

TIQMS – Six Sigma Training

INTRODUCTION

The purpose of Six Sigma is to bring about increased quality performance and to deliver improved profit by addressing chronic business problems that may have existed for many years. The driving force behind the approach is for organisations to be competitive and to eliminate errors and waste. A number of Six Sigma projects are about the reduction of losses.

Some organisations require their own staff to engage with Six Sigma and demand that their suppliers do as well. The approach is project based. There is little that is new within Six Sigma from the point of view of the tools and techniques utilised, but what is different is every project, before it can begin, must have a sound business case.

Another difference, from what has gone before, is the infrastructure. The creation of roles, and the responsibilities that go with them and gives the method an infrastructure that is robust. The demand that all projects require a proper business case, the common manner by which all projects become vetted, the clearly defined process (DMAIC) that all projects follow, provides further elements of the infrastructure.

The Six Sigma methodology for improving processes has been around for the past 28 years (started/developed by Motorola in 1982). In South Africa it has been gaining momentum over the past 7 years as more and more success stories emerge in South African industry. TIQMS has not only been teaching the tools and techniques that Six Sigma uses for the past 28 years, but has also been actively involved with training the Six Sigma methodology for the past seven years. Our courses have led to many Companies adopting the Six Sigma process and we have been assisting them on an in-house basis, developing competent Six Sigma “Green Belts”. Building on these courses we are proud to announce that the international community (through the offices of ISO) has come to a consensus on the classification of Yellow, Green and Black Belt levels of expertise and training. This consensus has been published in two documents:

ISO/CD 13053-1: **Quantitative methods in process improvement — Six Sigma — Part 1: The DMAIC methodology**, and

ISO/CD 13053-2: **Quantitative methods in process improvement — Six Sigma — Part 2: Tools and techniques**

Your Six Sigma Facilitator

This training is presented by a person who has had more than 30 years experience in the Quality Management and Quality Improvement world, over 7 years experience with Six Sigma, and holds a Masters degree in Quality. He is a Senior Member of the American Society for Quality (ASQ), and a Member of the ASQ-Six Sigma Forum.

SIX SIGMA YELLOW BELT TRAINING (1 day) (YBSS)

COST per delegate: R 1 800-00 VAT Exclusive. = R 2 052-00 VAT Inclusive.

DATES (1 day) 9 May

VENUE: TIQMS Conference Centre, Highveld, Centurion

In- House: Course price available on request

Pre-Requisite: None

Target Audience

A Yellow Belt is a process operator, either in a manufacturing sense or an office (transactional) sense. The Yellow Belt is expected to participate in Six Sigma project teams when a Six Sigma project is concerned with a process within which the Yellow Belt operates.

Outcome

the Yellow Belt will:

- a. work with local Green Belt to identify and quantify opportunities for improvement within the locale;
- b. be required to work under the direction of a Black Belt or a Green Belt as a member of a larger Six Sigma project lead by the Black Belt;
- c. be required to participate in a smaller Six Sigma project under the direction of a Green Belt.

Training:

The training programme for candidate Yellow Belts takes the form of a one-day Six Sigma awareness seminar where the purpose of Six Sigma and the Six Sigma process (DMAIC) is explained. Detailed descriptions of the Six Sigma tools should be kept to a minimum.

Yellow Belts, when engaged with a Six Sigma project team, should receive 'on-the-job' training in the application of those Six Sigma tools that are appropriate to the project. This training should be given by Green or Black Belts who are running the project.

Contents

- Introduction to Six Sigma
- What is Six Sigma Quality
- Step 1 Define
- Step 2 Measure
- Step 3 Analyse
- Step 4 Improve
- Step 5 Control
- Step 6 Replicate Results

Certification and Certificates:

Successful Learners will receive a TIQMS certificate

SIX SIGMA GREEN BELT TRAINING (8 days) (GBSS)

COST per delegate: R 10 000-00 VAT Exclusive. = R 11 400-00 VAT Inclusive.

DATES (8 days) 5 days + 2 days tutorials + 1 day evaluation

21 – 25 May ; 25 June' 30 July and 3 September

VENUE: TIQMS Conference Centre, Highveld, Centurion

In- House: Course price available on request

Pre-Requisite: None

Target Audience

Any employee involved in continual improvement.
Technical staff, junior middle and top management

Outcome

The Green Belt is expected to deliver the agreed benefits of a Six Sigma project to the organisation. These improvement activities will often be within the Green Belt's usual field of employment and operation. In so doing, the Green Belt will:

- work with the local 'line management' to identify and quantify opportunities for improvement within the locale;
- be required to work under the direction of a Black Belt as a member of a larger Six Sigma project lead by the Black Belt;
- be required to lead a smaller Six Sigma project under the direction of a Black Belt.
- coach process operators (Yellow Belts) on process improvement methods and activities.

