

Lean Six Sigma Black Belt course outline - Blended/EngineRoom version

Week	Date	Hours/ Week	Attendee Work	Time (Hrs)	Lesson Topic	Time (Hrs)
Session 1: Introduction to Lean Six Sigma						
0	11/9/2010	0	MS SESSION 1		1 Introduction	0.25
					2 Higher Standards for Higher Performance	0.2
1	11/9/2010	6.15	VIRTUAL SESSION 1	1.5	3 Input Determines Output	0.2
					4 Lean Six Sigma Defined	0.2
					5 What's In a Name?	0.25
					6 The 5 Lean Principles	0.15
					7 Success Stories	0.25
					8 The Sigma Level	0.25
					9 The 99.9% Problem	0.1
					10 Introduction to EngineRoom®	0.5
					11 DNA of a Champion	0.25
					12 Lean Six Sigma Framework	0.15
					13 DMAIC - The Lean Six Sigma Improvement Process	0.25
					14 Lean and DMAIC	0.2
					15 Thought Process Mapping - Toolset	0.5
					16 Organizing for Success	0.15
					17 Working Relationships	0.15
					18 Critical Success Factors	0.15
					19 Exercises and Quiz	0.5
Session 2: Define 1 - Project Initiation and Leadership						
2	11/16/2010	6.4	MS SESSION 2		1 Getting Started - Project Initiation	0.1
			COACHING I	0.5	2 Project Selection Toolset	0.7
					3 The Source of Value	0.1
					4 Project Charter Toolset	0.5
					5 Project Tracking Toolset	0.65
					6 Fueling The Improvement Engine	0.3
					7 Leadership Characteristics	0.4
					8 Practice, Study and Reflection - Learning by Modeling	0.35
					9 Leading Teams	0.45
					10 Developing an Effective Team	0.3
					11 Improving Team Development	0.4
					12 Leading Change	0.3
					13 Leading Change - Continued	0.3
					14 Success Factors For Effective Change Management	0.35
					15 Stakeholder Analysis - RACI Matrix	0.2
					16 Exercises and Quiz	0.5
Session 3: Define 2 - Voice of the Customer						
3	11/23/2010	8.2	MS SESSION 3		1 Voice of The Customer	0.25
					2 Focus on The Customer	0.35
					3 Understanding Customer Requirements	0.35
					4 Where to Go For Customer Requirements	0.4
					5 Conducting Surveys	0.35
					6 More on Surveys	0.3
					7 Surveys - Sampling Frame	0.45

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					8 Structuring Survey Questions	0.3
					9 The Degree of Uncertainty in Sampling	0.45
					10 Guideline for Margin of Error	0.35
					11 Affinity Diagram Toolset	0.7
					12 CTQC Tree Diagram Toolset	0.75
					13 Operational Definition Toolset	0.75
					14 Voice Of The Customer As Specifications	0.45
					15 QFD Toolset	1.5
					16 Exercises and Quiz	0.5
					Session 4: Define 3 - Process Mapping	
4	11/29/2010	7.25	MS SESSION 4	2	1 Drawing a Process Picture	0.1
			VIRTUAL SESSION II		2 Process Thinking	0.35
					3 The Source of Value	0.1
					4 Value Stream Leverage	0.15
					5 Process Mapping - Overview	0.3
					6 Process Mapping (SIPOC) Toolset	0.6
					7 Flow Charts	0.45
					8 Value-Added Flow Charts	0.25
					9 Spaghetti Charts	0.25
					10 Takt Time	0.2
					11 Value Stream Mapping Toolset	1.25
					12 DEFINE Progress Review	0.5
					13 Exercises and Quiz	0.75
					Session 5: Measure 1 - Measurements and Basic Statistics	
5	12/7/2010	7.3	MS SESSION 5		1 Measurements and Basic Statistics	0.2
			MS SESSION 6: 1-4		2 Business Problem Solving	0.2
					3 Basic Statistical Terms	0.2
					4 Descriptive and Inferential Statistics	0.3
					5 Measurements	0.25
					6 Discrete vs. Continuous Measurements	0.4
					7 Measurement Subjects	0.35
					8 Graphical Summaries	0.3
					9 Pareto Chart Toolset	0.5
					10 Histogram Toolset	0.5
					11 Understanding Variation	0.55
					12 Measuring Central Tendency	0.5
					13 Quantifying Process Variability	0.5
					14 The Normal Distribution	0.5
					15 Exercises and Quiz	0.5
					Session 6: Measure 2 - Measurement System Analysis	
				1 Measurement System Analysis - Introduction	0.1	
				2 Measurement As A Process	0.3	
				3 Cause & Effect Matrix Toolset	0.6	
				4 The Analysis of Measurement Systems	0.55	
6	12/14/2010	7.5	MS SESSION 6: 5-15	5 The Requirements of Measurement Systems	0.6	

