

“ Lean Six Sigma Training & Certification ”

Six Sigma Courses

Professional Development Training has a specialised division of Six Sigma experts that will tailor the delivery of any of the courses to be specific to your situation and learning needs

Six Sigma Courses

- Lean Six Sigma Introduction
- Lean Six Sigma Yellow Belt Certification Training
- Lean Six Sigma Green Belt Certification Training
- Lean Six Sigma Black Belt Certification Training
- Lean Six Sigma Team Members Training Course
- Lean Six Sigma Process Management Training Course
- Lean Six Sigma Awareness Training Course
- Lean Six Sigma Champions Course
- Lean Six Sigma Project Selection Training Course
- Lean Six Sigma - Executive Briefing
- Lean Six Sigma Green Belt Certification Training Upgrade from Yellow Belt Course
- Lean Six Sigma Black Belt Certification Training Upgrade from Green Belt Course

Our trainer Kirsty was excellent, she listened to how our business operates & made the content more relevant to us. Also listened to what we hoped to achieve & added extra content to suit. Excellent, fun, stimulating and entirely appropriate for my needs. Thank You

Public Class Participant - Time Management



Essential Skills for Controlling Cost and Managing Efficiency

Professional Development Training has a specialised division of Six Sigma experts that will tailor the delivery of any of the courses to be specific to your situation and learning needs.

Our extensive curriculum in Six Sigma, outstanding depth of trainers across the country and diverse range of industry experience means that pd training is the best choice for Six Sigma courses.

pd training will exceed your expectations and help you achieve the results you are seeking.

In-House Training

Public Courses

In-House Training Benefits:

- Tailored to your needs and goals
- Cost-effective - from \$140 per person (full-day)
- You choose the day, place and time
- Greatest impact in the shortest time
- Great team building opportunity
- Convenient - Employees do not need to go off-site

Tailored Delivery – Standard

We will always tailor the delivery of your In-House Training course to ensure it is relevant to your team and targeted at your learning goals. We can incorporate your company's examples and terminology to ensure that the training can be directly related back to your workplace. This is standard and included in the price.

The "1-hour Motivator" Training Sessions

These 60-90 minute sessions are highly motivating and thought-provoking - ideal for those people who need to fit training in around a busy work schedule - great as an early morning kick-start or lunchtime boost!

Full-day Short Courses

1-day and 2-day short courses are delivered with a unique focus on 80% activities 20% content - just the way learning should be!

The "3-hour Power" Sessions

3-hour power sessions are a great solution when you have very specific outcomes you are targeting, or if scheduling the team to be off the job for a whole day is proving to be a challenge!

Conferences and Workshops

Do you want your conference to be memorable, fun, interactive and be a real highlight? pd training's dynamic trainers can add that flair, excitement and much more!

Expert Trainers

"While you are training with us, you receive experiential training from an expert in their field which ensures you can apply what you have learned directly back to your workplace. When you are training with us, you are there to learn from the trainer, not the manual!"

Training Style:

Your course will be activity-based learning. You receive some background theory, and then spend most of the time working together and with the trainer to apply the concepts to workplace situations that are applicable to your specific situation.

Class Size:

Classes are an average of 6 people, max of 12. We keep classes small to ensure the trainer can work with each participant to tailor each activity to be relevant to each person's workplace/common scenarios.

Where:

Sydney, Melbourne, Brisbane, Canberra, Adelaide, Perth, Parramatta.

Scheduling & Times:

Classes run from 9:00am - 4:30pm each day

Quality Lunch (tell us your dietary requirements)

Comprehensive up-to-date courseware

Practical & Real - Activities tailored to you...

Training is much more effective and enjoyable if you can apply the concepts you learn directly to your own circumstances. So the trainer will change textbook activities to be relevant to you.

For example:

If the example activity is based in a retail setting, but you work in a customer service call-centre, we will adapt activities to reflect the culture of a call-centre environment, so your team will be learning relational tools and techniques that really make sense to their world. Helping you learn today, and

Fun & Relaxed - Laugh while you learn...

Our relaxed and practical approach with experienced trainers that like to 'have a laugh' will ensure you enjoy the experience of learning as much as you enjoy acquiring new skills that help you perform better.

Yes, lunch is free - and we all like a free lunch. However, the highlight of your course will be the learning experience - not the break!



Customised, Interactive
and Practical

Each course involves about 20 activities each day to assist practical skill development and understanding of concepts. Training is customised according to the requirements of the participants for maximum benefit.

Considering your needs, pd training has made Administration available at your place, online and at various locations across Australia. The courses are designed to be of short-duration, lively, informal and highly valuable.



Making Training
Accessible



World Leading
Reinforcement
Framework

Reinforcement Package

- Training Booster Reinforcement System
- Free Re-sit
- eHelpDesk Support
- Bonus Supplementary eLearning
- Quick Reference Job Aid
- Hours of Business Video content

Six Sigma is a data-driven approach for eliminating defects and waste in any business process. You can compare Six Sigma with turning on your water tap and experiencing the flow of clean, clear water. Reliable systems are in place to purify, treat and maintain water pressure through the system. That is what Six Sigma does to business: treats the processes in business so that they deliver their intended result. Lean Six Sigma Introduction Training Courses, full of practical hands-on activities, are run by Lean Six Sigma experts in Brisbane, Sydney, Parramatta, Melbourne, Canberra, Adelaide and Perth.

Lean Six Sigma Introduction Course Outline

Foreword:

This course has been developed to enhance the knowledge and capability of people involved in the daily operation of business processes.

The goal of this training is to:

- Increase your knowledge of Process Management, Six Sigma and Lean techniques as Business Process Improvement methodologies.
- Increase your skills at improving the ease and performance of the processes in which you work.
- To gain an understanding of your role as a process team member for the achievement of business success.
- To select and improve one of the process you either own or work in.

Outcomes:

Obtain a working understanding of Process Management, Six Sigma and Lean

- Know and apply the basic concepts
- Demonstrate use of the terminology

Comprehend daily work as a process-oriented activity

- Understand process inputs and outputs
- Understand process flow and know what determines value add vs. non-value add
- Understand how the processes you are a part of fit into the larger set of processes needed in delivering value to the customer

Perform Process Mapping and characterization

- Create a detailed Process Map of a process you are personally involved in.
- Prioritize significant outputs from the process and quantify their level of performance to requirements.
- Identify inputs and their relationship to the significant outputs.

Perform process improvement activities

- Improve a process you are personally involved in using Process Management, Six Sigma methods and Lean Principles to improve its performance.
- Continue to improve other processes.

Establish control mechanisms and monitoring processes to sustain an existing process and/or any improvements you make.

