

# SIX SIGMA *Plus* Programme

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TEC-Concepts Ltd

## SIX SIGMA *Plus* Programme

### ***Six Sigma implemented with highly focused projects***

TEC's **Six Sigma Plus Programme** integrates **Six Sigma**, **Lean Enterprise** and **Kaizen Blitz** principles and practices with practical **project** implementation and management. In the process the organization will gain 2 – 10 **Green Belts** and identify natural leaders as potential **Black Belts**.

The programme kicks off with a 2-day *top management orientation session* followed by a structured series of 2-day in-company training courses and workshops for the designated **Green Belt** practitioners.

In addition to the intensive training sessions, the designated **Green Belts** will undertake individual high-profile projects. Coaching sessions (2-days) are scheduled to follow up each of the DMAIC training courses to ensure that the designated Green Belt practitioners can use their newly acquired skills in the correct manner—focused on their projects

***The projects will be identified within your organization and have significant impacts on performance and customer satisfaction.***

Their activities serve to support and accelerate the progress of the projects and maximize the organization's return on its investment. In fact the training sessions are scheduled as a series of 2-day sessions to keep pace with project roll-out and ensure that the Green Belts can use their newly acquired skills immediately. On-site 'coaching' focused on projects supplements the training so that development of individual skills and accomplishment of project objectives go hand-in-hand.

We call it **heuristics** – “the art of discovering and invention” or more simply “learn by doing”.



**Green Belts** are essential for the successful implementation and consolidation of **Six Sigma**. Managerial level or technical specialist **Green Belts** will subsequently move on to become **Black Belts** on successful completion of their improvement **projects**.

## Six Sigma ↔ Kaizen-Blitz ↔ Lean Enterprise

TEC's tried and tested **Six Sigma Plus Programme** is designed to provide participants with *all the knowledge* and *practical experience* they need to become successful and effective team members who will actively contribute to the success of their value-adding and improvement projects.

TEC have adopted a pragmatic approach to **Green Belt** training which integrates the **Six Sigma** tools, **Kaizen-Blitz** and essential **Lean Enterprise** topics with **project** implementation.

Training is delivered over an *agreed period* with 2 to 4 week *intervals* between each 2-day in-company session to keep pace with the project. This realistic schedule maximizes the benefit and minimizes any disruption to routine work activities. Additional *in-company coaching* ensures understanding.

The programme kicks off with an intensive 1-day top **management orientation session**

The **Six Sigma Plus Programme** tools and techniques coincide with the **DMAIC steps** –

- Tools for generating ideas, organizing information and gathering data
- Tools for process and data analysis

- Tools for problem solving and continual improvement
- Tools for statistical analysis
- Tools for implementation and process management

2-day **group training** sessions augmented by **in-company coaching** and **mentoring**

**See the detailed syllabus overleaf →**

## TOP MANAGEMENT ORIENTATION SESSION

*Single intensive 2-day session involving managers and practitioners –*

- Overview of *Six Sigma plus* Six Sigma language and roles
- Exploiting the commercial and financial benefits of Six Sigma
- The five high-level steps of DMAIC
- Six Sigma *Plus* Programme planning, timetabling and control
- Selection of the six sigma Green Belt practitioners
- Identification of 'break-through' projects

*Followed by the schedule of 2-day in-company training and workshop sessions plus 'quizzes' and 'tests-of-understanding' –*



The **Top management** orientation session explains Six Sigma through the use of examples and highlights **critical-to-mission** aspect of the programme. Interview of the nominated **Green Belt** practitioners.

## DEFINE

- Practical introduction to *basic* statistics
  - Quantifying and visualizing information
  - Measuring 'position' and 'spread' – the Normal Distribution
- Introduction to *creative thinking* techniques
- Measuring customer satisfaction – VOC (voice of the customer)
- CT'X' Tree analysis, attributes and customer satisfaction metrics
- Defining, justifying and 'scoping' the **Six Sigma projects**
- Stake holder analysis reporting and presentation styles
- Six Sigma *project management* tools and techniques
- Understanding the concept of 'Tollgates'
- Developing a DMAIC Project Charter
- High-level process maps and SIPOC



Training is delivered over an agreed period with 2 to 4 week intervals between each 2-day in-company session to keep pace with project progress. This realistic schedule maximizes the benefit and minimizes any disruption to routine work activities.

The first step is to identify meaningful projects.

