

STATISTICAL PROCESS CONTROL II (SPC2)

(using Microsoft® Excel)

INTRODUCTION

This program provides the principles and concepts of Statistical Process Control (SPC) that is so vital to Quality Improvement programs in the industry. It demonstrates the power of proven techniques to assist with problem solving and process control. This SPC 2 course emphasizes on advanced control charting, Process Capability Study, Hypothesis testing and Gage Repeatability and Reproducibility (GageR&R) techniques. Different from traditional method of teaching SPC, this program capitalizes on the utilization of common computer spreadsheet software to accelerate all those meticulous calculations, graphing and searching of statistical tables activities. In doing so, it allows participants more time to focus on fundamental analysis and results oriented rather than activities oriented. Apart from lectures and practice sessions, this program also includes computer simulations to help reinforce participant's understanding of the control charts functionalities with an emphasis on participation throughout. This training program is a follow-up program of SPC 1.

CONTENTS

- Introduction
 - Why use MS Excel as a statistical tool?
 - Computerized statistical calculations & graphing techniques.
 - Benefits of charting presentations.
 - Introduction to advanced SPC topics
- Revision of Statistical Process Control (SPC1)
 - A Process Control System
 - Setting up control charts: Variables
 - Setting up control charts: Attributes
 - Selection of control charts
- Special Purpose Control Charts
 - Processes that deviate from Normal Distribution
 - Short-run processes
- Process Capability Analysis
 - Understanding Cp, Cpk, Six sigma
 - Determining the correct Cp, Cpk
 - Conducting Short-term & Long-term Capability Analysis
 - Conducting Process Capability Studies
 - Short run processes capability study
 - More Capability indices
 - Introduction to Six Sigma quality
- Optimization and Variability Reduction Methods:
 - Statistical hypothesis testing
 - Comparison test (one sample and two samples)
 - T-test
 - f-test
 - Multiple sample comparison
 - Least Square Method
 - ANOVA
 - Normality test

- Gage Reliability and Repeatability (R&R)
 - Accuracy and reliability
 - Calculations for Repeatability and Reproducibility
 - Interpreting R&R
- Practical procedures
 - Shopfloor considerations for Process capability study
 - Using MS Excel working templates
 - Case studies

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.
- Sharpen the skills to quickly construct control charts using the computer spreadsheet software.
- Acquire the knowledge of analyzing various types of control charts and its patterns.
- Identify practical opportunities to conduct Process Capability Studies.
- Utilizing statistical hypothesis testing to further reduce variability
- Understand gauge variability

WHO SHOULD ATTEND

Statistical Process Control 2 is useful for Managers, Engineers, and Foreman from the manufacturing industry who had prior basic SPC training.

ADMINISTRATIVE DETAILS

Duration : 2 days

Time : 9.00am – 5.00pm

Venue : In-house or external training program

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.