



BOK for GSIP LEAN Six Sigma Black Belt

#	Title	Comments	(Time)(# of Test Questions)
1	Welcome to your GSIP Class	Introduction to class	(16:09)(0 Q)
2	Fundamental Theories	This element of the GSIP BOK covers objective and subjective problem solving, normal distribution, differentiates between statistic and parameter, discusses processes that are in control and capable.	(1:05:28)(10 Q)
3	Normality Plots (Minitab)	This element of the GSIP BOK discusses how to validate the normal distribution assumption using the Minitab software.	(23:59)(0 Q)
4	Systematic Problem Solving	This element of the GSIP BOK discusses systematic problem solving in general and covers DMAIC specifically. Downloads available for project.	(47:27)(10 Q)
5	Introduction to Project Management	This element of the GSIP BOK discusses the importance of project management and its key elements of Planning, Scheduling, and Controlling. Discusses code of ethics, and project management philosophies. Also discusses the 5 elements of project management, which includes Initiating the project, Planning the Project, Executing the Project, Monitoring and controlling the project, and Closing the project.	(05:08)(7 Q)
6	Project Management Vocabulary	This element of the GSIP BOK covers the basic vocabulary of project management	(20:24)(21 Q)
7	Initiating the Project	This element of the GSIP BOK discusses the importance of evaluating project feasibility, defining high level scope, analyzing stakeholders, proposing an implementation approach, completing the project charter, and gaining project charter approval. Also covers the Stakeholder Analysis & Communication Worksheet.	(6:48)(5 Q)
8	Project Management Planning	This element of the GSIP BOK discusses the importance of gathering and documenting requirements, documenting assumptions and constraints, creating a work breakdown structure (WBS), estimating budgeting costs, developing a project schedule, defining team roles and responsibilities and the organizational structure, developing a communication plan, planning project procurements, creating a change management plan, identifying risks and risk strategies, finalizing a project management plan, obtaining project management plan approval, and conducting a project kick-off meeting.	(16:52)(12 Q)
9	Controlling Processes	This element of the GSIP BOK discusses flow charts, FMEA's and control plans and how to use these tools	(53:44)(10 Q)

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		to identify and control risks with the help of cross functional teams.	
10	Risk Management	This element of the GSIP BOK discusses absolute safety, acceptable risk, basic safety, compliance, conformance, directives, fault tree analysis (FTA), hazard frequency, harm, hazard, liability, technical risk, safety risk, scheduling risk, financial risk, personnel risk, market risk, credit risk, operational risk, legal risk, regulatory risk, product development risk, supplier risk. Also discusses the four activities in risk mitigation planning, which includes Risk Planning, Risk Assessment, Risk Analysis, and Risk Handling. Also discusses What if Analysis, Delphi, MOSAR, HAZOP, FMEA, PRAT, FTA, and Human Factors Analysis.	(41:19)(43 Q)
11	Five Why's	This element of the GSIP BOK discusses the 5 Why methodology for root cause analysis.	(4:45)(4 Q)
12	Gantt Chart	This element of the GSIP BOK discusses how to create and effectively use the Gantt chart.	(12:34)(9 Q)
13	Activity Network Diagram	This element of the GSIP BOK teaches the student about the Activity Network Diagram by using it to visualize and manage an example problem.	(12:22)(6 Q)
14	PERT (Program Evaluation and Review Technique)	This element of the GSIP BOK discusses using the PERT chart to plan and schedule a new product or project. Also discusses using the PERT chart to tasks or activities to complete a given project, the time needed to complete each task, and to identify the minimum time needed to complete the total project.	(17:29)(10 Q)
15	CPM (Critical Path Method)	This element of the GSIP BOK discusses when to use CPM, understand how to use CPM, understand how to crash an activity, and understand how to decide the optimal activities to crash, and what crash means. Also discusses the differences between PERT and CPM.	(15:15)(10 Q)
