

Lean Six Sigma Green Belt

[4.0 CEUs/ 40 PDUs]

Course Description

This six-week Lean Six Sigma Green Belt Certificate course provides participants with an opportunity to use Lean Six Sigma tools and techniques to make substantial organizational process improvements by following the DMAIC approach to process improvement. During the course, participants learn to define the Lean Six Sigma methodology and the DMAIC approach to process improvement, identify potential Lean Six Sigma process improvement opportunities, implement the DMAIC methodology to optimize process improvement, and apply Six Sigma tools to improve quality and Lean tools to remove waste.

Course Outcomes

Upon the successful completion of this course, participants will be able to:

- Identify potential Lean Six Sigma projects consistent with organizational needs.
- Execute a Lean Six Sigma Green Belt project through all five DMAIC phases.
- Assess and apply appropriate Lean Six Sigma tools during the execution of a Green Belt project.
- Employ software programs (Minitab and/or MS Excel) to analyze data to verify and validate root cause and associated solutions.
- Demonstrate the knowledge required to pass the Lean Six Sigma Green Belt certification examination.

Included eBook

eBook version of The Certified Six Sigma Green Belt Handbook

Discussion Board

Share your experience with fellow participants and your course facilitator in weekly discussion board posts.

Certification

This course prepares participants for the Lean Six Sigma Certified Green Belt (LSSCGB) certification exam offered through Florida Tech.

[VIEW CURRICULUM](#)

*Curriculum is subject to change. Please contact an enrollment representative for more information.

Week 1

Module	Topics	Learning Objectives	Ungraded Activities/ Self-Assessments	Graded/Required Activities/ Assessments
Module 0: Lean Six Sigma	<ul style="list-style-type: none"> □ Course intro and welcome □ Course objectives □ Participant Guidance and Course Navigation 	<p>Identify course requirements and expectations (including time)</p> <p>Review course features and tools</p> <p>Examine textbook layout and features</p>	<p>Introduce yourself and provide expectations for class</p>	
Module 1: Lean Six Sigma	<ul style="list-style-type: none"> □ History of Lean Six Sigma □ Lean Principles & Concepts □ Six Sigma Principles & Concepts □ Benefits of Lean Six Sigma □ LSS Roles and Responsibilities □ LSS Project Selection □ The Project Charter □ Project Management Tools <ul style="list-style-type: none"> - Management and Planning Tools including Gantt charts, PERT, Brainstorming, Affinity Diagram, Multi-Voting 	<p>Review the history, benefits and core concepts of Lean and Six Sigma</p> <p>Identify what makes for a good LSS Project, including criteria for selection</p> <p>Complete a project charter document</p> <p>Apply project planning and management tools including Gantt charts, A3s, brainstorming, affinity diagrams, multi-voting</p> <p>Identify LSS roles and responsibilities</p>	<p>Weekly Live Session</p> <p>Knowledge Check: Lean Principles</p> <p>Knowledge Check: Variation</p> <p>Knowledge Check: Project Planning</p> <p>Knowledge Check: Project Roles</p>	<p>Weekly Discussion Board</p> <p>Assignment 1: Project Selection</p> <p>Assignment 2: Project Charter</p>

	Module	Topics	Learning Objectives	Ungraded Activities/ Self-Assessments	Graded/Required Activities/ Assessments
Week 2	Module 2: Define Phase	<ul style="list-style-type: none"> □ Introduction to Define □ SIPOC Diagram □ Defining the VOC <ul style="list-style-type: none"> - Stakeholder analysis - Kano Analysis - CTQ Tree - QFD □ Defining the VOP <ul style="list-style-type: none"> - Process Flowcharts - Value Stream Maps - FMEA overview □ Defining the VOB <ul style="list-style-type: none"> - Business Case - Benchmarking □ Storyboards and Define Phase Gate Review □ Team Dynamics 	<p>Identify how to lead and support a project team through the five phases of DMAIC</p> <p>Assess and apply common Define phase tools, including: Stakeholder Analysis, SIPOC, CTQ Tree, Process Flowcharts, Current State VSMS and Benchmarks</p> <p>Obtain knowledge needed to pass the LSSCGB Examination, including Kano Analysis, QFD, FMEA</p>	<p>Weekly Live Session</p> <p>Knowledge Check: QFD</p> <p>Knowledge Check: Value Stream Mapping</p> <p>Knowledge Check: Benchmarking</p> <p>Knowledge Check: Team Dynamics</p>	<p>Weekly Discussion Board</p> <p>Assignment 3: CTQ Tree</p> <p>Quiz 1</p>