Understanding Lean

- About Six Sigma
- About Lean
- History behind Lean
- Toyota Production Systems
- The Toyota Precepts

Liker's Toyota Way

- Philosophy
- Process
- People and Partners
- Problem Solving

The TPS House

- The Goals of TPS
- The First Pillar: Just In Time (JIT)
- The Second Pillar: Jidoka (Error-Free Production)
- Kaizen (continuous improvement)
- The foundation of the house

The Five Principles of Lean Business

- Value
- Value stream
- Flow
- Pull

The First Improvement Concept (Value)

- Basic characteristics
- Satisfiers
- Delighters
- Applying the Kano Model

The Second Improvement Concept (Waste)

- Muda
- Mura
- Muri
- The New Wastes

The Third Improvement Concept (Variation)

- Common Cause
- Special Cause
- Tampering
- Structural

The Fourth Improvement Concept (Complexity)

- What is complexity?
- What causes complexity?
- How to simplify?

The Fifth Improvement Concept (Continuous improvement)

- The PDSA Cycle (Plan, Do, Study, Act)
- The DMAIC Method

The Improvement Toolkit

- Gemba
- Genchi Genbutsu

- Womack's Principle
- Kaizen
- A Roadmap for implementation



Lean Six Sigma Yellow Belt 3-day Certification Training Course

Comprehensive training and exam preparation to achieve Yellow Belt Certification with the International Association of Six Sigma Certification (IASSC) – the highly regarded independent global Yellow Belt Certification.

Australia's best Lean Six Sigma Yellow Belt Training courses, run by LSS experts, are available now in Brisbane, Sydney, Parramatta, Melbourne, Canberra, Adelaide and Perth.

Multi-national corporations can work with pd training to implement the highest standards of Continuous Improvement and [Lean Six Sigma globally](#) benchmarked by the [IASSC Certification](#) standards.

Lean Six Sigma Yellow Belt Certification Training Course Outline

Foreword:

The pd training Yellow Belt Certification Training course is a practical training experience including use of many LSS tools and techniques in a range of activities and scenarios.

You will learn theory, and practice applying the theory so that you will be well prepared to take the IASSC exam and be ready to contribute as a respected member of Continuous Improvement Projects.

The implementation road maps within each phase provide a clear path for putting into practice the problem solving methodologies and measurement tools. Various group exercises using training activities, data sets and templates facilitate interactive group learning and collaboration.

Our expert LSS trainers look forward to welcoming you to the class and empowering you with skills and techniques you can put into practice on the job, and advance your career.

Outcomes:

During this course, you will develop:

- Complete understanding of Six Sigma
- Ability to improve processes for enhanced product quality
- Understanding of the tactical and strategic aspects of Lean Six Sigma
- Understanding of process capability
- Skill to Define, Measure, Analyse, Improve and Control (DMAIC) processes
- Understanding of process discovery
- An accurate system of predicting outcomes, measurable and quantifiable
- Clear understanding of goals
- A highly effective methodology to improve processes drastically
- Methods to minimise variability in processes
- Capability to maximise production by fully utilising the potential of processes
- Ability to reduce waste through the identification and removal of present and potential errors
- Control over defects for their effective prevention
- Means to build strong managers and leaders
- A highly effective quality management system
- Smoother, faster and error-free processes
- Effective means to drastically increase savings through reduction in waste and improvement in processes

Yellow Belt Define Phase

Phase Description:

The Define Phase of the DMAIC methodology is constructed to introduce the fundamentals of Lean Six Sigma. There are 5 modules in this phase:

Understanding Six Sigma.

- Deliverables
- Describe the objectives of Six Sigma
- Describe the relationship between variation and sigma
- Recognise some Six Sigma concepts
- Recognise the Six Sigma implementation model
- Describe your role and responsibilities in Six Sigma

Six Sigma Fundamentals

- Deliverables
- Describe what is meant by "Process Focus"
- Describe the importance of VOC, VOB, and VOE, and CTQ's
- Explain COPQ
- Generate a Process Map
- Describe the Basic Six Sigma metrics
- Explain the difference between FTY and RTY
- Explain the difference between DPU and DPMO

Selecting Projects:

- Deliverables
- Utilize a structured approach to select projects
- Refine and Define the problem into a Project Charter
- Make an initial estimate of your project's benefits

Elements of Waste:

- Deliverables
- Have a clear understanding of the specific deliverables
- Have started to develop a Project Plan to meet the deliverables
- Have identified ways to deal with potential roadblocks
- Be ready to apply the Six Sigma method through your project

Wrap Up & Action Items

LSS Yellow Belt Measure Phase

Phase Description:

The Measure Phase of the DMAIC methodology is constructed to introduce important Six Sigma tools for characterizing your business issues. There are 6 modules in this phase:

Process Discovery

- Deliverables
- Create a high level Process Map
- Create a Fishbone Diagram
- Create an X-Y Diagram
- Describe the elements of a FMEA
- Explain the importance of a FMEA
- Describe why each tool is important

Six Sigma Statistics

- Deliverables
- Explain the various statistics used to express location and spread of data
- Describe the characteristics of a Normal Distribution

- Test for Normality
- Describe the difference between Special Cause and Common Cause Variation
- Generate a variety of graphs for data

Measurement System Analysis

- Deliverables
- Perform the step by step methodology in Variable and Attribute MSA's
- Identify the various components of variation so corrections can be made and the gage error reduced
- Recognise the differences between Repeatability, Reproducibility, Accuracy and Calibration

Process Capability

- Deliverables
- Estimate Capability for Continuous Data
- Describe the impact of Non-normal Data on the analysis presented in this module for Continuous Capability
- Estimate Capability for Attribute Data

Wrap Up & Action Items

LSS Yellow Belt Control Phase

Phase Description:

The Control Phase of the DMAIC methodology is constructed to introduce important Lean Six Sigma tools for properly controlling solutions. There are five modules in this phase:

Welcome to Control

- Lean Controls
- Deliverables
- Describe Lean tools
- Understand how these tools can help with project sustainability
- Understand how the Lean tools depends on each other
- Understand how tools must document the defect prevention created in the Control Phase

Defect Controls

- Deliverables
- Describe some methods of defect prevention
- Understand how these techniques can help with project sustainability
- Including reducing those outliers as seen in the Advanced Process Capability section
- If the vital X was identified, prevent the cause of defective Y
- Understand what tools must document the defect prevention created in the Control Phase

Six Sigma Control Plans

- Deliverables
- Understand the 5 phases of the Control Plan
- Training
- Documentation
- Monitoring
- Response
- Aligning Systems and Structures

Wrap Up & Action Items



Comprehensive training and exam preparation to achieve Green Belt Certification with the International Association of Six Sigma Certification – the most highly regarded independent global Green Belt Certification.

This course is a comprehensive course that doesn't require a pre-requisite course. People learn the foundation skills and develop up to Green Belt level. However, this course covers a lot of ground in lots of detail, so be prepared to learn a lot each and every day.

For participants focused on Certification, it is important to know that the IASSC Global Certification is exam based. Which means you can sit the exam and become certified as soon as you are ready to sit the stringent exam - based on global benchmarks.

pd training is Australia's only provider accredited by the IASSC, our Lean Six Sigma Green Belt Training courses are run by LSS experts. Accepting enrolments now in Brisbane, Sydney, Parramatta, Melbourne, Canberra, Adelaide and Perth.