16	PDPC (Process Decision Program Chart)	This element of the GSIP BOK discusses how PDPC is used in planning for contingencies.	(5:58)(4 Q)
17	Matrix Diagrams	This element of the GSIP BOK discuss the power of matrix diagrams. Covers L, T, X, Y, C and roof shaped matrices.	(12:53)(10 Q)
18	Prioritization Matrices	This element of the GSIP BOK discusses how to use prioritization matrices to sort a divers set of items into an order of importance.	(17:23)(4 Q)
19	Interrelationship Digraph	This element of the GSIP BOK discusses how the interrelationship digraph is used to explore the cause and effect relationship between a series of ideas or facts.	(08:00)(5 Q)
20	Executing the Project	This element of the GSIP BOK discusses managing resources to perform project activities, creating deliverables on time and in budget, following the quality management plan, following the change management plan, employing risk management techniques, and providing leadership, motivation, and other skills to maximize team performance.	(06:41)(6 Q)
21	Managing, Monitoring and Controlling the Project	This element of the GSIP BOK discusses measuring project performance, applying change management, controlling quality for project deliverables, conducting risk management, managing issues, communicating status, and managing procurements.	(14:22)(13 Q)
22	Eight D Problem Solving Methodology	This element of the GSIP BOK discusses the steps used in 8D which include the planning stage, establishing the team, problem definition, developing interim containment action, identifying & verifying root cause, identifying permanent corrective actions (PCA),	(38:13)(10 Q)

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		implementing & validating PCA, preventing recurrence, and recognizing team efforts.	
23	Closing the Project	This element of the GSIP BOK discusses the process of closing contracts, gaining final acceptance, transforming ownership and management, conducting a project review, documenting lessons learned, writing the final project report, archiving project records, and measuring customer satisfaction.	(03:54)(8 Q)
24	Quality Function Deployment (QFD)	This element of the GSIP BOK discusses the QFD objective of converting customer wants, needs and desires into product and service attributes. This discussion will also show the student how to create an effective QFD in such a way as to reach the objective of the QFD exercise.	(50:19)(24 Q)
25	A3 Problem Solving	This element of the GSIP BOK discusses the A3 methodology process by defining how to identify the problem, understand current state, develop a goal statement, and perform root cause analysis, brainstorm counter measures, implement plan, check results and update standard work.	(13:56)(5 Q)
26	Forming, Storming, Norming and Performing	This element of the GSIP BOK discusses the evolution of teams and what team members should expect when joining a team and how to accelerate team progress toward the performing stage.	(08:04)(5 Q)
27	Conflict Resolution	This element of the GSIP BOK discusses how to more effectively deal with conflict by approaching the situation in a more objective way.	(13:46)(10 Q)
28	Nominal Group Technique (NGT)	This element of the GSIP BOK discusses how to use NGT or Multi Voting in problem solving exercises. These methodologies are used for pooling and prioritizing options when time is the constraint.	(17:52)(6 Q)
29	Welcome to LEAN	This element of the GSIP BOK discusses the basic elements of the LEAN methodology such as reducing travel, creating flow, creating robust flow and continually increase velocity.	(25:16)(5 Q)
30	LEAN Overview	This element of the GSIP BOK introduces the seven forms of waste, takt time, push vs. pull, standard in process stock, heijunka box (visual scheduling), 5S, current state, ideal state, future state, sequence order charts, Kanban, standard work, SMED, TPM, Poka-Yoke, FTQ, Kaizen, Jidoka, and Yokoten.	(48:24)(10 Q)
31	LEAN and the Seven Forms of Waste	This element of the GSIP BOK discusses in detail the seven elements of waste as defined in the LEAN methodology. The 7 forms of waste include over processing, transportation, motion, inventory, waiting time, defects, overproduction, and under-utilizing employee talents (8)	(18:53)(13 Q)
