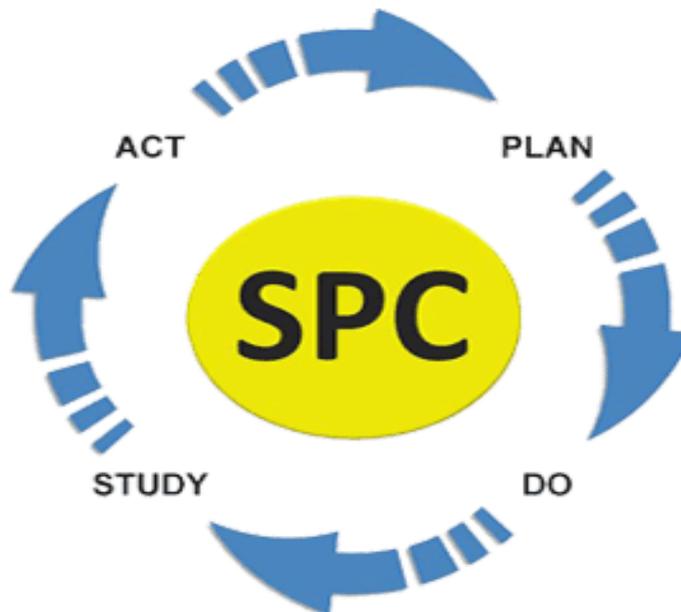


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What is SPC?

Statistical process control (SPC) monitors specified quality characteristics of a product or service so as:

- a) To detect whether the process has changed in a way that will affect product quality.
- b) To measure the current quality of products or services.

Control is maintained through the use of control charts. The charts have upper and lower control limits and the process is in control if sample measurements are between the limits.

WHY STATISTICAL PROCESS CONTROL

Efficiency of any process depends on the quality of decision taken by the persons who handles it. He uses the data and interpret it to make decision. In many cases the common sense does not help for interpreting the data. That's where the role of Statistical Process Control comes into play. The aim of **statistical process control** system is to make economically sound decision about the actions affecting the process i.e. providing statistical signal when special cause of variation is present and to avoid false signal when they are not present thus preventing over control (taking actions when it is not necessary) and under control (failing to take action when it is require).

The process is said to be in statistical control when only source of variation are from the common causes.

Control charts are the statistical techniques used to measure and reduce variability of a process. They can be used as an on going measurement of various key parameters of a process so that action can be taken as soon as a problem is indicated. Control charts effectively direct attention towards special cause of

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variation when they appear and reflect the extent of common cause of variation that must be reduced for process improvements.

PROCESS CAPABILITY

Process capability is calculated to find out whether the process can meet the specification.

Capability is measure of the inherent variation (from common causes) of a machine or a process. The capability of a machine or a process can be determined by conducting capability studies. These studies involve the analysis of a small sample of output to enable an estimate to be made of the overall variation likely to occur in longer run. The capability study can be of two types:

SHORT TERM STUDY

Short term study is based on the data collected for short period i.e. one operating run of the m/c etc. In this study the external influence is kept minimum (same operator, same lot, same setting etc.). This study is being normally to find out the m/c capability.

LONG TERM STUDY

Long term study is based on measurement collected over a period of time. The data shall be collected for long enough time and in such a way as to include all expected source of variation. Many of these source of variation may not have been observed during short term study, to assess the ability of a process to satisfy customer requirements over a long period of time with many source of possible variation included.

CONTROL CHART

Control charts permits plotting of actual data as they occur from time to time. A set of criteria known as control limits, defines the area within which variation may normally be expected to fluctuate. The most common type of variable control chart is X – R control charts.