Lean Six Sigma Green Belt Certification Training Course Outline

Foreword:

The Lean Six Sigma Green Belt Certification is a highly respected credential - it means you demonstrate mastery of methodologies and techniques required to help drive Continuous Improvement projects that have measurable commercially focused outcomes.

This training course will provide you with the theory and then the opportunity to practice the techniques to help you reach the standard of Lean Six Sigma - Green Belt.

You will be supported by Australia's leading trainers, and become part of a global network of Six Sigma and Continuous Improvement specialists through pd training and the IASSC.

Outcomes:

During this course, you will develop:

- Understanding of the concepts, implementation & objectives of Six Sigma
- Ability to use a structured approach to process improvement
- Ability to use DMAIC (Define, Measure, Analyse, Implement and Control) methodology
- Skill to predict, prevent and control defects in a process
- Understanding of the elements of waste
- Skills to achieve sustainable quality improvement through process improvement
- Understanding of the tools of process discovery
- Understanding of variation in processes
- Skills to reduce variation in processes and achieve predicted outcomes
- Ability to identify, measure and analyse process potential
- Usage of inferential statistics
- Usage of hypothesis testing
- Understanding when to use which Six Sigma methodology
- Ability to use Capability Analysis to control processes
- Knowledge of the interdependence of Lean tools
- Skills to prevent, identify and control defects
- Understanding and use of statistical process control
- Skills to train, document, monitor, respond, and align systems
- Skills to provide sustainable and cost-effective improvement in processes

LSS Green Belt Define Phase

Phase Description:

The Define Phase of the DMAIC methodology is constructed to introduce the fundamentals of Lean Six Sigma. There are five modules in this phase:

Understanding Six Sigma

- Describe the objectives of Six Sigma
- Describe the relationship between variation and sigma
- Recognise some Six Sigma concepts
- Recognise the Six Sigma implementation model
- Describe your role and responsibilities in Six Sigma

Six Sigma Fundamentals

- Describe what is meant by “Process Focus”
- Describe the importance of VOC, VOB, and VOE, and CTQ’s
- Explain COPQ
- Generate a Process Map
- Describe the Basic Six Sigma metrics
- Explain the difference between FTY and RTY
- Explain the difference between DPU and DPMO

Selecting Projects

- Utilize a structured approach to select projects
- Refine and Define the problem into a Project Charter
- Make an initial estimate of your project’s benefits

Elements of Waste

- Have a clear understanding of the specific deliverables
- Have started to develop a Project Plan to meet the deliverables
- Have identified ways to deal with potential roadblocks
- Be ready to apply the Six Sigma method through your project

Wrap Up & Action Items

LSS Green Belt Measure Phase

Phase Description:

The Measure Phase of the DMAIC methodology is constructed to introduce important Lean Six Sigma tools for characterizing your business issues. There are six modules in this phase:

Welcome to Measure

Process Discovery

- Create a high level Process Map
- Create a Fishbone Diagram
- Create an X-Y Diagram
- Describe the elements of a FMEA
- Explain the importance of a FMEA
- Describe why each tool is important

Six Sigma Statistics

- Explain the various statistics used to express location and spread of data
- Describe the characteristics of a Normal Distribution
- Test for Normality
- Describe the difference between Special Cause and Common Cause Variation
- Generate a variety of graphs for data

Measurement System Analysis

- Perform the step by step methodology in Variable and Attribute MSA's
- Identify the various components of variation so corrections can be made and the gage error reduced
- Recognise the differences between Repeatability, Reproducibility, Accuracy and Calibration

Process Capability

- Estimate Capability for Continuous Data
- Describe the impact of Non-normal Data on the analysis presented in this module for Continuous Capability
- Estimate Capability for Attribute Data

Wrap Up & Action Items

LSS Green Belt Analyze Phase

Phase Description:

The Analyze Phase of the DMAIC methodology is constructed to introduce important Lean Six Sigma tools for isolating critical factors. There are nine modules in this phase:

Welcome to Analyze

“X” Sifting

- Perform a Multi-Vari Analysis
- Interpret and a Multi-Vari Graph
- Identify when a Multi-Vari Analysis is applicable
- Interpret what Skewed data looks like
- Explain how data distributions become Non-normal when they are really Normal

Inferential Statistics

- Explain the meaning of the term “Inferential Statistics”.
- Describe the basic tenets of the Central Limit Theorem.
- Describe the impact of sample size on your estimates of population parameters.
- Explain Standard Error

Intro to Hypothesis Testing

- Articulate the purpose of Hypothesis Testing
- Explain the concepts of the Central Tendency
- Be familiar with the types of Hypothesis Tests

Hypothesis Testing Normal Data Part 1

- Determine appropriate sample sizes for testing Means
- Conduct various Hypothesis Tests for Means
- Properly Analyze Results

Hypothesis Testing Normal Data Part 2

- Be able to conduct Hypothesis Testing of Variances
- Understand how to Analyze Hypothesis Testing Results

Hypothesis Testing Non-Normal Data Part 1

- Conduct Hypothesis Testing for equal variance
- Conduct Hypothesis Testing for Medians
- Analyze and interpret the results

Hypothesis Testing Non-Normal Data Part 2

- Calculate and explain test for proportions
- Calculate and explain contingency tests

Wrap Up & Action Items

LSS Green Belt Improve Phase

Phase Description:

The Improve Phase of the DMAIC methodology is constructed to introduce important Lean Six Sigma tools for properly controlling solutions. There are five modules in this phase:

Welcome to Improve

Process Modeling Regression

- Perform the steps in a Correlation and a Regression Analysis
- Explain when Correlation and Regression is appropriate

Advanced Process Modeling

- Perform Non-Linear Regression Analysis
- Perform Multiple Linear Regression Analysis (MLR)
- Examine Residuals Analysis and understand its effects

Designing Experiments

- Determine the reason for experimenting
- Describe the difference between a physical model and a DOE model
- Explain an OFAT experiment and its primary weakness
- Shown Main Effects Plots and interactions, determine which effects and interactions may be significant
- Create a Full Factorial Design

Wrap Up & Action Items

LSS Green Belt Control Phase

Phase Description:

The Control Phase of the DMAIC methodology is constructed to introduce important Lean Six Sigma tools for properly controlling solutions. There are eight modules in this phase:

Welcome to Control

Advanced Experiments

- Use the results of a DOE to determine how to further optimize a process using the steepest ascent/descent method

Capability Analysis

- Understand the importance of Capability Analysis as it is applied in the Control Phase
- Select the appropriate method for Capability Analysis based on the type of data distribution of your process
- Interpret the output of MINITAB's Capability functions
- Understand how the use for Capability Analysis may alter through the DMAIC phases

Lean Controls

- Describe Lean tools
- Understand how these tools can help with project sustainability
- Understand how the Lean tools depends on each other
- Understand how tools must document the defect prevention created in the Control Phase

Defect Controls

- Describe some methods of defect prevention
- Understand how these techniques can help with project sustainability
 - Including reducing those outliers as seen in the Advanced Process Capability section
 - If the vital X was identified, prevent the cause of defective Y
- Understand what tools must document the defect prevention created in the Control Phase

Statistical Process Control - SPC

- Describe the elements of an SPC Chart and the purposes of SPC
- Understand how SPC ranks in defect prevention
- Describe the 9 Step route or methodology of implementing a chart
- Design subgroups if needed for SPC usage
- Determine the frequency of sampling
- Understand the Control Chart selection methodology
- Be familiar with Control Chart parameter calculations such as UCL, LCL and the Center Line

Six Sigma Control Plans

- Understand the 5 phases of the Control Plan
 - Training
 - Documentation
 - Monitoring
 - Response
 - Aligning Systems and Structures

Wrap Up & Action Items



Comprehensive training and exam preparation to achieve Black Belt Certification with the International Association of Six Sigma Certification – the most highly regarded independent global benchmark for Six Sigma Certification. Australia's best Lean Six Sigma Black Belt Training courses, run by Black Belts and Master Black Belts, is now available in Brisbane, Sydney, Parramatta, Melbourne, Canberra, Adelaide and Perth. The training supports companies to adopt global Six Sigma and Lean best practice [across the world](#).