32	Five S (5S)	This element of the GSIP BOK discusses what 5S is and how to implement it. The five S's include Sort, Simplify, Sweep, Standardize, and Self-Discipline.	(25:17)(10 Q)
33	Takt Time	This element of the GSIP BOK discusses in detail the meaning of takt time and how to calculate takt time. Takt time is the pace you have to create to match customer demand.	(20:00)(10 Q)

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34	Value Steam Mapping (VSM)	This element of the GSIP BOK discusses what a value stream map is, how to create one and how effectively implement VSM to create more efficient and effective processes. Discusses symbols used in VSM.	(01:08:44)(16 Q)
35	Kaizen	This element of the GSIP BOK discusses the methodology referred to as Kaizen which is a simple to use method in solving day to day process problems. Kaizen is of great value as it gets everyone involved in creating solutions for process problems.	(19:55)(10 Q)
36	Poka Yoke	This element of the GSIP BOK discusses the Poka Yoke methodology which translated means to mistake proof a potential problem. This methodology focuses on fixing the system instead of punishing the person.	(14:21)(5 Q)
37	Standard In Process Stock (SPS)	This element of the GSIP BOK discusses a methodology that is used to make sure you have all the material available to complete a given job before starting that job.	(17:52)(7 Q)
38	Sequence Order	This element of the GSIP BOK discusses the importance of doing things in the proper order in an effort to create the most effective and efficient processes. Also discusses the sequence order chart.	(11:36)(3 Q)
39	Kanban	Discusses the visual inventory management methodology referred to as Kanban. Discusses what Kanban is, its objectives, and how to implement.	(12:24)(8 Q)
40	Process Standards	This element of the GSIP BOK discusses the fundamental importance of creating standards and following standards.	(10:43)(10 Q)
41	Production Flow	This element of the GSIP BOK discusses the fundamental importance of continuous flow processes.	(09:12)(10 Q)
42	Single Piece Flow	This element of the GSIP BOK discusses in detail of the importance of creating single piece flow and the basics on how to achieve this objective.	(20:18)(5 Q)
43	Visual Management	This element of the GSIP BOK discusses the basic principles of using 5S to create an organization that can be managed and improved using visual management.	(11:05)(5 Q)
44	Single Minute Exchange of Die (SMED)	This element of the GSIP BOK discusses the basics of the methodology referred to as SMED (Single Minute Exchange of Die). Discusses the objective of SMED which is to minimize downtime while switching process over to create new product or services due to customer orders. Discusses online and offline activities in an effort to reduce downtime.	(22:50)(10 Q)
45	Total Productive Maintenance (TPM)	This element of the GSIP BOK discusses a methodology for maintaining equipment in a more effective way by getting everyone involved (creating ownership) in maintenance activities.	(14:52)(10 Q)
46	Jidoka	This element of the GSIP BOK discusses how to use automation with the human touch often referred to as Jidoka. In Jidoka designed processes the process will automatically shut down if the process is not producing quality outputs.	(14:12)(5 Q)
47	Yokoten	This element of the GSIP BOK discusses the methodology referred to as Yokoten. Yokoten is used to create an education element in the organization that learns from other teams projects (process knowledge) in an effort to minimize redundant efforts in process improvement activities.	(08:29)(4 Q)
48	First Time Quality (FTQ)	This element of the GSIP BOK discusses the importance of running processes with zero defects. Zero defects is important in creating the ultimate objective of continuous flow in our processes.	(15:12)(7 Q)
49	Pull Systems	This element of the GSIP BOK discusses in greater detail the philosophy of the pull system and discusses	(22:14)(10 Q)

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		different types of pull systems including sequential, supermarket, and mixed pull systems.	
