

STRUCTURED PROBLEM SOLVING USING LEAN SIGMA



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TRAINING CENTER



Introduction

Organizations lose time, money, and customer trust when problems repeat. Structured problem solving turns guesswork into a disciplined process that finds root causes and fixes them permanently. This Structured Problem Solving Using Lean Sigma Training Course gives participants a proven path from problem definition to verified results. Furthermore, it covers the DMAIC roadmap, Lean thinking, and statistical tools that separate real causes from symptoms. Participants also learn to collect reliable data, run improvement experiments, and hold gains in place. As a result, they return able to lead improvement work that reduces waste and delivers measurable performance gains.

Structured Problem Solving Using Lean Sigma Course Objectives

- Define problems clearly using problem statements, SIPOC, and voice of the customer data.
- Apply the DMAIC roadmap across real process improvement projects.
- Map value streams and identify the eight Lean wastes.
- Build process maps, swimlane diagrams, and spaghetti charts.
- Collect reliable data using check sheets, Gage R&R, and sampling plans.
- Analyze root causes with 5 Whys, fishbone diagrams, and Pareto analysis.
- Use statistics including control charts, process capability, and hypothesis testing.
- Select and pilot countermeasures with FMEA risk assessment.
- Implement solutions using 5S, standard work, and mistake-proofing.
- Control gains with control plans, KPIs, and response plans.

Course Methodology

- Interactive workshops built around live organizational problems.

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- Guided application of DMAIC tools on a participant-selected project.
- Minitab-style statistical practice using structured data sets.
- Process mapping and value stream simulation exercises.
- Case studies from manufacturing, service, and public sector processes.
- Action planning that ties each tool to the participant's own workflow.

Who Should Take This Course

- Continuous improvement and Lean Six Sigma practitioners.
- Quality managers, engineers, and process owners.
- Operations, production, and service delivery supervisors.
- Project managers leading improvement or cost-reduction work.
- Business analysts who investigate process performance issues.
- Department heads responsible for quality, cost, and cycle time.

Structured Problem Solving Using Lean Sigma Course Outlines

Day 1: Defining Problems and Scoping Projects

- Writing clear problem statements with measurable gaps.
- Using SIPOC diagrams to define process boundaries.
- Gathering voice of the customer and critical-to-quality requirements.
- Selecting and prioritizing projects with impact-effort analysis.
- Setting project charters, goals, and success metrics.
- Identifying stakeholders and forming improvement teams.
- Establishing baselines before any change begins.





Day 2: Measuring Processes and Collecting Data

- Creating process maps, swimlane diagrams, and spaghetti charts.
- Conducting value stream mapping to expose delay and waste.
- Identifying the eight Lean wastes in real workflows.
- Designing check sheets and sampling plans for valid data.
- Assessing measurement systems with Gage R&R.
- Calculating cycle time, takt time, and process capacity.
- Building a data collection plan for the project.

Day 3: Analyzing Root Causes and Process Variation

- Applying 5 Whys and fishbone diagrams to trace causes.
- Ranking causes with Pareto analysis and frequency charts.
- Using scatter plots and stratification to test relationships.
- Interpreting control charts for stability and special causes.
- Measuring process capability with Cp and Cpk.
- Running hypothesis tests to validate suspected causes.
- Separating root causes from symptoms with evidence.

Day 4: Improving Processes with Lean Sigma Tools

- Generating countermeasures through structured brainstorming.
- Screening solutions with impact-effort and FMEA risk scoring.
- Applying 5S and visual management to organize work areas.
- Standardizing work with documented procedures.
- Reducing setup and changeover time with SMED thinking.

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- Mistake-proofing steps to prevent error recurrence.
- Piloting changes and evaluating results against the baseline.

Day 5: Controlling Gains and Sustaining Results

- Building control plans with owners, limits, and actions.
- Tracking KPIs on simple performance dashboards.
- Documenting standard work and training the team.
- Conducting audits to confirm gains hold over time.
- Responding to drift using predefined triggers.
- Closing the project and sharing lessons learned.
- Preparing a 90-day improvement action plan.

Conclusion

By successfully completing Structured Problem Solving Using Lean Sigma, participants will gain the knowledge to define problems precisely, analyze root causes with data, and apply Lean and Six Sigma tools to improve real processes. They will acquire skills in DMAIC execution, statistical analysis, and solution control that hold gains in place. Gentex Training Center builds this course around practical application, so learners return ready to lead improvement work that delivers measurable and lasting results.

FAQs

Q1 What is the "Structured Problem Solving Using Lean Sigma" course about?



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It teaches a disciplined method for solving recurring problems using Lean and Six Sigma thinking. The course covers problem definition, process measurement, root cause analysis, statistical tools, improvement techniques, and control plans through the DMAIC roadmap.

Q2 What are the key benefits of the "Structured Problem Solving Using Lean Sigma" course?

Participants gain the ability to solve problems permanently instead of firefighting, reduce waste and variation, and improve quality and cycle time. They also learn to make decisions with data, lead improvement projects confidently, and hold results in place, which lowers cost and raises customer satisfaction.

Q3 What skills will I gain from the "Structured Problem Solving Using Lean Sigma" course?

You will gain problem definition and project scoping, process mapping and value stream analysis, root cause and statistical analysis, and improvement design and control planning. These four skills work together to move a problem from first observation to a verified, sustained fix.

Q4 What tools, methods, or standards are covered in the "Structured Problem Solving Using Lean Sigma" course?

The course covers the DMAIC roadmap, SIPOC, value stream mapping, the eight Lean wastes, 5 Whys, fishbone diagrams, Pareto analysis, control charts, Cp and Cpk, Gage R&R, FMEA, 5S, SMED, standard work, mistake-proofing, and control plans.





Q5 How is the "Structured Problem Solving Using Lean Sigma" course applied in real-world practice?

Participants apply the tools to a live problem from their own workplace, collecting data, testing causes, and piloting countermeasures. They close the loop with a control plan and KPIs, then track whether gains hold. The final action plan links each tool to their own process.