Lean Six Sigma Black Belt Certification Training Course Outline

Foreword:

This Lean Six Sigma Black Belt Training is 10-days of comprehensive theory, practical application and advanced statistical analysis and modelling. Whilst there is no formal pre-requisite (you don't have to be Yellow or Green Belt to enrol in this course), people with prior experience and advanced mathematical competencies will find it easier to keep up with the pace sheer volume of content.

Upon completion of this course you will have covered all the materials and concepts required to drive significant change within any organisation, and have covered all concepts required to successfully pass the stringent IASSC Certification exam.

You'll learn from the best in the business, who will share decades of experience with you, and you'll be ready to take your career to the next level.

Outcomes:

During this course, you will develop the:

- Understanding and implementation of the concepts of Six Sigma
- Ability to plan projects to achieve maximum process efficiency
- Capability to recognise elements of waste and countering them
- Skills to measure key aspects of a process to collect relevant data
- Ability to create a process map
- Ability to identify and measure process capability
- Ability to analyse data accurately to find cause-and-effect relationship and identify the root cause of errors
- Hypothesis testing knowledge
- Ability to improve processes based on analysis
- Understanding of how to use various industry models for process improvement
- Ability to control processes
- Ability to ensure errors are removed before they can damage a process
- Understanding of capability analysis
- Understanding and use of lean
- Skills to control processes, productivity and waste

LSS Black Belt Define Phase

Phase Description:

The Define Phase of the DMAIC methodology is constructed to introduce the core fundamentals of Six Sigma. There are 5 modules in this phase:

Understanding Six Sigma

- Describe the objectives of Six Sigma
- Describe the relationship between variation and sigma
- Recognise some Six Sigma concepts
- Recognise the Six Sigma implementation model
- Describe your role and responsibilities in Six Sigma

Six Sigma Fundamentals

- Describe what is meant by “Process Focus”
- Describe the importance of VOC, VOB, and VOE, and CTQ’s
- Explain COPQ
- Generate a Process Map
- Describe the Basic Six Sigma metrics
- Explain the difference between FTY and RTY
- Explain the difference between DPU and DPMO

Selecting Projects

- Utilize a structured approach to select projects
- Refine and Define the problem into a Project Charter
- Make an initial estimate of your project’s benefits

Elements of Waste

- Have a clear understanding of the specific deliverables
- Have started to develop a Project Plan to meet the deliverables
- Have identified ways to deal with potential roadblocks
- Be ready to apply the Six Sigma method through your project

Wrap Up & Action Items

LSS Black Belt Measure Phase

Phase Description:

The Measure Phase of the DMAIC methodology is constructed to introduce important Six Sigma tools for characterizing your business issues. There are 6 modules in this phase:

Welcome to Measure

Process Discovery

- Create a high level Process Map
- Create a Fishbone Diagram
- Create an X-Y Diagram
- Describe the elements of a FMEA
- Explain the importance of a FMEA
- Describe why each tool is important

Six Sigma Statistics

- Explain the various statistics used to express location and spread of data
- Describe the characteristics of a Normal Distribution
- Test for Normality
- Describe the difference between Special Cause and Common Cause Variation
- Generate a variety of graphs for data

Measurement System Analysis

- Perform the step by step methodology in Variable and Attribute MSA's
- Identify the various components of variation so corrections can be made and the gage error reduced
- Recognise the differences between Repeatability, Reproducibility, Accuracy and Calibration

Process Capability

- Estimate Capability for Continuous Data
- Describe the impact of Non-normal Data on the analysis presented in this module for Continuous Capability
- Estimate Capability for Attribute Data

Wrap Up & Action Items

LSS Black Belt Analyze Phase

Phase Description:

The Analyze Phase of the DMAIC methodology is constructed to introduce important Six Sigma tools for isolating critical factors. There are 9 modules in this phase:

Welcome to Analyze

“X” Sifting

- Perform a Multi-Vari Analysis
- Interpret and a Multi-Vari Graph
- Identify when a Multi-Vari Analysis is applicable
- Interpret what Skewed data looks like
- Explain how data distributions become Non-normal when they are really Normal

Inferential Statistics

- Explain the meaning of the term “Inferential Statistics”.
- Describe the basic tenets of the Central Limit Theorem.
- Describe the impact of sample size on your estimates of population parameters.
- Explain Standard Error

Intro to Hypothesis Testing

- Articulate the purpose of Hypothesis Testing
- Explain the concepts of the Central Tendency
- Be familiar with the types of Hypothesis Tests

Hypothesis Testing Normal Data Part 1

- Determine appropriate sample sizes for testing Means
- Conduct various Hypothesis Tests for Means
- Properly Analyze Results

Hypothesis Testing Normal Data Part 2

- Be able to conduct Hypothesis Testing of Variances
- Understand how to Analyze Hypothesis Testing Results

Hypothesis Testing Non-Normal Data Part 1

- Conduct Hypothesis Testing for equal variance
- Conduct Hypothesis Testing for Medians
- Analyze and interpret the results

Hypothesis Testing Non-Normal Data Part 2

- Calculate and explain test for proportions
- Calculate and explain contingency tests

Wrap Up & Action Items

LSS Black Belt Improve Phase

Phase Description:

The Improve Phase of the DMAIC methodology is constructed to introduce important Lean Six Sigma tools for properly controlling solutions. There are eight modules in this phase:

Welcome to Improve

Process Modeling Regression

- Perform the steps in a Correlation and a Regression Analysis
- Explain when Correlation and Regression is appropriate

Advanced Process Modeling

- Perform Non-Linear Regression Analysis
- Perform Multiple Linear Regression Analysis
- Determine the reason for experimenting
- Describe the difference between a physical model and a DOE model
- Explain an OFAT experiment and its primary weakness
- Shown Main Effects Plots and interactions, determine which effects and interactions may be significant
- Create a Full Factorial Design

Experimental Methods

- Be able to Design, Conduct and Analyze an Experiment

Full Factorial Experiments

- Understand how to Create Balanced & Orthogonal Designs
- Explain how Fit & Diagnose & Center Points factors into an experiment

