

Specification :*Capability Masterclass*

language: English

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*Capability in the packaging industry***Who should attend?**

Engineers and qualityicians who regularly use Capability as a tool in their workplace, and now would like to better understand the more complex aspects and hidden dangers so more reliable decisions and information can be prepared.

The class will be limited to four participants to ensure good tuition is received. It will be run as an open class for packaging industry companies.

Location of course

6, Sympson Close, ABINGDON, Oxon OX14 5RB, GB

What we will be doing

There will be a mixture of lectures, discussions and practical learning examples (using Excel and Minitab) to show the theory and practical application of the Capability indices in today's Packaging Industry. It will be assumed that you already have a working knowledge of the subject.

There will be a manual provided with all the key learning points, in which you can make your own notes.

There is no exam at the end.

Pre-course preparation

During the day, we will be discussing how you perceive capability to be used as a statistic in the packaging industry. To ensure you get the most from the class, before arriving please:

1. **Make a note** of how you prepare a capability study; how you decide the quantity of samples to collect, how you collect samples, from where do you get the samples, what special care is taken, what process checks are taken prior to calculating the statistic.
2. **Make a note** of how you interpret the output from a capability study; what criteria do you use as accept/reject and typical actions you have taken as a result
3. **Make a note** of who asks you for the indices, how they are used, whether you consider them to be an important measure of the process.
... I will ask you some of the above questions.

Files provided - at the class

Minitab	Excel
	rkqm masterclass exercises.xlsx
	rkqm evaluation *****.xlsx

Computer stuff

- One laptop computer with *Excel* and *Minitab 17* would be helpful for each two participants; the exercises will use this software.
- WiFi access is available.

Contact information

If you have any questions, before or after the class, please contact Richard, details in header.

Timetable

8:00 INTRODUCTION

Welcome and objective of the day

THEORY of CAPABILITY

8:15 BASIC CONCEPTS

A measure of precision and accuracy
Which variability to measure
Short and long term variability

8:35 Exercise 01

Basic calculations

Tolerance \div variability

8:55 MATHEMATICS of CAPABILITY

Accuracy & precision
Standard deviations: RMS, and Rbar d₂ methods

9:10 Exercise 02

Comparing the results of different methods when calculating standard deviations using Excel functions

9:30 BREAK

9:45 LIMITATIONS of CAPABILITY

No specifications
one sided specifications
non-normal distributions
mixing variability

10:05 Exercise 03

Calculations in Excel

PRACTICE of CAPABILITY

10:25 DANGERS

Inappropriate statistics	Data entry
Lack of understanding	Incorrect distribution
Non random samples	Leverage
Hidden factors	Ignoring confidence intervals

10:40 USERS, USES and APPROPRIATE SAMPLES

Who wants which index; customer, development, purchasing, sales, ...

11:00 USING and INTERPRETING SOFTWARE

Infinity and Minitab
Potential / Within capability

11:20 Exercise 04

Using Minitab to calculate the Short term capability from control check data

12:00 LUNCH

13:00	Overall capability
13:15	Exercise 05 Preparing a capability report and comparing processes
13:45	Tooling studies - PT ratios
14:00	DEFECTIVE ppm Z scores, areas under the curve
14:30	BREAK
14:40	Exercise 06 Using advanced Excel functions to calculate areas under the curve
15:10	NON NORMAL DISTRIBUTIONS
15:25	Exercise 07 Using Minitab to calculate the capability of non -normal processes
15:45	SETTING SPECIFICATIONS FOR DEVELOPMENT PROJECTS Traditional approach Six-sigma approach
16:05	SUMMARY
16:15	CLOSE

Cost

The cost of £250/participant includes:

- Tuition
- Handouts
- Post course support
- Refreshments and lunch



A place may be reserved by confirmation of attendees name accompanying a purchase order to RK:QM Ltd (30 day terms).

Discounts: available for multiple places that are paid for with a single purchase order:
2 places 2½% (total = £487.50) : 3 places 5% (total = £712.50): 4 places 7½% (total = £925.00)



The Garden Training Room

Convivial surroundings, appropriate to training of complex material.