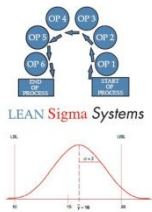


In-Company Six Sigma Black Belt Programme

Lean Sigma Systems has created the most comprehensive In-Company Six Sigma Black Belt programme available in Ireland. Learning from our clients knowledge and requirements, we have developed the most cost effective programme providing training, project mentoring, tutorials, *all* programme materials required including textbooks and software, certification costs, final presentation review, and both 6 and 12 month reviews to ensure the learning's are being progressed with new projects. To date we have delivered in excess of 5 in-house programmes and the cost savings realised by our clients has ranged from €1,500,000 to in excess of €3,000,000.

Our programme is fully comprehensive, and equips our course participants and client companies to continually drive process improvement long after the training has finished - Multiple Client references are available on request to testify to this approach.

Certification Options



Option 1: Lean Sigma Systems Certification

Lean Sigma Systems has been in existence since 2006 and in that time has delivered in excess of 8 Six Sigma Black Belt programmes both internally for company clients and publically for individuals. Lean Sigma Systems although not an internationally recognised certification has excelled in providing customised and structured certification models for our clients that ensure all participants are equipped with the practical knowledge of Six Sigma as well as the theoretical knowledge. Candidates can expect to put in excess of 100 hours study for the exam. Workshops 1-18 need to be completed for this certification. In excess of 120 hours of project work will need to be completed.

Course Costs: €27,000. *The course costs are based on a maximum of 12 participants attending and will reduce by €200 per participant below this maximum. (i.e. cost for 6 participants would be €25,800)*

Cost Includes:

- All Tutor Expenses
- Initial Q&A / Project Scoping Meeting
- Minitab Software
- 17 Days Black Belt Training including
 - Soft copies of training material on USB

- 4 Textbooks
 - Zipped Wallets, pads and pens
- 2 Days Onsite Mentoring
- 1 Day Exam Tutorial
- Final Lean Sigma Systems Project Presentation & Exam
- All Email & Phone support for the duration of the programme
- 6 month & 12 month company review to assist with ongoing process improvement



Option 2: IQF certification

IQF (International Quality Federation) certification is recognised in over 50 countries worldwide. <http://www.igfnet.org/IQF/blackbelt001.htm>. Candidates must pass an 8-hour electronic exam that's very technical, and they must demonstrate that they have applied this knowledge and obtained results. *The IQF certification may be a more suitable option than the ASQ, requiring 100 hours approx study time rather than 200 hours for the ASQ as the IQF is a computer based assessment. This is by no means an easy alternative but would not require as much intense study from the participants outside of project work and training days.* In excess of 120 hours of project work will need to be completed. Workshops 1-18 need to be completed for this certification.

Course Costs: €29,000. *The course costs are based on a maximum of 12 participants attending and will reduce by €300 per participant below this maximum. (i.e. cost for 6 participants would be €27,200)*

Cost Includes:

- All Tutor Expenses
- Initial Q&A / Project Scoping Meeting
- Minitab Software
- IQF Examination Fee
- 17 Days Black Belt Training including
 - Soft copies of training material on USB
 - 4 Textbooks
 - Zipped Wallets, pads and pens
- 2 Days Onsite Mentoring
- 1 Day Exam Tutorial
- Final Lean Sigma Systems Project Presentation & Exam
- All Email & Phone support for the duration of the programme
- 6 month & 12 month company review to assist with ongoing process improvement



Option 3: ASQ certification

ASQ (American Society for Quality) is recognised worldwide in over 80 countries www.asq.org. Candidates can expect to have to put in 200 hours approx for the ASQ exam. In excess of 120 hours of project work will need to be completed. Workshops 1-18 need to be completed for this certification.

Course Costs: €31,000. *The course costs are based on a maximum of 12 participants attending and will reduce by €300 per participant below this maximum. (i.e. cost for 6 participants would be €28,600)*

Cost Includes:

- All Tutor Expenses
- Initial Q&A / Project Scoping Meeting
- Minitab Software
- ASQ Registration & Examination Fee
- 17 Days Black Belt Training including
 - ASQ Exam Primer & CD
 - Soft copies of training material on USB
 - 4 Textbooks
 - Zipped Wallets, pads and pens
- 2 Days Onsite Mentoring
- 1 Day Exam Tutorial
- Final Lean Sigma Systems Project Presentation & Exam
- All Email & Phone support for the duration of the programme
- 6 month & 12 month company review to assist with ongoing process improvement

What is a Black Belt?