Fractional Factorial Experiments

- Explain why & how to use a Fractional Factorial Design
- Create a proper Fractional Factorial Design
- Analyze a proper model with aliased interactions

Wrap Up & Action Items

LSS Black Belt Control Phase

Phase Description:

The Control Phase of the DMAIC methodology is constructed to introduce important Lean Six Sigma tools for properly controlling solutions. There are eight modules in this phase:

Welcome to Control

Advanced Experiments

- Use the results of a DOE to determine how to further optimize a process using the steepest ascent/descent method

Capability Analysis

- Understand the importance of Capability Analysis as it is applied in the Control Phase
- Select the appropriate method for Capability Analysis based on the type of data distribution of your process
- Interpret the output of MINITABTM's Capability functions
- Understand how the use for Capability Analysis may alter through the DMAIC phases

Lean Controls

- Describe Lean tools
- Understand how these tools can help with project sustainability
- Understand how the Lean tools depends on each other

- Understand how tools must document the defect prevention created in the Control Phase

Defect Controls

- Describe some methods of defect prevention
- Understand how these techniques can help with project sustainability
- Including reducing those outliers as seen in the Advanced Process Capability section
- If the vital X was identified, prevent the cause of defective Y
- Understand what tools must document the defect prevention created in the Control Phase

Statistical Process Control - SPC

- Describe the elements of an SPC Chart and the purposes of SPC
- Understand how SPC ranks in defect prevention
- Describe the 9 Step route or methodology of implementing a chart
- Design subgroups if needed for SPC usage
- Determine the frequency of sampling
- Understand the Control Chart selection methodology
- Be familiar with Control Chart parameter calculations such as UCL, LCL and the Center Line

Six Sigma Control Plans

- Understand the 5 phases of the Control Plan
- Training
- Documentation
- Monitoring
- Response
- Aligning Systems and Structures

Wrap Up & Action Items

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Team Member Series

**Lean Six Sigma
Team Member
Training**

Empower your team to support and Contribute to Process Improvement

Six Sigma Projects can sound threatening and ominous to general staff not included as part of the planning and initiation phases of the project(s).

As part of the change management process in Six Sigma initiatives it is vital to provide the team with enough knowledge to understand the benefits to the business and the customers - and empower them to contribute.

This course is an important step in that education and change management process.

This course is now available in Brisbane, Sydney, Parramatta, Melbourne, Canberra, Adelaide and Perth.

Lean Six Sigma Team Members Training Course Course Outline

Foreword:

This class is designed as an applied learning experience we sometimes refer to as “Train – Do”. You will be taught how to identify and select a key process you are involved in and then how to fully characterize this process.

You will find that the characterization activity will naturally lead to improvement. In most cases the improvement results in increased performance of the process and your ease in performing or supporting the process.

You will also learn how to maintain or sustain the performance of a process by either monitoring or applying specific control techniques. From here you will be well equipped to make improvements to almost any process.

Outcomes:

In this introductory level Six Sigma Course, participants will:

Obtain a working understanding of Lean Six Sigma

- Know and apply the basic concepts
- Demonstrate use of the terminology

Comprehend daily work as a process-oriented activity

- Understand process inputs and outputs
- Understand process flow and know what determines value add vs. non value add

Understand how the processes you are a part of fit into the larger set of processes needed in delivering value to the customer- Perform Process Mapping and characterization

- Create a detailed Process Map of a process you are personally involved in
- Prioritize significant outputs and quantify their level of performance to requirements
- Identify inputs and their relationship to the significant outputs

Be able to perform process improvement activities

- Improve a process you are involved in using Lean Six Sigma methods
- Continue to improve other processes

Understand how to establish control mechanisms and monitoring processes

- Sustain an existing process and/or any improvements you make.

**Course outline - Lean Six Sigma Team Members Course
(this is an expanded course with the same structure as the Awareness course)**

Lean Six Sigma Team Member Training Course Lesson 1

Opening – Competition

- The importance of Continuous Improvement in business and government.

Lean Six Sigma Team Member Training Course Lesson 2

Process Management

- Definitions
- Process Ownership
- Cost of Poor Quality

Lean Six Sigma Team Member Training Course Lesson 3

Lean Principles

- Seven Areas of Waste
- Value Stream Analysis
- 5S Principles
- Poka-Yoke Methods

Lean Six Sigma Team Member Training Course Lesson 4

Six Sigma

- Define Phase
- Measure Phase
- Analyze Phase
- Improve Phase
- Control Phase

The logo features the number '6' followed by the Greek letter sigma 'σ' in a large, bold, black font.

Team Member Series

**Lean Six Sigma
Process Management
Training**

This course addresses the use of Process Management, Basic Statistics and Basic Lean Six Sigma methodologies to improve the performance of all processes within an organization. The pd training Process Management Course demonstrates how to identify and select key business processes and how to fully characterize, improve and manage them.

Lean Six Sigma Process Management training courses, full of practical activities, are run by LSS experts Training in Brisbane, Sydney, Parramatta, Melbourne, Canberra, Adelaide and Perth.

Lean Six Sigma Process Management Training Course Course Outline

Foreword:

The Process Management Course breaks down how to manage business processes so they are effective, efficient and adaptable. Through the use of various tools, methodologies, management approaches and technologies you will learn that Process Management is the collection and orchestration of these efforts in order to assure improvement and success.

Outcomes:

This Six Sigma course focusses on the 'doing' of a Six Sigma project. This course is designed to empower participants to work with project team members in the analysis, measurement, and re-design of business processes.

The course is full of practical tools and some statistical analysis.

This Six Sigma Process course is suitable for people such as SME's that may not manage the project or specifically manage the change, but their knowledge about processes and their contributions to the improvement initiative are vital.

Lean Six Sigma Process Training Course

Introduction - Define and Measure Phases

- Introduction to Process Management
- Introduction to Six Sigma

Basic Statistics for Process Management

Descriptive Statistics

- Variation, Probability, Specifications
- Statistical Analysis: Sigma Score, Z Table

Cost of Poor Quality (COPQ)

Define Phase

- Selecting a Key Process
- Key Process Prioritization Matrix
- Defining a Project
- Problem Statement
- Objective Statement

Measure Phase: Part One – Process Mapping

Introduction to Process Mapping

- SIPOC Diagrams
- Controllable Inputs and Noise
- Process Inputs and Outputs

Measure Phase: Part Two – Finding Potential X's

- Brainstorming Techniques
- Cause and Effect Diagram
- Affinity Diagram
- X-Y Matrix Analysis

Process Capability

Measurement System Analysis

Process Improvement Project

Analyze, Improve & Control Phases

Learning Roadmap

Workplace Assignment Review

Defects, Defectives and Opportunities

- Defects Per Unit
- Defects Per Million Opportunities

Graphical Analysis

- Histogram
- Capability Analysis
- Run Charts
- Individuals Control Chart
- Box Plot
- Main Effects Plot
- Multi-Vari Chart
- Scatter Plot

Failure Modes and Effects Analysis

Lean Principles

- Lean Value Stream Analysis
- Applying the S Principles

Introduction to Improvement Experiments

- Poka-Yoke Methods
- Statistical Process Control
- Control Charts
- Tracking and Managing a Process

Finalizing Your Workplace Assignment



Team Member Series

**Lean Six Sigma
Team Member
Awareness**

Empower your team to embrace change

This introductory level Lean Six Sigma Team Member Awareness course prepares participants to support continuous improvement as a team member in a process affected by a Six Sigma improvement project.