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			COACHING II	0.5	6 Variable MSA - Gauge R & R	1.1		
					7 MSA - Graphing	0.4		
					8 Attribute Measurement System Analysis	0.9		
					9 Calibration of Measurement Systems	0.45		
					10 Collecting Data	0.3		
					11 Developing a Sampling Plan	0.35		
					12 Baseline Performance	0.35		
					13 Derivative Performance Metrics - Throughput Yield	0.5		
					14 Derivative Performance Metrics - Rolled Throughput Yield	0.65		
					Calculating the Sigma Level - Toolset	0.5		
					15 Exercises and Quiz	0.9		
7	12/21/2010	9.65			MS SESSION 7		Session 7: Measure 3 - Charting Process Behavior	
							1 Introduction - Charting Process Behavior	0.2
							2 Trend Chart Toolset	0.5
							3 SPC - Introduction and Background	0.35
			4 SPC - Introduction to Control Charts	0.35				
			5 SPC - Control Chart Limits	0.2				
			6 SPC - More On Control Limits	0.35				
			7 Implementing SPC	0.35				
			8 SPC Chart Selection	0.25				
			9 Rational Subgrouping Toolset	0.85				
			10 X and Moving Range Charts - Toolset	1				
			11 Attribute Control Chart Toolset	1				
			12 X-bar and R Chart Toolset	1.5				
			13 Process Capability Toolset	1.1				
			14 The Sigma Level Revisited	0.25				
			15 Measure Tollgate - Progress Review	0.5				
			16 Exercises and Quiz	0.9				
8	12/28/2010	7.9	MS SESSION 8: 1-11		Session 8: Analyze 1 - Identifying Root Cause			
					1 ANALYZE I - Introduction	0.2		
					2 Finding The Root Cause	0.3		
					3 Cause & Effect Diagram Toolset	0.5		
					4 Alternative To The Cause & Effect Diagram	0.25		
					5 5-Why, 1-How	0.25		
					6 A Combination of 5-Why, Pareto, and Trend Charts	0.4		
					7 Box Plots Toolset	0.5		
					8 Scatter Plot Toolset	0.75		
					9 Correlation and Regression Analysis	0.75		
					10 Multiple Regression Toolset	1.5		
			11 Logistic Regression Toolset	2.5				
9	1/10/2011	7.5	MS SESSION 8: 12-14 MS SESSION 9: 1-9 VIRTUAL SESSION III	2	12 Factors In Determining Sample Size	0.5		
					13 Estimating Population Mean	0.75		
					14 Exercises and Quiz	1		
					Session 9: Analyze 2 - Hypothesis Testing			
			1 ANALYZE II - Introduction	0.2				

