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**Course ID: S07M**

## **CERTIFIED LEAN SIX SIGMA GREEN BELT**

**Onsite course: 8 all-day workshops  
with continuous assessment & project work**

### **1. What is this course about?**

Lean six sigma enables all employees to work in collaborative teams to improve process performance and increase customer satisfaction. A Green Belt (GB) project leader is capable of leading a cross-functional team through a series of formal project and problem solving steps. GB projects are short-projects (c. 15 – 25 weeks) that result in customer satisfaction and cost savings or additional revenue for the organization.

On this course you will learn that lean and six sigma are about teamwork, process management and customer service. It is designed to enable all participants, regardless of sector or previous education, to certify as a Lean Six Sigma Green Belt (CLSSGB). The course consists of a series of facilitated onsite all-day workshops with case studies, interactive exercises, assignments and project work. Your knowledge builds in a step-wise fashion and you will be supported and encouraged throughout your learning journey.

The software application used is Minitab.

### **2. What will you achieve?**

On completion of the CLSSGB course, you will be able to

- define customer needs for a selected process;
- understand the value of cross-functional teamwork;
- use a range of problem-solving techniques, both statistical and non-statistical, to improve process performance;
- be able to lead a cross-functional team through project steps that will resolve process problems;
- quantify business and financial benefits for the organisation and the customer, and
- be primed to support other project teams in the execution of their projects.

Your project will deliver significant benefits to your organization in terms of simplifying and standardizing processes. Your customers will experience improved service levels.

When you attend all workshops and complete all continuous assessment assignments, you will be eligible to present your project for certification. Successful candidates are awarded a Lean Six Sigma Green Belt certificate. The green belt certificate is a significant achievement and enhances your curriculum vitae.

### **3. Preparation**

Before the course starts, candidates and sponsors will select a project on which to work during the green belt course. The course tutor will be help with project selection and scope.

We will also meet with sponsors in advance of course commencement to provide guidance on the role of the sponsor and the support required for GB candidates while the course is ongoing. This is an online meeting.

#### 4. What topics will be covered?

Module	Content
Day 1	<p><b>Introduction to CLSSGB course:</b> GB course objective, curriculum, assignment and project work on course, study effort, certification process, project selection and scope, six sigma history, DMAIC A3 planning, the role of the sponsor &amp; effective sponsorship, team selection.</p> <p><b>Define phase:</b> Team leader role &amp; team member role, problem definition, gemba walk, the 7 wastes, goal setting, DMAIC A3 development for each candidate, voice of the customer, stakeholder analysis and communication plan, A3 project planning.</p> <p>Project scheduling &amp; the Gantt chart, scope management, is/is not analysis, SIPOC flowchart.</p>
Day 2	<p><b>Define phase:</b> Swimlane process mapping, spaghetti mapping, interpreting output and prioritizing actions, project cost benefit analysis.</p> <p>Stage gate review at end of Define phase, team review of tools used and conclusions drawn, open Q&amp;A on course contents and next steps, project progress review.</p> <p><b>Measure phase:</b> Data types, data collection, process performance measurement: defects and defectives, rolled throughput yield.</p> <p>Data graphing, run charts, Pareto charts,</p> <p>A3 update &amp; review of assignment 1 format and timing.</p>
Day 3	<p><b>Measure phase (cont'd):</b> Introduction to descriptive statistics: measures of location &amp; spread. Properties of the normal distribution, Z scores and prediction, project progress review, box plots &amp; histograms.</p> <p>Measurement systems analysis (MSA): variable gauge R&amp;R theory (accuracy, precision, bias, linearity, tolerance) and practical exercise.</p> <p>A3 update &amp; assignment 2.</p>
Day 4	<p><b>Analyse phase:</b> Process capability analysis (PCA), Cp Cpk, Pp &amp; Ppk indices.</p> <p>5 whys, cause and effect analysis.</p>
Day 5	<p><b>Analyse phase (cont'd):</b> Linear correlation &amp; regression, residuals analysis, causation, Hypothesis testing for means.</p> <p>A3 update &amp; review of assignment 2 format and timing.</p>
Day 6	<p><b>Analyse phase (cont'd):</b> Hypothesis testing for variance &amp; proportion.</p> <p><b>Analyse/Improve phase:</b> Introduction to design of experiments (DOE), factor selection, full factorial design</p>
Day 7	<p><b>DOE (cont'd).</b> Fractional factorial design, analysing results, confirmatory runs</p> <p><b>Improve phase:</b> Developing an improvement schedule, standard works, 5S workplace management, quick changeover. A3 update.</p>
Day 8	<p><b>Control phase:</b> SPC charts for variable &amp; attribute data, training personnel and updating procedures, charts and guidelines. Project cost benefit analysis</p> <p>Post implementation review, rewarding the team, certification process and timing, A3 update &amp; assignment, review &amp; close.</p>

In addition to the above 8 workshops, completion of continuous assessment online assignments and project certification review day are also required. Project mentoring meetings will be scheduled in agreement with candidates and sponsors.

The workshops each last one working day, and are scheduled in modules of 2-2-0-2-2 days, approximately 4 weeks apart, with a one week gap to allow for study and project work. Learning tools will include A3 project sheets, video, case studies, presentations, class exercises and study work by candidates. Candidates will require access to Minitab during the workshops.

## **5. How will you be supported?**

During this certified lean six sigma green belt course, you will

- a) be able to listen to and interact with the course facilitator and other participants;
- b) be able to ask questions and complete in-class exercises and quizzes to self-assess your understanding of the topic;
- c) be able to download soft copy presentation files, with data sets and case studies, for your own future use.

## **6. Certification standard and process**

**Certification standard.** This certified lean six sigma green belt course is designed and executed in compliance with international standard [ISO 13053. Quantitative methods in process improvement — Six Sigma — Part 1: DMAIC methodology](#). Additional modules in Hypothesis testing and Design of Experiments are included for candidates in the pharmaceutical, medical device and engineering disciplines.

During the green belt course, knowledge of the theory of the topics will be assessed by means of continuous assessments. Certification is based on a combination of attendance, assessments and a completed project. The certifying project is formally evaluated by a Lean Ireland Lean Six Sigma Black Belt. The green belt certificate is awarded by Lean Ireland.

**Project review.** Projects are reviewed by the Lean Ireland certifying black belt, up to a time limit of 6 months after the final workshop. Projects are reviewed according to a formatted green belt certification checklist which is circulated to all candidates in advance. The project review time is 30 minutes per candidate.

## **7. Who is this course for?**

The course is suitable for a range of professions and trades: managers, supervisors, senior administrators, engineers, analysts, technicians, specialists, planners, doctors, nurses, bank officials, assessors, and surveyors. It is designed for those who have a keen interest in process improvement in the workplace, in order to improve customer service. Knowledge of statistics is not required before attending the programme, however those with a basic knowledge of statistics will have an initial advantage. The most successful candidates are likely to be those who have supervisory experience, or who are well regarded as change agents within their workplace.

## **8. Tailoring the course for your organisation**

The course content can be tailored to suit your organization, with relevant case studies and data sets for assignments. Also, the course can be hosted using JMP as an alternative to Minitab, and on any other suitable platform you prefer e.g. MS Teams. Please contact us to discuss your needs.

## **9. Where can you find out more?**

Please contact Bernie Rushe at Lean Ireland,

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