Operational excellence

Statistical Process Control (SPC)

Two days to run a process with control charts rather than adjustments by guesswork. Participants choose the characteristics to monitor, build variables and attribute charts, interpret signals, calculate capability and define the reaction rules at the workstation. Calculations use the data of your lines, and the workshop's SPC plan is ready to roll out.

Duration : 2 days

Objectives

1. Explain process variation, the difference between common and special causes and the role of control limits
2. Choose the characteristics to monitor and the right chart: averages and ranges, individual values, proportions, defect counts
3. Build a control chart and calculate its limits from real data
4. Interpret chart signals and apply clear reaction rules at the workstation
5. Assess process capability (Cp, Cpk, Pp, Ppk) and the stability needed to calculate it

Programme

Day 1 — morning

• Variation, normal distribution, common and special causes: the basics useful at the workstation

• Control limits and tolerance limits: why they must not be confused

• Choosing the characteristics to monitor: special characteristics, complaints, FMEA, customer requirements

• Prerequisites: a reliable measurement system, a sampling plan, rational subgroups

Day 1 — afternoon

• Variables charts: averages and ranges, averages and standard deviations, individual values and moving ranges

• Calculating limits, reference period and setting up the chart

• Exercise: building a chart on data from your line

• Mid-course quiz on choosing and building charts

Day 2 — morning

• Reading charts: points out of limits, runs, trends, and the detection rules adopted

• Reaction rules at the workstation: stop, adjust, alert, record; what the operator decides alone

• Attribute charts: proportion defective, number of defects

• Capability: Cp, Cpk, Pp, Ppk, calculation conditions and reading the results

Day 2 — afternoon (workshop)

• Workshop: SPC plan for a line at your site, characteristics, charts, frequencies and reaction rules

• Recalculating limits, periodic review and link with process improvement

• SPC on paper or in software: selection criteria

• Knowledge test and a practical chart-reading exercise

Teaching methods

• Calculations on the production data of your lines, prepared before the session
• Variation experiment in the classroom to tell common from special causes
• Exercises in a spreadsheet and, if your site has one, in your statistical software
• Reading annotated real charts to judge the reactions that were taken
• Role-play of the operator who keeps the chart at the workstation

Assessment and documents

Mid-course quiz, knowledge test and a practical chart-interpretation exercise; end-of-course evaluation at D+1. Numbered certificate, verifiable online, for each participant; the company receives the training report and the SPC plan drawn up in the workshop.

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

Good to know

A control chart only makes sense if the measurement is reliable: the course « Measurement Systems Analysis (MSA, Gauge R&R) » is usefully taken before or after. For more advanced statistical analysis, see « Applied Statistics and Minitab for Belts ».

Practical information

Duration	2 days
Audience	Quality, methods and production technicians and engineers, line managers, inspection laboratory
Prerequisites	Ability to use a spreadsheet; no statistics prerequisite
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 good level of statistics?
No. The useful concepts are explained without mathematical proofs, with workshop examples. Knowing how to calculate an average and use a spreadsheet is enough.

Should operators attend these two days?
The course is aimed first at the technicians, engineers and supervisors who set up SPC. They then train the operators at the workstation, using the reaction rules written in the workshop.

How do we meet a capability threshold set by a customer?
Customers often set a capability threshold for important characteristics. The course explains how to calculate it correctly: on a stable process, with a validated measurement system and enough data. An index calculated on an unstable process proves nothing.

Does SPC apply in agri-food?
Yes: fill weights, temperatures, moisture levels, film thicknesses, cap tightening torques. Charts apply to any characteristic measured regularly.