50	Three P's	This element of the GSIP BOK discusses the 3 P's which consist of Production, Process, and Preparation and how to implement it.	(24:49)(13 Q)
51	Hoshin Kanri	This element of the GSIP BOK discusses the Hoshin Kanri methodology for the strategic planning process including monthly and annual reviews concerning the implementation of strategic plans.	(23:01)(7 Q)
52	LEAN Vocabulary	This element of the GSIP BOK discusses the various words used in the LEAN methodology. Many of the words used in this discussion are a review of what was learned earlier but some new words are also introduced.	(32:40)(17 Q)
53	LEAN Putting it all Together	This element of the GSIP BOK discusses LEAN in such a way that it brings all the past discussion together in such a way that students can see how everything fits together.	(50:52)(13 Q)
54	Calculate FPY, and Takt Time	This element of the GSIP BOK discusses how to use mathematical formulas to calculate first pass yield (FPY) and takt time. These formulas are fundamental to the LEAN methodology.	(16:12)(5 Q)
55	Calculate LT, Fin, Inv. Turns, Que Time	Discuss how to use mathematical formulas to calculate lead time, basic financial values such as profit and selling price. Also discussed how to use mathematical formulas to calculate inventory turns and que time. These formulas are fundamental to the LEAN methodology.	(10:32)(5 Q)
56	Calculate WT, OEE, Change Over Time	This element of the GSIP BOK discusses how to use mathematical formulas to calculate wait time, overall equipment effectiveness, availability, and change over time. These formulas are fundamental to the LEAN methodology.	(14:13)(5Q)
57	Fundamentals and Project Selection	This element of the GSIP BOK is the first module where the Six Sigma training begins. This lecture discusses what a Six Sigma project may look like. This lecture discusses the Z statistic. This lecture also defines what is referred to as the Traditional Problem and the 5 fundamental solutions to the Traditional Problem. This lecture also defines 6 specific projects which include Designing to Standards, Pre-Defining Process Scrap, Decreasing Raw Materials via Reducing Sigma, Inventory Reduction (award winning project), Savings Tables, and Designing a Controlled Process.	(01:30:17)(10 Q)
58	Introduction to Transformation	This element of the GSIP BOK is the first lecture/module that discusses how to perform organizational transformation as part of the GSIP BOK. This lecture discusses why organizational transformation is necessary (due to increases in complexity or "and" statements). This element of the BOK also discusses the limitations of the PBP (personify blame and punish) methodology and the	(1:30:48)(10 Q)

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		<p>importance of fixing systems vs punishing people. This element of the BOK also discusses, from a historical perspective, the relationship between organizational culture and how it provides an effective foundation for successful use of analytical tools. This element of the BOK also introduces the definition of leadership. This element of the BOK also defines the three elements of transformation which includes Personal Transformation, Cultural Transformation, and Tools Transformation. This material was taken from the Shingo Award winning publication entitled "Rising Above It All: The Art and Science of Organizational Transformation", which is a required publication for all GSIP certified individuals.</p>	
59	Personal Transformation	<p>This element of the GSIP BOK discusses the first element of transformation whose objective it is to change motivations. The discussion describes the importance of motivation as an organization will never become greater than that which motivates it. This material was taken from the Shingo Award winning publication entitled "Rising Above It All: The Art and Science of Organizational Transformation".</p>	(41:37)(5 Q)
60	Cultural Transformation (Part 1)	<p>This element of the GSIP BOK discusses the most challenging element of organizational transformation which is cultural transformation. This element discusses the importance of understanding human nature. If you do not understand human nature as a system you cannot improve human nature, much like you cannot improve processes unless you solve problems as system problems. This element of the BOK discusses the fundamental starting point of human nature which is referred to as Phase I behavior or the starting point of human behavior. This material was taken from the Shingo Award winning publication entitled "Rising Above It All: The Art and Science of Organizational Transformation".</p>	(23:25)(10 Q)
61	Cultural Transformation (Part 2)	<p>This element of the GSIP BOK discusses the second element of human behavior referred to as Phase II behavior. Phase II behavior is the result of a successful evolution from Phase I behavior which takes place by recognizing the joy of developing skills and talents. This material was taken from the Shingo Award winning publication entitled "Rising Above It All: The Art and Science of Organizational Transformation".</p>	(18:34)(5 Q)
62	Cultural Transformation (Part 3)	<p>This element of the GSIP BOK discusses the third element of human behavior which is the only element of human behavior that is powerful enough to change culture and is thus the essence of leadership. This material was taken from the Shingo Award winning publication entitled "Rising Above It All: The Art and Science of Organizational Transformation".</p>	(01:24:33)(20 Q)
63	Central Limit Theorem	<p>This element of the GSIP BOK discusses the most powerful theorem in statistics which is referred to as the Central Limit Theorem. The Central Limit Theorem consists of two principals. The first principal is averages create less variability than single events thus allowing less alpha risk when using analytical tools to answer the question "did something change". The second principal is that averages tend to be more normally distributed than singles events and becomes more normal as sample size increases.</p>	(01:03:00)(8 Q)
64	Variables Data SPC (X bar R)	<p>This element of the GSIP BOK introduces variables data SPC and goes over how to create the X bar R</p>	(52:02)(17 Q)

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		chart using the standard assumptions and mathematical formulas.	