	Module	Topics	Learning Objectives	Ungraded Activities/ Self-Assessments	Quiz
Week 3	Module 3: Measure Phase	<ul style="list-style-type: none"> □ Introduction to Measure □ Data Types □ Process Variation and Descriptive Statistics □ Introduction to Minitab □ Probability and Distributions □ Data Collection and Sampling □ Measurement Systems Analysis □ Process and Performance Capability <ul style="list-style-type: none"> - LSS Metrics - DPO, DPMO, etc. - Takt time, Cycle Time 	<p>Create and assess measurement system and process capability data in Minitab</p> <p>Identify how to lead and support a project team through the Measure phase</p> <p>Assess and apply common Measure phase tools, including: Descriptive Statistics, Data Collection Plan, MSA, Process Capability Study, Normality Test and LSS Metrics</p> <p>Obtain knowledge needed to pass the LSSCGB Examination, including Probability and Distributions</p>	<p>Weekly Live Session</p> <p>Knowledge Check: Data Types</p> <p>Knowledge Check: Descriptive Statistics</p> <p>Knowledge Check: Normality Test</p> <p>Knowledge Check: Sampling Theory</p> <p>Knowledge Check: LSS Metrics</p> <p>Knowledge Check: Lean Measures</p>	<p>Weekly Discussion Board</p> <p>Assignment 4: Data Collection Plan</p> <p>Assignment 5: Process Capability Analysis</p> <p>Assignment 6: Measurement Systems Analysis</p>

Week 4

Module	Topics	Learning Objectives	Ungraded Activities/ Self-Assessments	Graded/Required Activities/ Assessments
Module 4: Analyze Phase	<ul style="list-style-type: none"> □ Introduction to Analyze □ Exploratory Data Analysis □ Frequency Diagram, Histogram, Pareto □ Dot plot, Stem & Leaf, Boxplot, Scatter Diagram, Measles Chart, Multivariate Charts, Individual Value Plots □ Regression and Correlation □ Root Cause Analysis <ul style="list-style-type: none"> - 5 Whys and FTA - Fishbone Diagram - FMEA (partial) - IR Diagrams - 8 Wastes - Value Stream Analysis - Spaghetti Diagram □ Confidence Intervals □ Hypothesis Testing <ul style="list-style-type: none"> - 1 & 2 sample t-tests - F-test 	<p>Compute data with Minitab, including basic graphical analysis, regression and correlation, t-tests, F-test, Chi-square and Confidence Intervals</p> <p>Identify how to lead and support a project team through the Analyze phase</p> <p>Assess and apply common Analyze phase tools, including: statistical tests already noted, 5 Whys, Fishbone, IR Diagrams, Waste Analysis, Spaghetti Diagram, Value Stream Analysis (VA/ NVA)</p> <p>Obtain knowledge needed to pass the LSSCGB Examination, including ANOVA and FMEA</p>	<p>Weekly Live Session</p> <p>Knowledge Check: Graphical Analysis</p> <p>Knowledge Check: Regression Analysis</p> <p>Knowledge Check: 8 Wastes</p> <p>Knowledge Check: Value Stream Analysis</p> <p>Knowledge Check: 2 sample t-test</p> <p>Knowledge Check: F-test</p>	<p>Weekly Discussion Board</p> <p>Assignment 7: Exploratory Data Analysis</p> <p>Assignment 8: IR Diagram</p> <p>Quiz 2</p>

Week 5	Module	Topics	Learning Objectives	Ungraded Activities/ Self-Assessments	Graded/Required Activities/ Assessments
	Module 5: Improve Phase	<ul style="list-style-type: none"> □ Introduction to Improve □ Decision Support Tools □ Future State VSM □ Implementation Planning □ Introduction to DOE □ Kaizen □ 5S □ Cycle Time Reduction & SMED □ Kanban □ Poka-yoke □ Introduction to TPM □ Design for Six Sigma 	<p>Identify how to lead and support a project team through the Improve phase</p> <p>Assess and apply common Improve phase tools, including: Decision matrices, Pugh Matrix, 5S, SMED, Future and Ideal State VSMs</p> <p>Obtain knowledge needed to pass LSSCGB exam, including Kanban, poka-yoke, Kaizen, DOE, DFSS, TPM</p>	<p>Weekly Live Session</p> <p>Knowledge Check: Kaizen</p> <p>Knowledge Check: 5S</p> <p>Knowledge Check: SMED</p> <p>Knowledge Check: DFSS</p>	<p>Weekly Discussion Board</p> <p>Assignment 9: Solution Scoring and Identify how to selection</p> <p>Assignment 10: Value Stream Analysis and Kaizen Planning with the A3</p>
Week 6	Module	Topics	Learning Objectives	Ungraded Activities/ Self-Assessments	Graded/Required Activities/ Assessments
	Module 6: Control Phase	<ul style="list-style-type: none"> □ Introduction to Control □ Statistical Process Control □ Control Plan □ FMEA □ Standard Work & Standardized Work Instructions □ The Visual Factory □ Project Handover and Closure 	<p>Identify how to lead and support a project team through the Control phase</p> <p>Create and assess control charts with Minitab</p> <p>Assess and apply common Control phase tools, including: Xbar-R, Xbar-s, IMR, p, np, c, u charts, Control Plans, standard work, standard work instructions, Project Closure Report</p> <p>Obtain knowledge needed to pass the LSSCGB Examination, including MSA reevaluation, Visual Workplace, Daily Huddles, FMEA</p>	<p>Weekly Live Session</p> <p>Knowledge Check: Xbar-R Chart and Xbar-s Chart</p> <p>Knowledge Check: I-MR Chart</p> <p>Knowledge Check: P Chart and np Chart</p> <p>Knowledge Check: c Chart and u Chart</p> <p>Knowledge Check: FMEA</p>	<p>Weekly Discussion Board</p> <p>Assignment 11: Control Charts</p> <p>Assignment 12: Control Plan</p> <p>Quiz 3</p>