## MEASURE

- Defining and quantifying problems
- Monitoring performance and processes
- Data types and distributions – continuous data, count data, attribute data
- Determining minimum sample size and sample frequency
- Creating data collection forms, Tally Charts and Histograms
- Measurement system analysis and evaluation (Gauge R & R)
- Measuring process position and spread –
  - Average, Median, Range, Standard Deviation ( $\sigma$ ), Anderson-Darling Normality Test
- Establishing process capability –
  - $C_p$  and  $C_{pk}$  measures, DPMO, Process Sigma Levels, Sigma Shift, Final & First-pass Process Yield, COPQ



In addition to the intensive training sessions, the designated Green Belts will actively participate in their own and other company-level projects.

This step focuses on measurement and the presentation of information.

## ANALYSE

- Process definition and process control –
  - Analysis of ‘current-state’ and ‘controlled conditions’
  - Gemba and Ohno’s ‘chalk circle’
- Detailed ‘as-is’ process mapping and analysis –
  - Process mapping
  - Value-stream mapping
- Detailed analyse of process activities/steps –
  - SIPOC-Turtle diagrams and Swim-lane mapping
- Failure Mode and Effects Analysis
- Disciplined problem solving (G-8-D)
- Tools for root cause analysis –
  - IS-IS NOT questioning, Affinity Diagrams, Measles Charts, Brainstorming & White-light thinking, Fishbone diagram, Fault-Tree Analysis, 5-Whys & 5W2H, Run Charts



**Green Belt** activities serve to both support and accelerate the progress of their projects – which will maximize the organization’s return on its investment. In fact the training sessions are scheduled as series of 2-day sessions to keep pace with the project roll-out and ensure that the Green Belts can use their newly acquired skills immediately.

## IMPROVE

- Breakthrough thinking – *Kaizen Blitz* and *Lean Enterprise*
- Running practical *Design of Experiments*
- Analysis and selection of feasible solutions – undertaking *pilot studies*
- Criteria filtering techniques –
  - *Impact/Effort* analysis, *RUMBA* test, *Detection/Prevention* criteria
- Confirming improvements statistically with *hypothesis testing* –
- Re-testing for Normality, Confirming ‘special causes’ eliminated, Box plots analysis, Chi-squared test, 2-Sample ‘t’ Test, F-Test, new DPMO, process sigma and yield



Six sigma teams working to provide solutions to problems and identifying continual improvement initiatives throughout the organization.

## CONTROL

- Focus on the workplace – *Gemba* principles
- Implementing effective operator process control –
- SPC control charting – *variables* and *attributes*
  - Interpreting SPC charts
  - DPMO analysis & charting
- Documenting process control –
  - Control Plans & Procedures, Work Instructions & Visuals Aids, *Poka Yoke* methods & devices, Maintenance of FMEA and RPNs, Preventive Maintenance (TPM)
- Auditing manufacturing processes
- Monitoring ongoing performance
- Six Sigma Storyboard – evaluation of Green Belt achievements
- Qualification of Green Belts – knowledge transfer



Introduction of effective operator process control – *Gemba* principles. Practical SPC charting.

Undertaking detailed manufacturing process audits to ensure that the improvements are sustained.

Green Belts evaluation and qualification.

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TEC's training & consulting approvals



We are **TEC** –

Specialists in automotive, aerospace and defence integrated management systems implementation and training

- we are an **SC21 Strategic Partner** and an **SC21 Training Partner**
- We are an **IAQG TP** (Training Provider) delivering our *aerospace* courses and examinations

Check out our sector websites –

**SC21**—[www.tec-concepts.co.uk](http://www.tec-concepts.co.uk)  
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– to see a cross-section of clients, projects and training assignments

Checkout the **TEC Concepts** website at [www.tec-concepts.co.uk](http://www.tec-concepts.co.uk) for information on our *Supplier Chain Groups* development programme.

## TEC – heuristics “learn-by-doing”



Breakthrough improvements reflected in significant and measurable bottom-line results



Practical structured training leads to effective teamwork – “all of us are better than one of us”

### Heuristics – “the art of discovering and invention”

We coined the word **heuristics** to capture the essence of our unique approach to working with our clients.

We work with your teams to create a **synergy** between **Six Sigma's DMAIC**, the **process approach** and world-class **best-practices** such as **Lean Enterprise** and **Kaizen Blitz**. In the process we create a **team-based** and **holistic environment** which empowers your operational and management staff to make **breakthrough improvements** in performance on a continual basis.

**TEC** are first and foremost an **implementation** and **empowerment** organization. We have successfully enhanced the careers of over 5,000 individuals world-wide by enabling them to use the latest **automotive** and **aerospace** improvement tools and techniques.

**TEC** are committed to the **process approach** and we vehemently believe in **integrated** and **value-added management systems**.

Our Six Sigma programmes benefit from a wealth of practical experience and always incorporate ‘real world’ examples to illustrate best-practice implementation strategies.