This training course is available throughout Australia, including Brisbane, Sydney, Parramatta, Melbourne, Adelaide, Canberra, and Perth.

Lean Six Sigma Awareness Training Course Course Outline

Foreword:

As a company implements a Lean Six Sigma Program it is essential all employees understand the objectives and terminology to be used.

This course helps demystify the terminology, and goals of Six Sigma Continuous Improvement projects, thereby reducing fear, and empowering everyone to contribute.

Teams will be formed to conduct improvement projects. The “talk of the town” will be Lean Six Sigma. To engage all employees in the ground swell to improving all processes this course provides learning relative to terminology, objectives and the role each employee can play in this effort.

Outcomes:

During this Six Sigma Awareness course participants will:

- Develop awareness Lean Six Sigma principals and goals.
- Increase their willingness and ability to contribute to Continual Improvement Projects.
- Develop an understanding of their role as a process team member, and how they can contribute to process re-design.

Lean Six Sigma Team Member Awareness Training Course Lesson 1

Opening – Competition

- The importance of Continuous Improvement in business and government.

Lean Six Sigma Team Member Awareness Training Course Lesson 2

Process Management

- Definitions
- Process Ownership
- Cost of Poor Quality

Lean Six Sigma Team Member Awareness Training Course Lesson 3

Lean Principles

- Seven Areas of Waste
- Value Stream Analysis
- 5S Principles
- Poka-Yoke Methods

Lean Six Sigma Team Member Awareness Training Course Lesson 4

Six Sigma

- Define Phase
- Measure Phase
- Analyze Phase
- Improve Phase
- Control Phase



Lean Six Sigma Champions Course

Lean Six Sigma Champion

Lean Six Sigma Champions are key players in the success of any Lean Six Sigma deployment and are typically responsible for Project Selection, Team assignments and progress tracking. This course prepares one to fulfil that role. This training course is delivered by Lean Six Sigma experts and is available throughout Australia, including Brisbane, Sydney, Parramatta, Melbourne, Adelaide, Canberra, and Perth.

Lean Six Sigma Champions Course Course Outline

Foreword:

This course has been designed to build your knowledge and ability to manage a Business Process Improvement initiative through the use of Lean Six Sigma methodologies.

While you will not be a practitioner of the technical skill sets of these methodologies, you must develop a working knowledge of the capabilities such that you can recognize where and how they can be applied to improve the business processes you manage.

As a Champion you will also be responsible for driving and inspiring change in your company. Improvements require change – people don't like to change – you will be tasked to see that they respond positively to the necessary changes. We will give you some guidance in that area.

The main focus of a Lean Six Sigma program is “the process”. Business is conducted through a series of processes yielding what your customers desire. By taking this course you will have a well rounded understanding of the approach your company is taking to implement these methodologies and improve your business. You will also be prepared to make significant contributions in this regard.

Outcomes:

This Six Sigma course prepares senior staff in the organisation to successfully sponsor and steer Six Sigma initiatives.

Participants will develop an understanding of the strategies, methodologies and tools employed by the Six Sigma projects, and have enough understanding to provide clear guidance and direction to project teams and their 'Belted' managers.

As well as high level understanding the course will provide some technical information in Six Sigma methodologies including:

- Process Management
- Lean Principles
- Six Sigma - DMAIC

and

- the responsibilities of Project Champions

Opening

- Competition

Process Management

- Definitions
- Process Ownership
- Cost of Poor Quality

Lean Principles

- Seven Areas of Waste
- Value Stream Analysis
- 5S Principles
- Poke-Yoke Methods

Six Sigma

- Define Phase
- Measure Phase
- Analyze Phase
- Improve Phase
- Control Phase

Champion Responsibilities

- Managing People through Change
- Project & Candidate Selection
- Project Tracking
- Communication & Recognition

Six Sigma Improvement Projects strategic selection - Recognise, Define, Launch... succeed!

Successful implementation of a Lean Six Sigma Program is dependent upon project selection – strategically correct project selection will make or break an improvement program.

This course guides management through a process to assure projects focus on the most impactful activities, and receive effective allocation of resources.

According to Lean Six Sigma initiatives, it is vital to select the right projects. This Lean Six Sigma Project Selection Training course teaches you how, call today for a course in Brisbane, Sydney, Parramatta, Melbourne, Canberra, Adelaide or Perth. Ph: 1300 121 400

Lean Six Sigma Project Selection Training Course Course Outline

Foreword:

This Six Sigma Project selection course will empower you to take a giant leap forward in improving your business. During this course you will learn to recognise multiple areas of opportunity for improvement, Define the opportunities and create a launch plan to achieve those improvements. There is a lot covered in this course, but it really is as easy as 1-2-3.

Generating high impact projects consists of performing a Project Selection Process (“PSP”) to identify the company’s areas of concern; those areas where significant business problems or opportunities exist. The opportunity analysis is performed through two primary approaches:

- 1) by identifying any and all opportunities perceived by the management team and
- 2) by identifying specific problems which are preventing the accomplishment of specific goals and objectives of the organization.

Following this process will allow any business unit manager, from Department Manager through Chief Executive Officer, to identify ALL opportunities for improvement throughout the business unit. The opportunities identified may relate to any and all of the corporate strategies – they needn’t be solely financial savings in nature.

The methodology of the PSP will create a fertile and highly structured list of projects linked to strategy and projected benefits (usually dollars) that are then organized by area and responsibility. Assisting the PSP methodology is a process for defining projects, assuring they are clearly written with all of the essential information to achieve meaningful results. The PSP is a complete methodology from project ideation to project definition, selection and ongoing management through the business improvement roadmap.

Outcomes:

- Understand the importance of project selection for LSS success
- Be able to identify the best opportunities within their organisation for measurable and achievable success
- Understand LSS principals and processes
- Be able to contribute to LSS strategy meetings
- Ensure LSS initiatives put their focus into the highest pay-off projects

Opening

- The Project Roadmap

Recognize Phase

- Opportunity Definition
- Problematic Areas

Problem Statement Creation

- Problem Statement Objectives
- Examples – Good and Bad

Affinity Diagramming

- Step-by-Step Process
- Affinity Diagramming Outputs

Define Phase

- Steps for Defining a Project
- Champion Project Worksheet
- Objective Statement Creation
- Development of Project List
- Link to Corporate Strategies

Launch Phase

- Identify People Associated with Projects
- Obtain Approvals and Launch DMAIC

Glossary of Lean Six Sigma Terms

Templates

- Problem Statement Template
- Opportunity Analysis Matrix – Template
- Opportunity Analysis Matrix – Sample
- Project List – Template
- Project List – Sample
- Champion Project Worksheet – Template
- Champion Project Worksheet – Sample
- Project List – Template
- Project List - Sample

As a company considers the merits of undertaking a Lean Six Sigma Initiative, it's important that Executives understand the capabilities, resource commitment and resultant performance improvement expectations.

