

STATISTICAL PROCESS CONTROL (SPC) (using Microsoft® Excel)

INTRODUCTION

Statistical Process Control (SPC) is a worldwide standard and a proven technique used in the manufacturing and service industry, especially for process control and quality improvement initiatives. This training program will explore a smarter and a more effective way of learning SPC program in a faster and painless manner. It provides the foundational skills and tools for quality improvement team leaders and members who need a good grasp the basic principles and concepts of SPC to execute correctly the process improvement projects in their daily work.

What differentiates this training program from “traditional” SPC course is that it helps to “accelerate” the participant’s learning curve. By utilizing the common computer spreadsheet techniques, we can reduce meticulous tasks such as *tedious calculations, graphing and searching of statistical tables* into just “*a few easy clicks of buttons on the computer keyboard*”. By doing so, it will allow participants to have **more time to focus on the more important skills** (such as the *analysis/interpretation of the control charts/patterns, establishing action plans to reduce process variances and improve process stability*) **rather than on calculations or charting activities.**

Computerized simulation techniques are also used throughout the course to will help explain the workings of statistics and reveals the power of SPC techniques to assist with problem solving and process control. This training program combines various teaching methods (group discussions, case studies, demonstration, computer simulations, etc) that will definitely help accelerate and reinforce the participant’s understanding of the control charts functionalities with an emphasis on participation throughout. This training program is a must for those who are serious about acquiring Statistical Process Control skills using an effective and accelerated learning method.

NOTE: Value-add MS Excel working templates will be given to participants after completion of this course. With this valuable tool, participants can immediately put to use all the SPC tools in their workplace.

CONTENTS: (2 Days Program)

1. Introduction:
 - Why use MS Excel as a statistical tool?
 - Computerized statistical calculations & graphing techniques.
 - Benefits of charting presentations.
 - What is SPC & why use SPC?
 - Systematic problem solving process.
2. Using computer spreadsheet to construct Control Charts:
 - Concepts, constraints and techniques
 - Demonstration and exercises.
3. Understanding Data & Basic Statistics:
 - Data availability and presentation
 - Frequency distribution and measurements
 - Histograms and Normal Curve
 - Normal Distribution
 - Central Limit theorem
4. Introduction to Statistical Process Control:
 - Prevention vs Detection
 - A Process Control System
 - Variation: Common and Special (Assignable) causes

- Process Control and Process Capability
5. Introduction to Control Charts:
 - Basic principle
 - Process model simulations.
 - Variables and Attribute charts
 - Selection of control charts
 6. Control Charts for Variables
 - Xbar-R chart
 - Interpretation of control chart
 - Control limits vs Specification limits
 - Calculation of process capability: Cp, Cpk
 - Xbar-S chart
 - XmR chart
 7. MS Excel Exercises:
 - Accelerated method of constructing all the Control charts using MS Excel.
 - Interpretation of what the data/pattern reveals.
 - Stratifications and making decisions based on interpretation of data.
 8. Control Charts for Attributes
 - Proportion defective charts (p-chart, np-chart)
 - Number Defect charts (c-chart, u-chart)
 9. Practical procedures:
 - Process capability study
 - Using MS Excel working templates
 - Case studies
 - Control Charts Benefits

Special note: MS Excel working templates will also be provided to equip participants for immediate transfer of training to their workplace

Course Prerequisites:

Participants : Participants do not need to be an expert in Excel. However, in order to achieve the accelerated learning objectives of this course, it is necessary that participants have some basic Microsoft ® Excel spreadsheet skills such as using formula, edit graphs, etc.

Class Setup : Availability of computers preloaded with MS Excel 2000 (and above) software for participants to work on.

OBJECTIVES

At the end of the program, participants will be able to:

- Understand the overall concepts, principles and methods using “Statistical Process Control” as an important tool in performing Quality Control activities;
- Acquire knowledge in selecting the right control charts for their manufacturing and servicing activities;
- Sharpen the skills to quickly construct control charts using the computer spreadsheet software.
- Acquire the basic knowledge of analyzing control charts and its patterns.
- Identify practical hands-on opportunities – explore and develop Process Capability Studies.

WHO SHOULD ATTEND:

- Managers, Project Team Leaders, QA Team Members, Executives, Engineers, Supervisors, Technicians.

ADMINISTRATIVE DETAILS

Duration : 2 days
Time : 9.00am – 5.00pm
Venue : In-house or external training program

Language Medium: English

TRAINER:

Nelson Kok is a graduate from the Universiti Sains Malaysia, and holds a Master in Business Administration and B.Sc (Hons) degree in Physics. He has more than 19 years of work experience, working with both multinational companies such as AT&T Consumer Products Pte Ltd, Corner Peripherals Sdn Bhd, Read-Rite (M) Sdn Bhd, and as well as local companies such as Globetronics Technology Berhad, Amquest Sdn Bhd and GGN Solutions Sdn Bhd. He is currently an entrepreneur running his own business and also an external consultant to various training providers.

He started his career as a Production Supervisor, Production Manager, HRD/Training Manager, TQM Manager and IT Manager. In the last 5 years, he held the position of General Manager in an Information and Communication Technology (ICT) company where he gained Internet Technology (IT) skills and entrepreneurial experience. Throughout his career, he was a certified trainer for many management, quality and productivity programs such as *5S Good Housekeeping, SPC, QCC, Quality Improvements using 7QC Tools, 7 Steps Problem Solving, QIT, TQM, MRPII, ERP, Team Building Program, Effective Meetings Workshop, Effective Supervisory Skills, Problem Solving & Decision Making, Effective Time Management, Motivation At Work, Frontline Leadership Program, and 7 Habits of Highly Effective People*. He has also conducted many quality audits and was directly involved in company's ISO 9002 and Quality Management Excellence Award (QMEA) certifications. He is currently involved in research, development and marketing of Internet Control Solutions and software packages. Nelson's area of specialization is in helping organizations to achieve higher productivity using proven Management, Quality and IT tools and techniques.