

STATISTICAL PROCESS CONTROL (SPC) - - Level 1

(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 to computerized statistical calculations & graphing techniques.
2. Using computer spreadsheet to construct QC tools
3. Introduction to 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: Computer spreadsheet program will be utilized throughout the course to demonstrate the power of the tools used and to accelerate those calculation and graphing activities. Participant with prior knowledge of basic computer spreadsheet (e.g. MS Excel: using formula, edit graphs, printing, etc) will help complement the accelerated learning objectives of this course. MS Excel working templates will also be provided to equip participants for immediate transfer of training to their workplace

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 knowledge of analyzing control charts and its patterns.
- Learn how to take positive actions to control operational processes at workplace.
- 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 or Bahasa Malaysia

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 2003 (and above) software for participants to work on.

ABOUT THE TRAINER :

Nelson Kok is a graduate from the Universiti Sains Malaysia, and holds a Master in Business Administration (MBA) and a B.Sc (Hons) degree in Physics. He has more than 24 years of work experiences, of which 17 years

are in Training & Development related field, working with both multinational companies such as AT&T Consumer Products Pte Ltd, Corner Peripherals Sdn Bhd, Read-Rite (M) Sdn Bhd, and local companies such as Globetronics Technology Berhad, Amquest Sdn Bhd and GGN Solutions.

He now served as an associate consultant and a freelance corporate trainer to several training providers in Malaysia, China, Singapore & Sudan Africa. He has conducted many training programs for both multinational and local companies. He also served as a lecturer for several higher learning institutes such as Open University Malaysia (OUM), Society of Business Practitioners, UK (SBP), International Centre for Quality, Sudan. Throughout his career, he was a certified trainer for many management, quality and productivity programs such as *Performance Management System (PMS)*, *Managerial Decisions & Business Modeling*, *Managerial Statistics*, *Effective Leadership Skills*, *Train-The-Trainer*, *Total Quality Management (TQM)*, *Statistical Process Control (SPC)*, *Quality Control Circles (QCC)*, *Quality Improvements using 7QC Tools*, *7 Steps Problem Solving*, *5S Good Housekeeping*, *QIT*, *MRPII*, *ERP*, *Team Building Program*, *Effective Meetings Workshop*, *Effective Supervisory Skills*, *Communication and Leadership 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 9001 and Quality Management Excellence Award (QMEA) certifications. Nelson's area of specialization is in helping organizations to achieve higher effectiveness and productivity using proven Management, Quality and IT tools and techniques.