

STATISTICAL QUALITY CONTROL

(Michele Scagliarini)

Introduction

Manufacturing process, quality characteristic (Variables and Attributes), quality.

Statistical Process Control

Chance and assignable causes of variation: processes in statistical control; processes out of statistical control.

Statistical basis of the control charts.

Control Charts for Variables

\bar{x} -control chart: development of a \bar{x} -control chart; power function and Average Run Length (ARL) of the \bar{x} -control chart.

S -control chart: power function and Average Run Length of the S -control chart.

R -control chart.

Construction and operation of \bar{x} - S and \bar{x} - R control charts.

Control Charts for Attributes

The control chart for fraction nonconforming (p -chart).

The number nonconforming control chart (np -chart).

Construction and operation of p and np -control charts.

Control charts for nonconformities: c -chart and u -chart.

Construction and operation of c and u -control charts.

Examples, case studies and software.

References.

Montgomery, D. C. (2009). Introduction to Statistical Quality Control, Sixth Edition. John Wiley & Sons.