A Black Belt is a full-time or part-time Six Sigma programme member and will be able to select and prioritise the company's Six Sigma projects, lead a cross functional project team using a range of Lean Six Sigma tools, and train and mentor Green Belts. A Black Belt has a very strong knowledge of statistics and how they apply to Six Sigma. It is essential that a Black Belt can use this knowledge practically in running high level projects and can transfer this knowledge easily to Green Belts and to others who may require assistance.

Each training delegate must identify a strategic and comprehensive project which, with the guidance of Lean Sigma Systems, will be successfully completed. The project will deliver real improvement and substantial savings for the delegate's organisation. The participants will be focused in targeting, organising and driving projects which are expected to save in the region of **€100K +** on an annual basis. They will become the focal point in creating project teams, train and mentor these teams and drive and encourage a culture of process improvement.

Initial Q&A / Project Scoping Meeting

Before the programme begins, Lean Sigma Systems provides an initial Q&A / Project Scoping Meeting. This meeting allows all interested parties to acquire answers for any questions that they may have about the programme. This meeting will also highlight the objectives of the programme, the associated timelines, the commitment required from participants and the Senior Team/Sponsors and the benefits of involvement. This day will also be used to assist the company in scoping out the projects that the participants will work on during the programme.

Lean Sigma Systems provide unlimited email & phone support to all the participants and Project Sponsors/Senior Team throughout the duration of the programme.

Programme Requirements

The participants attend the training with pre-determined projects selected in conjunction with Lean Sigma Systems that they will work on during the training and see out to a close. The participants will take projects from their own departments to work on as real time projects which will actively drive process improvement within their own organisation.

Programme Objectives

At the end of this programme participants will be enabled to:

- Deploy the Lean Six Sigma approach to customer satisfaction and business process improvement;
- Influence people throughout the organisation and educate them in their roles of embedding business process improvement;
- Act as an internal consultant for driving business process improvement;
- Learn a formal project management method, using problem solving tools to improve or eliminate process problems;
- Lead a cross-functional team through successful project completion;
- Quantify business and financial benefits for the organisation and the customer.

Six Sigma Green Belt Q & A Briefing Session / Project Scoping	<ul style="list-style-type: none">▪ Brief all interested parties on the commitment required to embark on the Six Sigma Black Belt programme▪ Project Scoping & Charter Definition
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Programme Content Week 1

Workshop 1 Introduction to Six Sigma & Lean

- Participant Introductions
- Six Sigma & Lean Overview
- Seven Wastes in Lean
- 5 Lean Principles

Workshop 2 Project Initiation

- Project Charter
- SIPOC
- Business Process Mapping

Workshop 3 Facilitating Project Teams

- Working With Teams
- Stages Teams Go Through
- Influencing Skills for a Black Belt

Workshop 4 Understanding Data

- CTQ & Voice of the Customer
- Attribute & Variable Data
- Graphically Displaying Data

Programme Content Week 2

Workshop 5 Root Cause Analysis

- 5 Whys
- Cause & Effect
- FMEA

Workshop 6 Introduction to Statistics & MSA

- Introduction to Statistics
- Introduction to Measurement System Analysis
- Variable Gauge R&R
- Attribute Gauge R&R
- Destructive Gauge G&R

Workshop 7 Process Capability & Rolled Throughput Yield

- Process Capability
- Rolled Throughput Yield
- Sampling

Workshop 8 Probability & Distributions

- Central Limit Theorem
- Probability 1 Intro
- Distributions 1 – Normal & Z Score
- Distributions 2 – Binomial

Workshop 9 Distributions & Confidence Intervals

- Distributions 3 – Non Normal
- Confidence Intervals

In-Company Project Mentoring Day 1

Programme Content Week 3

Workshop 10 Hypothesis Testing

- Hypothesis Testing 1 – Introduction
- Hypothesis Testing 2 – Means
- Hypothesis Testing 3 – Variation
- Hypothesis Testing 4 – Proportions

Workshop 11 Analysing Data from Multiple Variables

- Correlation and Simple Linear Regression
- Multiple Regression
- ANOVA
- Multi Vari Analysis
- Multiple Comparisons
- Residuals Analysis

Workshop 12 DOE 1

- DOE 1 Introduction to DOE
- DOE 2 Analysis
- DOE 3 Fractional Factorial
- DOE 4 Centre Points and Blocking