65	X bar R SPC Spreadsheet	This element of the GSIP BOK instructs the user how to setup an SPC chart designed in Excel. This can help the student successfully implement SPC into the process environment.	(21:16)(0 Q)
66	Fundamental Quality Tools	This element of the GSIP BOK discusses the seven fundamental quality tools which include Flowcharts, Histograms, Pareto Diagrams, Cause and Effect Diagrams, Check Sheets, Control Charts (SPC), and Scatter Diagrams.	(31:09)(15 Q)
67	Short Run SPC	This element of the GSIP BOK discusses Short Run SPC. SPC is inherently data intensive and as a result traditional SPC did not work well in small order business environments, also referred to as “job shop” environments. Short Run SPC is redesigned in an effort to reduce the demand for large data sets. This element of the GSIP BOK discusses X-MR, MX MR, and Pre Control SPC.	(32:37)(6 Q)
68	Measurement System Analysis (MSA)	This element of the GSIP BOK discusses industry accepted procedures for determining if your process measurements are effective. This discussion includes the definition of terms such as Repeatability, Reproducibility, Bias, Linearity, Accepted Reference Value, Observed Value, Resolution, Effective Resolution, and Stability. This element also discusses how to perform a bias study. This element discusses three different methods for performing a gage R&R study which include Range, Average Range, and the ANOVA method.	(01:20:18)(15 Q)
69	MSA for Destructive Testing	This element of the GSIP BOK discusses how to perform an MSA for destructive testing. This type of data makes it difficult to use traditional MSA methodologies due to the inability to measure the same thing multiple times.	(32:30)(11 Q)
70	Median SPC Chart	This element of the GSIP BOK discusses the measure of central tendency called the median. This discussion then shows how to create a median chart via the standard mathematical formulas created for this particular chart.	(19:10)(10 Q)
71	X bar S SPC Chart	This element of the GSIP BOK discusses the chart used in processes where data is not the constraint. X bar S charts are often used in high data set environments with automated SPC (SPC software).	(04:54)(5 Q)
72	P and np SPC charts	This element of the GSIP BOK discusses using SPC in attribute data environments. The Binomial distribution is introduced along with the P and np SPC charts. These charts are designed to chart defectives. P charts can use non-constant sample sizes while the np chart must use constant sample sizes.	(49:23)(15 Q)
73	U and C SPC charts	This element of the GSIP BOK discusses using SPC in attribute type data environments. The Poisson distribution is introduced along with the u and c SPC charts. These charts are designed to chart defects. U	(14:55)(9 Q)

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		charts can use non-constant sample sizes while the c chart must use constant sample sizes.	
74	SPC (Minitab)	This element of the GSIP BOK discusses how to use SPC within the software program referred to as Minitab.	(06:13)(0 Q)
75	Capability Studies (Cpk)	This element of the GSIP BOK discusses the metric used to measure the probability of creating quality referred to as the Cpk study. This element discusses Cp upper, Cp lower, Cpk, and Cp which are used for short term analysis. This element of the GSIP BOK also discusses the statistics used to analyze long term data which includes the study of Pp upper, Pp lower, Ppk, and Pp. This element also compares the Cpk and Ppk to determine the level of robustness.	(01:09:04)(10 Q)
76	Z Statistic Capability	This element of the GSIP BOK discusses how to use the Z statistic to perform capability analysis. This element also discusses how to use the Z table in capability analysis.	(14:35)(11 Q)
77	Capability Studies (Minitab)	This element of the GSIP BOK discusses how to perform capability studies within the software program referred to as Minitab.	(09:37)(10 Q)
78	Probability Statistics	This element of the GSIP BOK discusses the fundamentals of probability statistics by describing the mathematical relationships using the independence assumption with "and" statement probability statistics and the mutually exclusive assumption with the "or" statement probability statistics.	(48:20)(11 Q)
79	Permutations and Combinations	This element of the GSIP BOK discusses the use and differences between permutation and combinations. This element prepares the student for more advanced probability statistic problems.	(15:41)(8 Q)
80	Non Normal Distributions	This element of the GSIP BOK discusses various distributions used in more complex probability statistics. The distributions discussed in this element include Exponential, Normal, Weibull, Binomial, Hypergeometric and Poisson distributions. The topic of distributions is divided into continuous and discrete.	(49:41)(21 Q)
