Smallpeice Enterprises
a division of GP Strategies Limited

Lean Six Sigma
Manufacturing Black Belt

Manufacturing Focused Content

Virtual Training Delivery

Open Enrolment Calendar

Fully Accredited

train@smallpeice.com

Introduction

Our comprehensive Black Belt programme is designed as a 'start from zero' training path for those working in technical / production / manufacturing functions. As the content covers the full suite of DMAIC tools, it is not necessary to enter the programme with Yellow or Green Belt experience (if you fall into this category then please see our 'Upgrade' training options).

Black Belt training provides a powerful improvement toolkit and develops expert Lean Sigma practitioners who are able to:

- assess improvement opportunities and have the skills to select the right approach problem solving methodology.
- Lead and deliver large-scale cross-company projects delivering significant and quantifiable operational benefits.
- Encourage the cascade of Lean Six Sigma by supporting Green & Yellow Belts, and liaising with key sponsors and stakeholders to provide input to the company improvement strategy.

Programmes include:

▶ Open enrolment calendar with choice of live virtual training or classroom-based events at regional venues.

▶ In-company programmes for group training at your company site.

▶ Interactive delivery style with case study team exercises to bring alive the technical content and showcase applications to transactional projects.

▶ Extensive course materials hub including user-friendly Lean Six Sigma toolkit; consolidation learning via supplementary e-learning modules; dozens of templates and proformas ready to use for your project.

▶ Industry recognised accreditation standards via Smallpeice or our external partnership with the British Quality Foundation.

▶ Optional add-on coaching packages to guide and fast-track you through your project.

Minitab Software:

During the Black Belt programme, you will learn how to use Minitab – which is the industry standard software for Lean Six Sigma. Whereas Green Belt level projects can be handled via Excel, the deeper level of data and graphical analysis at Black Belt needs the bespoke functionality of Minitab. If you do not have Minitab licenses in your company already – this is something you will need to explore before enrolling by visiting www.minitab.com.

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**For bookings & enquiries
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Virtual Programme

DEFINE PHASE	MEASURE PHASE

e-Learning (30 mins)
- Intro to Programme & Lean Six Sigma
- Overview of the Define Phase
- How to Select Your Project

e-Learning (45 mins)
- Overview of the Measure Phase
- Identifying Waste
- Value Stream & Process Mapping

e-Learning (1 hr)
- Using Fishbone Diagram (cause & effect)
- Basic Statistics: Describing Data
- Introduction to MSA

e-Learning modules (1 hr)
- Intro to Statistical Process Control
- Process Capability

SESSION 1: 8.30am – 4.30pm

THE DEFINE PHASE
- The project charter
- Writing an effective problem statement
- Setting the project objectives
- Scoping the project
- Mapping the high level process – SIPOC mapping
- Linking the problem to the voice of the customer
- Defining critical to quality characteristics

SESSION 2: 8.30am – 12.30pm

UNDERSTANDING THE CURRENT STATE PROCESS
- Detail process mapping tools overview
- The role of process mapping in DMAIC projects
- Process flow & sequence charting techniques
- Identifying Value and Non Value Add activity and identifying quick wins

SESSION 3: 8.30am – 4.30pm

MANAGING & DEFINING BLACK BELT PROJECTS
- DMAIC versus DMADV projects
- Scoping complex cross-functional projects
- Value stream mapping as a scoping tool
- Aligning the project to business strategy
- Managing project reviews (tollgates)
- Considering project risks

SESSION 4: 8.30am – 12.30pm

VALUE STREAM MAPPING
- Introduction to Value Stream Mapping
- Creating a Current State Map
- Using VSM as a Scoping Tool
- Identifying the Opportunities

SESSION 5: 8.30am – 12.30pm

MANAGING CHANGE & ENGAGING STAKEHOLDERS
- Analysing enablers/barriers using force field analysis
- Building and communicating the business case
- Securing project sponsorship
- Identifying and engaging key stakeholders
- Influencing skills & dealing with initial resistance
- Building and managing the project team

SESSION 6: 8.30am – 4.30pm

DATA COLLECTION PLANNING
- The role of data collection planning throughout a DMAIC project
- Use of Is/Is Not to find gaps in knowledge
- Understanding variation
- Selecting what to measure
- Calculating sample size
- Sampling considerations
- Developing a robust data collection plan
- Guidelines for survey sampling

e-Learning modules (30 mins)
- Introduction to Minitab

SESSION 7: 8.30am – 4.30pm

MSA FOR MANUFACTURING PROJECTS [MINITAB VERSION]
- Introduction to MSA fundamentals
- Type 1 studies for repeatability
- Type II studies that also study reproducibility
- Nested gauge R&Rs for destructive tests
- Assessing linearity & bias aspects of calibration
- Assessing stability (of bias during calibration)
- Attribute agreement analysis for pass/fail judgements
- MSA case study exercise to practice the skills

SESSION 8: 8.30am – 4.30pm

PROCESS CAPABILITY & PROCESS CONTROL
- Assessing process control
- Anatomy & use of control charts
- Applications of SPC charts for variable and attribute data
- Understanding process capability
- Calculating process capability for continuous and attribute data
- Selecting appropriate capability metrics & indices

SESSION 9: 8.30am – 4.30pm

ADVANCED STATISTICAL APPROACHES
- Understanding probability distributions for variable and attribute data
- Dealing with non normal data
- Capability analysis for non normal data
- Statistical process control charts for non-normal data
- The central limit theorem
- Understanding and using data transformations

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Virtual Programme

ANALYSE PHASE

e-Learning (1 hr 45 mins)
- Overview of Analyse
- Root Cause Analysis
- Graphical Analysis / Hypothesis Testing