Contents The Process of Green Belt training is as follows:

- Introduction
- Project Team Charter
- DMAIC Control List
- DEFINE
- MEASURE
- Excel for SixSigma
- ANALYSE
- IMPROVE
- CONTROL
- Measurement Systems Analysis (MSA)
- Statistical Process Control (SPC)
- Control Plans

- SixSigma Report

Monday (Define)	Tuesday (Measure)	Wednesday (Analyse)	Thursday (Improve)	Friday (Control)
Project selection	Concept of variation	Capability analysis	Improvement – Alternative idea generation	Error proofing
DMAIC process	FMEA	Pareto analysis	“Should be” process map	Long term MSA plan
Identifying CTQCs	Types of data	Box plots	Conducting an FMEA	<i>p</i> charts
Process mapping	Data collection plans	Histograms	Pilot improvements	<i>u</i> charts
Refining project scope	Measurement System Analysis (MSA)	Scatter plots	Validate improvements	<i>X-bar & R</i> charts
Cause & effect matrices		Run charts		<i>X & R_{moving}</i> charts
				SOP's and training plans

Tutorials (2-days)

It is very difficult for delegates to run their projects in isolation. Not only is the facilitator available during the time of the project via e-mail and telephonically but it is also important that project milestones are achieved within a certain timeframe. The tutorials are designed for the delegates to share their progress and the difficulties encountered. They also gain further direction from the facilitator during these sessions.

Certification and Certificates:

Written evaluation to Green Belt requirements and Presentation of projects
Successful Learners will receive a TIQMS certificate

Your Six Sigma Facilitator

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BLACK BELT TRAINING (20 days) (BBSS)

COST **R 38 000-00 VAT Exclusive. = R 43 320-00 VAT Inclusive.**

Also available as in-house

DATES **TO BE ANNOUNCED**

VENUE: TIQMS Conference Centre, Highveld, Centurion

In- House: Course price available on request

Pre-Requisite: Must have completed the Six Sigma Green belt

Target Audience

The Black Belt is expected to deliver the agreed benefits of a Six Sigma project to the organisation. In so doing, the Black Belt will:

- work with others in the organisation to identify and quantify opportunities for improvement within the organisation;
- lead improvement projects using the DMAIC methodology;
- organise multi-disciplinary teams (process organisation), where necessary, and manage improvement projects; and
- train and mentor Green Belts on DMAIC methodology and associated process improvement techniques.

Training:

A candidate Black Belt should either, have received training and been certified as a Green Belt or, have the equivalent level of experience and knowledge.

The recommended content of a Black Belt training programme is shown in the Table below. The candidate's knowledge will need to be confirmed by means of either a written or multiple-choice assessment. In addition to attending the training programme, each candidate Black Belt should complete at least two Six Sigma projects.

The projects provide the candidate Black Belt the opportunity to demonstrate their knowledge and ability to apply the Six Sigma tools.

Define	Measure	Analyse	Improve	Control
Cost of poor quality models; business metrics; benchmarking; project financials	Scales of measurement data types; definition of opportunities; interpreting variation.	Basic tools; hidden factories; short and long term capability; standardised Normal distribution; confidence intervals.	Full factorial Experiments	Mistake proofing.
Identification of waste; concept of value; opportunities; Six Sigma metrics; project selection.	Process variation; process FMEA.	Hypothesis testing; power and sample size calculations; distributions; ANOVA; multivari analysis.	Fractional factorial experiments	SPC for attribute data
Problem definition; identifying customers; process mapping; characteristic selection matrices; cause & effect diagrams	MSA for measurements; MSA for attributes	Linear regression & correlation; residual analysis; nonparametric hypothesis tests.	EVOP; multiple regression analysis.	SPC for measured data.
Team building; personality style profiling; project charter; project management; Gantt charts.	Sampling strategies; data collection tools; basic statistical tools; process performance; process capability.	Weibull analysis; 5-Why analysis.	Process robustness; response surface experiments; force field analysis.	Control plans; 5-S; TPM; process audits; success criteria.