81	Z Statistic Inference (Sigma is Constant)	This element of the GSIP BOK discusses the first of many discussions concerning hypothesis testing. This element discusses how to perform an inference study using the Z statistic which assumes normality of data and a constant standard deviation during the potential change in averages. This element teaches the student how to calculate the Z statistic and how to look up the critical statistic from the Z table based on a defined alpha risk. This element also discusses the importance of differentiating between statistical significance and practical significance. This element also teaches the student how to calculate the proper sample size so that when a study shows a statistical significance it will also show practical significance. The P statistic is also discussed in this module.	(01:06:21)(5 Q)
82	Z Statistic Inference (Sigma Changes)	This element of the GSIP BOK discusses a more complex formula for performing an inference without the assumption of a constant standard deviation. This element also discusses the Z statistic for the pooling of standard deviations.	(27:19)(12 Q)
83	t Statistic Inference	This element of the GSIP BOK discusses performing an inference study on the mean while taking into account sampling error while using the t statistic. This element discusses using assumptions of constant standard deviation, non-constant standard deviation, and pooled standard deviation. This element also	(27:39)(8 Q)

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		shows how to look up the critical t statistic by using the t table with a given alpha risk.	
84	Paired t Statistic Inference	This element of the GSIP BOK discusses how and when to use the paired t statistic for performing an inference study. The paired t is used when there is a natural pairing between the two data sets being compared.	(09:18)(9 Q)
85	Confidence Intervals for the Mean	This element of the GSIP BOK discusses confidence intervals for individuals (point estimates) and averages using the Z and t statistic as applicable to the data set being used.	(09:57)(7 Q)
86	Confidence Intervals for Variance	This element of the GSIP BOK discusses the procedure used to create confidence intervals for standard deviations using the Chi Squared statistic.	(06:35)(10 Q)
87	Confidence Interval for Proportions	This element of the GSIP BOK discusses the procedure used to create confidence intervals for proportions using the Z statistic.	(05:29)(6 Q)
88	Proportion Inference Study	This element of the GSIP BOK discusses performing inference studies for proportions using the Z statistic.	(08:41)(8 Q)
89	Uncertainty Studies	This element of the GSIP BOK discusses uncertainty studies. Uncertainty studies may be used to make effective accept or reject decisions while considering measurement variability. This discusses how to perform the calculation of the expanded uncertainty and how to create the uncertainty budget.	(47:22)(10 Q)
90	Hypothesis Studies	This element of the GSIP BOK discusses the language of inference studies. This element discusses the concept of null and alternative hypotheses.	(15:48)(11 Q)
91	F Statistic Inference	This element of the GSIP BOK discusses the procedure for performing an inference study for standard deviations using the F statistic. This element discusses how to perform right and left tailed F inference studies. This element also discusses how to use the F tables to get the F critical statistic using a given alpha risk.	(30:29)(9 Q)
92	Z, t, and F Inference studies (Minitab)	This element of the GSIP BOK discusses how to perform inference studies within the software program referred to as Minitab.	(09:57)(0 Q)
93	Process Improvement Module Cost of Scrap	This element of the GSIP BOK discusses how to use some of the tools covered up to this point in the BOK. This Excel spread sheet exercise is a great way to start exercising these analytical tools to improve processes.	(38:58)(0 Q)
94	Chi Squared Inference Studies	This element of the GSIP BOK discusses the procedure on how to use the Chi Squared non-parametric test to make inferences of qualitative data. This element also discusses the procedure for performing the parametric Chi Squared test for determining changes in standard deviations under the assumption of a normal distribution.	(26:30)(10 Q)
95	Nonparametric Inference Studies	This element of the GSIP BOK discusses nonparametric tests which includes Kruskal-Wallis, Kendall Coefficient of Concordance, Spearman Rank	(40:27)(15 Q)

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96	Nonparametric Tests (Minitab)	This element of the GSIP BOK discusses how to perform nonparametric inference studies within the software program referred to as Minitab.	(09:57)(0 Q)
97	One Way ANOVA Inference	This element of the GSIP BOK discusses the procedure on how to use the one way ANOVA for analyzing one variable at many different levels. The assumptions for ANOVA are discussed which consists of normally distributed data, equal variance, and the error term being independent and normally distributed.	(43:01)(10 Q)
98	Two Way ANOVA and MANOVA	This element of the GSIP BOK discusses the two way ANOVA that is used to study two variables and the interaction between those variables. This element also discusses the MANOVA which allows the inference study of the means for several different dependent and independent variables.	(28:48)(5 Q)
99	ANOVA Studies (Minitab)	This element of the GSIP BOK discusses how to perform ANOVA studies within the software program referred to as Minitab.	(8:48)(0 Q)