This LSS course from pd training empowers the Executive with that understanding.

This training course is available throughout Australia, including Brisbane, Sydney, Melbourne, Adelaide, Canberra, and Perth.

Lean Six Sigma - Executive Briefing Course Outline

Foreword:

This course has been developed to create an awareness of the means of deploying and the impact of a Lean Six Sigma initiative as a Business Process Improvement program.

The goal of this training is to:

- Increase your understanding of Lean Six Sigma techniques as business process improvement methodologies.
- Assist you in assessing the impact such as a program may have for your company.
- To gain an understanding of the role you, as management, must undertake to achieve the greatest level of business success.

Personal Results

After successfully completing this course you will have enhanced your knowledge of process functionality, analytical skills, problem solving skills and methods for increasing the efficiency, effectiveness and adaptability of the organization you manage.

Specific LSS learning outcomes:

- Obtain an understanding of a Lean Six Sigma program objectives
 - Know and comprehend the impact the concepts can have on your business
 - Become familiar with the terminology
- Comprehend daily work as a process-oriented activity
 - Understand process inputs and outputs
 - Understand process flow and know what determines value add vs. non-value add
- Understand how the processes you manage fit into the larger set of processes needed in delivering value to the customer
 - Grasp the power of Process Mapping and characterization
 - Recognize significant outputs and quantify their level of performance to requirements
 - Identify inputs and their relationship to the significant outputs
 - Link key processes to the strategic objectives of the company
- Establish control mechanisms and monitoring processes to sustain an existing process and improvements you make.
- Prepare to implement a Lean Six Sigma
 - Determine the structure of such a program for your company
 - Learn to identify "projects", prioritize them and link them to corporate strategy

Outcomes:

During this course you will:

- Obtain an understanding of a Lean Six Sigma program objectives
 - Know and comprehend the impact the concepts can have on your business
 - Become familiar with the terminology
- Comprehend daily work as a process-oriented activity
 - Understand process inputs and outputs
 - Understand process flow and know what determines value add vs. non-value add
- Understand how the processes you manage fit into the larger set of processes needed in delivering value to the customer
 - Grasp the power of Process Mapping and characterization
 - Recognize significant outputs and quantify their level of performance to requirements
 - Identify inputs and their relationship to the significant outputs

- Link key processes to the strategic objectives of the company
- Establish control mechanisms and monitoring processes to sustain an existing process and improvements you make.
- Prepare to implement a Lean Six Sigma
 - Determine the structure of such a program for your company
 - Learn to identify “projects”, prioritize them and link them to corporate strategy

After successfully completing this course you will have enhanced your knowledge of process functionality, analytical skills, problem solving skills and methods for increasing the efficiency, effectiveness and adaptability of the organization you manage.

Opening

- Competition

Process Management

- Definitions
- Process Ownership
- Cost of Poor Quality

Lean Principles

- Seven Areas of Waste
- Value Stream Analysis
- 5S Principles
- Poka-Yoke Methods

Six Sigma

- Define Phase
- Measure Phase
- Analyze Phase
- Improve Phase
- Control Phase

Deployment Model

- Importing the Knowledge
- Lean Six Sigma Curriculum
- Lean Six Sigma Program Operations
- Communication & Recognition

Glossary of Lean Six Sigma Terms



This course is designed for people that have completed the pd training Yellow belt course, or an equivalent course with another provider.

Yellow Belt Training provides fundamental skills in the Define, Measure and Control steps of the DMAIC process, this upgrade to Green Belt provides significant depth in the Analyze and Improve phases and empowers people with the ability to really drive improvements in their workplace.

Lean Six Sigma Green Belt Certification Training Upgrade from Yellow Belt Course Course Outline

Foreword:

Prior to accepting your enrolment, pd training will provide you with an IASSC Practice Test to confirm your existing knowledge, and if accepted, will provide your Green Belt materials a week before the courseware early so you can review the materials early, and pick up with the training without missing a beat.

This upgrade course is days 4 and 5 of the complete 5-day Green belt course, it pick up from where the Yellow Belt training ends.

Moving up from Yellow Belt to Green Belt you develop substantial skills in the **Analyse** and **Improve** phases of DMAIC.

Outcomes:

During this course, participants will enhance their skills above the Yellow Belt level and develop:

- Ability to use a structured approach to process improvement
- Ability to use all steps of DMAIC (*with a focus on Analyse and Implement*) methodology
- Skill to achieve sustainable quality improvement through process improvement
- Understanding of the tools of process discovery
- Understanding of variation in processes
- Skill to reduce variation in processes and achieve predicted outcomes
- Ability to identify, measure and analyse process potential
- Usage of inferential statistics
- Usage of hypothesis testing
- Understanding when to use which Six Sigma methodology
- Ability to use Capability Analysis to control processes
- Knowledge of the interdependence of Lean tools
- Skill to prevent, identify and control defects
- Understanding and use of statistical process control
- Skill to train, document, monitor, respond, and align systems
- Skill to provide sustainable and cost-effective improvement in processes

LSS Green Belt Define Phase

Brief review of Yellow Belt content

LSS Green Belt Measure Phase

Brief review of Yellow Belt content

LSS Green Belt Analyze Phase

Phase Description:

The Analyze Phase of the DMAIC methodology is constructed to introduce important Lean Six Sigma tools for isolating critical factors. There are nine modules in this phase:

Welcome to Analyze

“X” Sifting

- Perform a Multi-Vari Analysis
- Interpret and a Multi-Vari Graph
- Identify when a Multi-Vari Analysis is applicable
- Interpret what Skewed data looks like
- Explain how data distributions become Non-normal when they are really Normal

Inferential Statistics

- Explain the meaning of the term “Inferential Statistics”.
- Describe the basic tenets of the Central Limit Theorem.
- Describe the impact of sample size on your estimates of population parameters.
- Explain Standard Error

Intro to Hypothesis Testing

- Articulate the purpose of Hypothesis Testing
- Explain the concepts of the Central Tendency
- Be familiar with the types of Hypothesis Tests

Hypothesis Testing Normal Data Part 1

- Determine appropriate sample sizes for testing Means
- Conduct various Hypothesis Tests for Means
- Properly Analyze Results

Hypothesis Testing Normal Data Part 2

- Be able to conduct Hypothesis Testing of Variances
- Understand how to Analyze Hypothesis Testing Results

Hypothesis Testing Non-Normal Data Part 1

- Conduct Hypothesis Testing for equal variance
- Conduct Hypothesis Testing for Medians
- Analyze and interpret the results

Hypothesis Testing Non-Normal Data Part 2

- Calculate and explain test for proportions
- Calculate and explain contingency tests

Wrap Up & Action Items

LSS Green Belt Improve Phase

Phase Description:

The Improve Phase of the DMAIC methodology is constructed to introduce important Lean Six Sigma tools for properly controlling solutions. There are five modules in this phase:

Welcome to Improve

Process Modeling Regression

- Perform the steps in a Correlation and a Regression Analysis
- Explain when Correlation and Regression is appropriate

Advanced Process Modeling

- Perform Non-Linear Regression Analysis
- Perform Multiple Linear Regression Analysis (MLR)
- Examine Residuals Analysis and understand its effects

Designing Experiments

- Determine the reason for experimenting
- Describe the difference between a physical model and a DOE model
- Explain an OFAT experiment and its primary weakness
- Shown Main Effects Plots and interactions, determine which effects and interactions may be significant
- Create a Full Factorial Design

Wrap Up & Action Items

LSS Green Belt Control Phase

Brief review of Yellow Belt content



Lean Six Sigma Black Belt

Upgrade from Green Belt to
Black Belt

Green Belt certification holders can elevate their knowledge and skills in Lean Six Sigma to achieve the highest grade of Black Belt. Team leaders, managers and administrators of Lean Six Sigma organisations require expertise in it to be able to perform their duties successfully.

