Operational excellence

Applied Statistics and Minitab for Belts

Two days to handle the statistics a Belt needs and run them in Minitab: describing data, checking a measurement system, calculating capability, choosing and interpreting a test, reading a control chart. Each concept is applied to industrial data sets and then to your own, with one constant aim: knowing which analysis to run, and what the result lets you conclude.

Duration : 2 days

Objectives

1. Choose the right chart and indicators to describe a data set
2. Run a gauge R&R study and a capability study in Minitab and interpret the results
3. Choose a hypothesis test suited to the question asked and the type of data
4. Interpret a p-value, a confidence interval and a simple regression without errors of reasoning
5. Set up and read a control chart

Programme

Day 1 — morning

• Getting started with Minitab: worksheet, data import, graphs

• Types of data: continuous, attribute, counts, and what they mean for the analyses

• Descriptive statistics: location, spread, shape of the distribution

• Histogram, box plot, run chart: what each one shows

Day 1 — afternoon

• Normal distribution, normality test and handling non-normal data

• Gauge R&R study in Minitab: share of measurement in the variation and decision on the gauge

• Cp, Cpk, Pp, Ppk capability in Minitab and reading the report

• Exercise: capability of a characteristic from your production

Day 2 — morning

• Logic of tests: hypotheses, risk, p-value, confidence interval

• Comparing one, two or several means: t-tests and ANOVA

• Comparing proportions and variances

• Test selection tree, applied to questions taken from projects

Day 2 — afternoon (workshop)

• Correlation and simple linear regression in Minitab

• Control charts: choosing the chart, calculating limits, detection rules

• Workshop: a complete analysis of a data set from your site, from graph to conclusion

• Hands-on knowledge test: an analysis to run and interpret

Teaching methods

• Hands-on work: each participant runs the analyses in Minitab themselves

• Prepared industrial data sets, then data brought by the participants

• Test selection tree and Minitab output reading sheets handed to participants

• Commented interpretation: what the result lets you conclude, and what it does not

• Short summary exercises at the end of each half day

Assessment and documents

Hands-on knowledge test, with a data analysis to run and interpret, end-of-course evaluation at D+1. Numbered training certificate verifiable online for each participant and training report for the company.

Bilingual materials for every participant; each classroom course comes with its digital twin on OmniLearn.

Good to know

This course prepares for or complements « Lean Six Sigma Green Belt » and « Lean Six Sigma Black Belt ». For day-to-day production monitoring, « Statistical Process Control (SPC) » goes deeper into control charts.

Practical information

Duration	2 days
Audience	Yellow, Green and Black Belts, quality and methods engineers, technicians in charge of data analysis
Prerequisites	Comfort with a spreadsheet; a laptop per participant with Minitab installed.
Group size	Groups of 6 to 12 participants, in-company
Format	In-company, face to face on your site
Language	French, Darija or English; bilingual materials
Funding	OFPPT special training contracts (TFP), GIAC, Maroc PME: we prepare the applications with you, at no extra cost.
Programme customisation	Programme adapted to your procedures, your equipment and your audience

Frequently asked questions

Do we need a Minitab licence?

Each participant works on a laptop with Minitab installed. Before the session we check with you the number of workstations and the licences available in your company.

Does this course replace the statistics part of the Green Belt?

No. The Green Belt applies statistics to a complete DMAIC project. This course is a refresher before the Green Belt, or a return to practice for trained Belts who rarely use the software.

What level of mathematics is needed?

Secondary-school level is enough. The course favours interpreting results over formulas: the software does the calculations, the participant learns to read them.

Can we bring our own data?

Yes, we advise it: inspection records, laboratory measurements, cycle times, complaints. The day 2 afternoon workshop uses a data set from your site.