100	Linear Regression Analysis	This element of the GSIP BOK discusses the procedure for creating linear regression formulas. This element discusses the slope, the Y intercept and how to interpret them and create them. This element also discusses the terms error or residuals as well as the concept of standard error which is the standard deviation of the residuals.	(39:54)(12 Q)
101	Correlation Analysis	This element of the GSIP BOK discusses the statistics used to determine the strength of dependent and independent variables using the correlation coefficient, also referred to as the r statistic, and the coefficient of determination or R ² .	(18:06)(9 Q)
102	Statistical Analysis in Linear Regression	This element of the GSIP BOK discusses how to perform inference studies and confidence intervals on linear regression formulas.	(36:58)(10 Q)
103	Linear Regression Example	This element of the GSIP BOK discusses a case study example on a simple linear regression activity.	(11:49)(0 Q)
104	Linear Regression (Minitab)	This element of the GSIP BOK discusses how to perform multi variable linear regression studies within the software program referred to as Minitab.	(12:46)(0 Q)
105	Reliability Engineering (Vocabulary)	This element of the GSIP BOK discusses terms such as Reliability, MTBF, Failure Rate, MTTF, MTTR, MTBMA, and MMT. This element also shows the procedure for calculating Reliability, MTBF, Failure Rate, MTTF, MTTR, MTBMA, and MMT.	(20:35)(13 Q)
106	Reliability Engineering (Bathtub Curve)	This element of the GSIP BOK discusses the bathtub curve which is a popular curve or function used in reliability engineering analysis. This element discusses the three sections of the curve and the mathematical models associated with the various sections. The three distributions discussed are the Weibull, Exponential, and Normal and how to use these distributions to calculate reliability.	(18:50)(12 Q)
107	Reliability Engineering (Block Diagrams)	This element of the GSIP BOK discusses how to use block diagrams in reliability studies and how to calculate overall reliability using block diagrams. This element also covers the symbols used in block diagrams.	(22:47)(13 Q)
108	Standby Parallel Systems	This element of the GSIP BOK discusses a more complex and complete reliability analysis. This	(22:33)(10 Q)

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		<p>element discusses calculating reliability under the assumptions of standby redundancy, equal failure rates, and perfect switching.</p> <p>This element also discusses determining reliability under the assumptions of unequal failure rates, perfect switching.</p> <p>This element also discusses determining reliability under the assumptions of standby redundancy, equal failure rates, and imperfect switching.</p> <p>This element also discusses determining reliability under the assumptions of standby redundancy unequal failure rates, imperfect switching.</p> <p>This element also analyzes shared load systems and standby reliability enhancements.</p>	
109	Introduction to DOE	This element of the GSIP BOK introduces concepts used in Design of Experiments (DOE). This element discusses Response, Parameter or Factor, Level Setting, Factor Effects, Experimental Noise, Robust Designs, Orthogonal Design, Full Factorial Design, Replications, Sum of Squares, Factor Effects Plot, Factor Interactions, and Fractional Factorial Design.	(01:17:00)(10 Q)
110	Full Factorial DOE	This element of the GSIP BOK discusses how to design and analyze a full factorial DOE (Design of Experiment). The full factorial DOE is an experiment that takes into account all possible variables and level settings.	(01:20:48)(11 Q)
111	Fractional Factorial DOE	This element of the GSIP BOK discusses how to design and analyze a fractional factorial DOE (Design of Experiment). The fractional factorial DOE is an experiment that does not take into account all possible variables and level settings. Fractional factorial DOE's are used when full factorials are too expensive or time consuming.	(24:33)(10 Q)
112	Screening Designs	This element of the GSIP BOK discusses how to design and analyze a screening DOE's (Design of Experiment). The screening DOE is an experiment that does not take into account all possible variables and level settings. Screening DOE's are used when fractional factorials are too expensive or time consuming. Screening designs are highly fractionalized and often use K+1 number of runs.	(8:33)(10 Q)
113	Taguchi DOE	This element of the GSIP BOK discusses how to design and analyze a Taguchi screening design. Taguchi designs are specially designed screening experiments that are unique to the Taguchi methods. This element discusses mixed level designs among other designs unique to Taguchi.	(34:45)(10 Q)
114	Latin Square Designs	This element of the GSIP BOK discusses a specialized design methodology referred to as Latin Square Designs, Greco Latin Square Designs, and Hyper Greco Latin Square Designs.	(06:18)(6 Q)
115	Response Surface Methodologies	This element of the GSIP BOK discusses response surface methodologies which includes specific	(32:13)(5 Q)

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		discussions concerning the Box Behnken design and the Central Composite design.	