Workshop 13 DOE 2

- DOE 5 Robust Design
- DOE 6 Response Surface
- DOE 7 EVOP
- Boot Strapping
- DOE 8 Mixtures

Workshop 14 Control Charts

- Introduction to Control Charts
- Variable Control Charts
- Attribute Control Charts
- Other Control Charts
- Wrap-up Session

<p>Programme Content Week 4</p>	<p>Workshop 15 Effective Change Management</p> <ul style="list-style-type: none"> ▪ Dealing with different teams ▪ Understanding challenges and conflicts within teams ▪ Being a successful change manager <p>Workshop 16 Lean Supply Chain</p> <ul style="list-style-type: none"> ▪ Strategy & Leadership ▪ Characteristics of World Class Organisations ▪ Strategy Deployment & Quality Management <p>Workshop 17 Lean Supply Chain and Certification</p> <ul style="list-style-type: none"> ▪ Value Stream Mapping Current State ▪ Value Stream Mapping Future State ▪ Course Recap
<p>In Company Project Mentoring Day 2</p>	
<p>Lean Six Sigma Black Belt Final Presentation to Senior Team/Lean Sigma Systems</p>	<p>Each participant will present their final project.</p>
<p>Workshop 18 Black Belt Tutorial to prepare candidates for EXAM</p>	
<p>Black Belt Examination</p>	
<p>6 Month Review & 12 Month Review</p>	<p>To ensure maximum benefit has been achieved from the programme and that all participants are actively engaged in projects, Lean Sigma Systems provide unlimited email & phone support to all the participants for a period of 6 months after the programme has finished.</p> <p>Further to this Lean Sigma Systems also provide a 1 day review 6 months & 12 months after the programme has finished with programme participants and Senior Management.</p>

Lean Sigma Systems can accommodate between 4 - 12 participants on this programme.

3. Consultant Biography

Susan Clancy, NCEA Cert & Dip Eng, BSc

Principal Consultant, Trainer & Managing Director- Lean Sigma Systems



Susan has over fifteen years experience in Lean and Six Sigma Training and Consultancy. In this time she has worked within the Pharmaceutical, HR, Retail, Customer Services, Healthcare, Medical Device, Aviation, Electronics, Hotel and Catering, IT and Financial Services in the private and public sectors. An Engineering and Science honours graduate from Cork Institute of Technology and Dublin City University, Susan is a certified Six Sigma Black Belt from Air Academy Associates and American Society for Quality as well as a certified Lean Practitioner from University of Limerick. Through her directorship of Lean Sigma Systems and BPI Consulting she can boast a varied and very distinguished client base. She is a FAS registered trainer.

Kevin Phelan, B Tech, MSc

Consultant, Trainer & Managing Director – Clanmaurice Training



Kevin, an ASQ certified Six Sigma Black Belt, graduated from the University of Limerick in 1989. He specialises in the area of Lean and Six Sigma toolkit skills transfer and has trained hundreds of personnel across all industry sectors including Pharmaceutical, Automotive, Electronics, Medical Devices, Semi Conductor and Services. A talented trainer, Kevin makes statistical methodology an interesting and lively learning experience. He holds a Masters Degree in Design of Experiments from the University of Limerick.

Maria Ryan, BEng, MBA

Consultant, Trainer and Managing Director – Crystal Business Solutions



Maria, a Six Sigma Blackbelt, has worked in various staff and managerial roles within Pharmaceutical, Aerospace, Medical Devices, Commercial and Chemical Industries over the past fourteen years. Maria established Crystal Business Solutions in 2008

offering companies' services in the area of Training, Project Management, Mentoring and Strategic Direction in the area of Lean and Six-Sigma. Maria's style ensures that tremendous energy is brought to radically improve processes. As a certified Train the Trainer, she engages the trainees to not only enjoy the training experience, but ensures that the trainee can apply practical tools upon their return to the working environment. Maria has a degree in Mechanical Engineering and a Masters in Business Administration from the University of Limerick which enhance the practical nature of the services provided.

Donal O'Leary, BSc, C.P.I.M.

Consultant, Trainer & Managing Director – Metrology Systems & Services



Donal is a Registered and Certified Assessor with the Institute of Management U.K and a qualified ISO 9000 Auditor, he is also an Approved Assessor for the European Foundation for Quality Management Business Excellence Model. Donal has developed and presented both accredited and customized training programmes in Problem Solving, Continuous Improvement, Calibration, Statistical Process Control and Quality Assurance to the pharmaceutical, chemical, food, medical devices and motor components industries since 1992.