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					2 Introduction to Hypothesis Testing	0.25
					3 The Process On Trial	0.25
					4 The Hypothesis - Accept or Reject?	0.25
					5 Types of Error	0.25
					6 Power Analysis	0.5
					7 Power Analysis - Factors	0.3
					8 Hypothesis Testing	0.75
					9 Confidence Intervals	0.5
10	1/18/2011	9.15	MS SESSION 9: 10-15		10 Treatment Comparisons - Control Charts	0.45
					11 Comparing One Proportion to a Standard	2
					12 Comparing Two Proportions - Z-test Toolset	1.5
					13 Comparing Multiple Proportions - Chi-Square	1.5
					14 Comparing One Mean to a Standard - t-test	2.2
					15 Comparing Two Means - t-test Toolset	1.5
11	1/25/2011	10.75	MS SESSION 9: 16-23		16 Comparing Multiple Means - ANOVA /F-test Toolset	1.7
					17 Confidence Intervals - Least Significant Difference	0.75
					18 Comparing One Variance to a Std. - Chi-Square	1.5
					19 Comparing Two Variances - F-test Toolset	1.5
					20 Parametric vs. Non Parametric Tests	0.2
					21 Non Parametric Toolset	1.8
					22 Hypothesis Testing Learning Lab	1.5
					23 Exercises and Quiz	1.8
12	2/1 - 2/3/11	24	CLASSROOM SESSION	24	Session 10: Analyze 3 - Design of Experiments	
13	2/8/2011	9.15	MS SESSION 10: 1-12		1 Design of Experiments - Introduction	0.3
					2 Design of Experiments - History	0.25
					3 Design of Experiments - Components	0.3
					4 Design of Experiments - Principles	0.4
					5 Design of Experiments - Purpose	0.45
					6 Design of Experiments - Process	0.35
					7 Design of Experiments - Guidelines	0.6
					8 Selecting the Right Design	0.5
					9 Blocking	0.5
					10 Blocking and Tackling	4
					11 Faster Deliveries Through Experimentation	0.75
					12 Beyond One-Factor Experiments	0.75
14	2/15/2011	10	MS SESSION 10: 13		13 Two Level Full Factorial Toolset	10
15	2/22/2011	12	MS SESSION 10: 14 VIRTUAL SESSION IV	2	14 Two Level Fractional Factorial Toolset	10
16	3/1/2011	9.4	MS SESSION 10: 15-22		15 General Factorial Toolset	1
					16 DOE Power and Sample Size	0.4
					17 Designing An Experiment To Save The Kingdom	2
					18 Better Pizza Through Design of Experiments	2.5
					19 Designing Experiments to Sell More Coffee	1
					20 Additional Subjects	1
					21 Analyze Tollgate - Progress Review	0.5
					22 Design of Experiments Exercises and Quiz	1

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17	3/8/2011	10.05	MS SESSION 11: 1-22		Session 11: <i>Improve</i>		
					1	Improve	0.2
					2	Design for Six Sigma (DFSS)	0.3
					3	Benchmarking	0.25
					4	Brainstorming	0.25
					5	Narrowing Down The List of Ideas	0.6
					6	FMEA Toolset	0.5
					7	Error-proofing	0.25
					8	Prioritizing and Selecting a Solution	0.75
					9	The A3 One-Page Report	0.2
					10	Continuous Flow Toolset	1
					11	Quick Changeover Toolset	0.75
					12	Cellular Processing Toolset	0.8
					13	The Theory of Constraints (TOC) Toolset	0.6
					14	Pull Scheduling	0.6
					15	Kaizen Toolset	0.75
					16	Corrective Action Matrix	0.25
					17	Piloting a Solution	0.6
					18	System Dynamics	0.2
					19	Characteristics of Dynamic Systems	0.2
					20	System Dynamics Example	0.3
					21	Another System Dynamics Example	0.3
22	System Dynamics Application	0.4					
18	3/15/2011	8.2	MS SESSION 11: 23-25 MS SESSION 12		23	System Dynamics Summary	0.15
					24	Improve Tollgate - Progress Review	0.5
					25	Exercises and Quiz	0.75
					Session 12: <i>Control</i>		
					1	Control	0.2
					2	Control Charts Revisited	0.4
					3	The Process Control Plan	0.55
					4	More On FMEA	0.4
					5	Visual Control	0.55
					6	5-S Approach	0.4
7	CHECK Process	0.35					
8	Total Productive Maintenance	0.45					
9	TPM Objectives & Benefits	0.35					
10	TPM Metrics	0.4					
11	TPM Core Elements	0.35					
12	TPM Maintenance Activities	0.35					
13	Best Practices and Lessons Learned	0.4					
14	Standardized Work - Documenting Process Changes	0.25					
15	Ending the Project	0.2					
16	Control Tollgate - Progress Review	0.5					
17	Exercises and Quiz	0.5					
18	Course Completion	0.2					

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19	3/22/2011	0.25	COACHING III	0.25			
20	3/28/2011	2	VIRTUAL SESSION V	2			

170.55 Total hours