116	DOE Advanced Vocabulary	This element of the GSIP BOK discusses terms related to DOE such as Alias, Balanced Design, Block, Blocking, Collinear, Covariates, Curvature, Degrees of Freedom, EVOP, Mixture Experiments, Multi – Collinearity, Nested Experiment, Cluster Analysis and Parallel Experiments. Part of this vocabulary is a review from previous lectures.	(23:51)(10 Q)
117	DOE (Minitab)	This element of the GSIP BOK discusses how to perform DOE studies within the software program referred to as Minitab.	(24:41)(0 Q)
118	Benchmarking	This element of the GSIP BOK discusses the procedure used to perform effective benchmarking activities.	(16:57)(10 Q)
119	DFSS IDOV, DMADV	This element of the GSIP BOK introduces the concept of DFSS, Stage Gate Process, Product Development, IDOV, DMAIC, and DMADOV.	(51:35)(20 Q)
120	DFSS Design for X, French Model	This element of the GSIP BOK discusses the French Design Model and the DFX methodology.	(22:26)(13 Q)
121	DFSS Taguchi	This element of the GSIP BOK discusses the Taguchi Loss Function and Statistical Tolerancing. This element discusses such topics as control factors, noise factors, and robust design methodologies.	(01:21:00)(14 Q)
122	DFSS Porter’s 5 competitive Forces	This element of the GSIP BOK discusses Porter’s Five Competitive Forces.	(20:56)(5 Q)
123	DFSS Portfolio and Set Based	This element of the GSIP BOK discusses Portfolio Architecting and Set Based Design.	(26:55)(14 Q)
124	DFSS TRIZ	This element of the GSIP BOK discusses the Theory of Inventive Problem Solving (TRIZ) methodology.	(27:30)(11 Q)
125	DFSS System Design, CPM, Pugh Analysis	This element of the GSIP BOK discusses Systematic Design, Critical Parameter Management, and Pugh Analysis.	(26:33)(10 Q)
126	Application Module 1	This element of the GSIP BOK discusses how to derive a quality standard based upon the number of “and” statements and the final rolled through put yield goal.	(23:38)(0 Q)
127	Application Module 2	This element of the GSIP BOK summarizes the LEAN Six Sigma class content.	(01:09:52)(0 Q)
128	Application Module 3	This element of the GSIP BOK discusses how reducing sigma in our processes save our organizations money.	(34:23)(0 Q)
129	Application Module 4	This is being held in reserve for a future topic.	
	RED Titles are lectures currently being added to the BOK		Times and questions are estimates
	Final Exam Questions (approximate) =	120	
	Total Number of Module Test Questions=	1,130	
	Total Number of Questions=	1,250	
	Total Lecture Time =	58 hours 39 minutes	
	Estimated time to complete module exams=	40 hours	
	Estimated time to study for certification exam =	19 hours	
	Certification Exam (Time) =	3 hours	
	Total Estimated Time for GSIP Certification =	120 hours 39 minutes	

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