This course is an in depth 5-day training experience - covering week two of the Black Belt two week course. Participants become immersed in the black belt specialties focusing on in-depth techniques for the Analysis, Improve and Control stages of the DMAIC cycle.

In Green Belt you learn how to plan and design experiments, the Black Belt upgrade teaches you how to run, assess, quantify and control experiments and their outputs.

Black Belt certification training allows Green Belt holders to polish their existing skills, and add more to achieve greater professional success and growth within their organisation.

Lean Six Sigma Black Belt Certification Training Upgrade from Green Belt Course Course Outline

Foreword:

The pd training materials are much more than simple tools training. This curriculum is formatted in such a way that the problem solving strategy is demonstrated throughout the course. By utilising various Statistical and Business Improvement tools participants can clearly see and communicate the flow and process of the methodology in order to instill both the tactical and strategic aspects of the LSS Black Belt skill set.

The implementation roadmaps within each phase provide a clear line-of-sight for putting into practice the problem solving technology. Various group exercises utilising training aids, pre-formatted data sets and templates facilitate interactive group learning within a class.

These very training materials are the industry standard used by thousands of industry trainers, coaches and mentors to train Lean Six Sigma Black Belts around the world.

Outcomes:

During this course, you will develop:

- Understanding and implementation of the concepts of Six Sigma
- Ability to plan projects to achieve maximum process efficiency
- Capability to recognise elements of waste and countering them
- Skill to measure key aspects of a process to collect relevant data
- Ability to create a process map
- Ability to identify and measure process capability
- Ability to analysis data accurately to find cause-and-effect relationship and identify the root cause of errors
- Hypothesis testing knowledge
- Ability to improve processes based on analysis
- Understanding of how to use various industry models for process improvement
- Ability to control processes
- Ability to ensure errors are removed before they can damage a process
- Understanding of capability analysis
- Understanding and use of lean
- Skill to control processes, productivity and waste

LSS Black Belt Define Phase

Quick Review/Refresher

LSS Black Belt Measure Phase

Quick Review/Refresher

LSS Black Belt Analyze Phase

Phase Description:

The Analyze Phase of the DMAIC methodology is constructed to introduce important Six Sigma tools for isolating critical factors. There are 9 modules in this phase:

Welcome to Analyze

“X” Sifting

- Perform a Multi-Vari Analysis
- Interpret and a Multi-Vari Graph
- Identify when a Multi-Vari Analysis is applicable
- Interpret what Skewed data looks like
- Explain how data distributions become Non-normal when they are really Normal

Inferential Statistics

- Explain the meaning of the term “Inferential Statistics”.
- Describe the basic tenets of the Central Limit Theorem.
- Describe the impact of sample size on your estimates of population parameters.
- Explain Standard Error

Intro to Hypothesis Testing

- Articulate the purpose of Hypothesis Testing
- Explain the concepts of the Central Tendency
- Be familiar with the types of Hypothesis Tests

Hypothesis Testing Normal Data Part 1

- Determine appropriate sample sizes for testing Means
- Conduct various Hypothesis Tests for Means
- Properly Analyze Results

Hypothesis Testing Normal Data Part 2

- Be able to conduct Hypothesis Testing of Variances
- Understand how to Analyze Hypothesis Testing Results

Hypothesis Testing Non-Normal Data Part 1

- Conduct Hypothesis Testing for equal variance
- Conduct Hypothesis Testing for Medians
- Analyze and interpret the results

Hypothesis Testing Non-Normal Data Part 2

- Calculate and explain test for proportions
- Calculate and explain contingency tests

Wrap Up & Action Items

LSS Black Belt Improve Phase

Phase Description:

The Improve Phase of the DMAIC methodology is constructed to introduce important Lean Six Sigma tools for properly controlling solutions. There are eight modules in this phase:

Welcome to Improve

Process Modeling Regression

- Perform the steps in a Correlation and a Regression Analysis
- Explain when Correlation and Regression is appropriate

Advanced Process Modeling

- Perform Non-Linear Regression Analysis
- Perform Multiple Linear Regression Analysis
- Determine the reason for experimenting
- Describe the difference between a physical model and a DOE model
- Explain an OFAT experiment and its primary weakness
- Shown Main Effects Plots and interactions, determine which effects and interactions may be significant
- Create a Full Factorial Design

Experimental Methods

- Be able to Design, Conduct and Analyze an Experiment

Full Factorial Experiments

- Understand how to Create Balanced & Orthogonal Designs
- Explain how Fit & Diagnose & Center Points factors into an experiment

Fractional Factorial Experiments

- Explain why & how to use a Fractional Factorial Design
- Create a proper Fractional Factorial Design
- Analyze a proper model with aliased interactions

Wrap Up & Action Items

LSS Black Belt Control Phase

Phase Description:

The Control Phase of the DMAIC methodology is constructed to introduce important Lean Six Sigma tools for properly controlling solutions. There are eight modules in this phase:

Welcome to Control

Advanced Experiments

- Use the results of a DOE to determine how to further optimize a process using the steepest ascent/descent method

Capability Analysis

- Understand the importance of Capability Analysis as it is applied in the Control Phase
- Select the appropriate method for Capability Analysis based on the type of data distribution of your process
- Interpret the output of MINITAB™'s Capability functions
- Understand how the use for Capability Analysis may alter through the DMAIC phases

Lean Controls

- Review/refresher

Defect Controls

- Review/refresher

Statistical Process Control - SPC

- Describe the elements of an SPC Chart and the purposes of SPC
- Understand how SPC ranks in defect prevention
- Describe the 9 Step route or methodology of implementing a chart
- Design subgroups if needed for SPC usage
- Determine the frequency of sampling
- Understand the Control Chart selection methodology
- Be familiar with Control Chart parameter calculations such as UCL, LCL and the Center Line

Six Sigma Control Plans

- Understand the 5 phases of the Control Plan
- Training
- Documentation
- Monitoring
- Response
- Aligning Systems and Structures

Wrap Up & Action Items

**Client
Benefits**



**Strategic
Partnerships**