SESSION 10: 8.30am – 4.30pm
ANALYSE PHASE
- Verifying the root cause
- Taking a structured approach to data analysis
- Links to the cause and effect diagram
- 5 Why approach to problem solving
- Box plots & scatter diagrams
- Significance testing approach
- Tips for summarising and presenting the analysis

SESSION 11: 8.30am – 4.30pm
HYPOTHESIS TESTING
- Use of inferential statistics
- Writing a hypothesis statement
- Setting a confidence level
- Understanding the P-Value
- Tests for variable and attribute data
- Power & sample size
- Non-parametric techniques

SESSION 12: 8.30am – 12.30pm
INTRODUCTION TO DOE
- Overview of DOE techniques
- Optimisation challenge
- Applications of DOE techniques

SESSION 13: 8.30am – 4.30pm
OPTIMISING THE PROCESS
- Regression analysis
- Understanding correlation
- Introduction to simple linear regression
- Introduction to multiple regression

SESSION 14: 8.30am – 4.30pm
SCREENING & TAGUCHI METHODS
- Introduction to fractional factorial
- Screening designs
- Advanced techniques e.g. EVOP, RSM
- Taguchi loss function
- Taguchi designs that deliver robust solutions in the presence of noise

SESSION 15: 8.30am – 4.30pm
ADVANCED DOE TECHNIQUES
- Mixed and multi-level designs
- Response surface designs
- Botched runs
- Randomisation and grey coding
- DOE with historical data

SESSION 16: 8.30am – 4.30pm
SITUATIONAL LEADERSHIP
- Transformational leadership
- Influencing change
- Concepts and models for change
- Persuasion campaigning

SESSION 17: 8.30am – 12.30pm
MANAGING RESISTANCE & EMBEDDING CHANGE
- Learning from experience
- Emotional responses to change
- Rationalising resistance to change
- Handling conflict
- Sustaining change through the Improve & Control phases – and beyond
- Facilitating handover

IMPROVE PHASE

e-Learning (45 mins)
- Overview of the Improve Phase
- Process Analysis
- Pull & Flow

SESSION 18: 8.30am – 4.30pm
DEVELOPING THE IMPROVEMENT
- Taking a structured approach for the improve phase
- Use of creativity tools to generate alternative solutions
- Developing & evaluating alternative solutions
- Developing the future state map
- Verifying & implementing the solution

CONTROL PHASE

e-Learning (45 mins)
- Overview of the Control Phase
- Control Planning
- Mistake Proofing

SESSION 19: 8.30am – 4.30pm
COACHING IMPROVEMENT TEAMS
- The key skills of coaching
- The coaching continuum expert to discovery
- Using the GROW model

SESSION 20: 8.30am – 4.30pm
IMPLEMENTING CONTROL
- Key steps of the Control phase
- Confirming the improvement
- Developing a control plan
- Different types of process control
- The principle of mistake proofing
- Monitoring effectiveness
- Closing the improvement project

Calendar

	Session 1	Session 2	Session 3	Session 4	Session 5	Session 6	Session 7	Session 8	Session 9	Session 10	Session 11	Session 12	Session 13	Session 14	Session 15	Session 16	Session 17	Session 18	Session 19	Session 20
June 2024 course	10 Jun	11 Jun	13 Jun	21 Jun (PM)	25 Jun	5 Jul	9 Jul	15 Jul	25 Jul	26 Jul	12 Aug	13 Aug	21 Aug	22 Aug	23 Aug	30 Aug	5 Sep	6 Sep	12 Sep	13 Sep
September 2024 course	18 Sep	19 Sep	26 Sep	27 Sep (AM)	27 Sep (PM)	2 Oct	7 Oct	8 Oct	21 Oct	1 Nov	7 Nov	8 Nov	18 Nov	19 Nov	22 Nov	29 Nov	5 Dec	6 Dec	12 Dec	13 Dec

Cost

The cost per participant for the Black Belt virtual programme is £3550+VAT. This fee is fully inclusive of:

- ▶ 17½ days of live training
- ▶ Access to materials hub
- ▶ The full accreditation process: exam plus project assessment and certification

How to Book

Training Fee

The cost per participant is £3550+VAT.

Fees are fully inclusive of:
- Live training via MS Teams
- Access to materials hub
- The full accreditation process: exam plus project assessment and certification

Options

Coaching Support
This can be provided via a series of 3 x 1-hour 1-to-1 sessions, delivered via MS Teams. These can be scheduled to suit the progress of your project. The cost of the coaching package is £495+VAT.

Accreditation via British Quality Foundation (BQF)
The option for accreditation via the internationally recognised body of the British Quality Foundation is available for an additional fee of £250+VAT.

Booking Process

Please email Smallpeice via train@smallpeice.com with your enquiry/ requirements.

Our experienced Lean Six Sigma booking team will then send you a booking form. Following enrolment, we will onboard participants to the programme platform which will provide a detailed menu of activities and preparation.

Payment Terms
- An invoice will be issued following receipt of a confirmed booking.
- Payment is due 30 days from the invoice date.
- Payment can be made via credit card or bank transfer. Payment details can be found on the invoice.

Cancellation Terms
If you should have to cancel a registration, the following options are available:
- Send a substitute delegate at no additional charge
- Incur a cancellation fee based on the following timescales:
  - If you cancel prior to 30 working days before the course you will be charged a cancellation fee of 20% of the course fee
  - If you cancel less than 30 working days, but prior to 10 working days before the course, you will be charged a cancellation fee of 50% of the course fee
- We regret that we cannot accept cancellations that are received less than 10 working days before the course start date.
- Please confirm your cancellation in writing.

Smallpeice Enterprises reserves the right to cancel courses if necessary. Delegates will be given advance notice of any such changes. Please do not send payment with this form – an invoice will be despatched.

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