



## TABLE OF CONTENTS

I. CERTIFICATION OVERVIEW .....	I-1	V. DEFINE - PROJECTS, TOOLS & RESULTS .....	V-1
CSSGB EXAM .....	I-3	A. PROJECT MANAGEMENT BASICS .....	V-2
CSSGB BODY OF KNOWLEDGE .....	I-6	1. Project Charter .....	V-2
II. SIX SIGMA GOALS .....	II-1	2. Project Scope .....	V-6
A. VALUE OF SIX SIGMA .....	II-2	3. Project Metrics .....	V-13
B. ORIGINS OF SIX SIGMA .....	II-10	4. Project Planning Tools .....	V-19
C. ORGANIZATIONAL DRIVERS .....	II-26	5. Project Documentation .....	V-31
D. GOALS AND PROJECTS .....	II-36	6. Project Risk Analysis .....	V-35
E. REFERENCES .....	II-42	7. Project Closure .....	V-38
III. LEAN & DFSS .....	III-1	B. MANAGEMENT AND PLANNING TOOLS ....	V-39
A. LEAN PRINCIPLES .....	III-2	C. BUSINESS RESULTS FOR PROJECTS .....	V-54
1. Lean Concepts and Tools .....	III-2	1. Process Performance .....	V-54
2. Non-Value-Added Activities .....	III-27	2. FMEA .....	V-66
3. Theory of Constraints .....	III-29	D. REFERENCES .....	V-71
B. DESIGN FOR SIX SIGMA (DFSS) .....	III-34	VI. MEASURE - DATA & PROCESS ANALYSIS .....	VI-1
1. DFSS Road Maps .....	III-34	A. PROCESS ANALYSIS AND DOCUMENTATION .	VI-2
2. Quality Function Deployment (QFD) ..	III-44	1. Process Modeling .....	VI-2
3. FMEA Varieties .....	III-47	2. Process Inputs and Outputs .....	VI-8
C. REFERENCES .....	III-53	B. COLLECTING AND SUMMARIZING DATA ..	VI-14
M. DEFINE - TEAMS & CUSTOMERS .....	IV-1	1. Data Types .....	VI-14
A. PROCESS MANAGEMENT FOR PROJECTS .	IV-2	2. Data Collection Methods .....	VI-19
1. Process Elements .....	IV-2	3. Data Accuracy and Integrity .....	VI-23
2. Owners and Stakeholders .....	IV-7	4. Descriptive Statistics .....	VI-25
3. Identify Customers .....	IV-10	5. Graphical Methods .....	VI-31
4. Collect Customer Data .....	IV-16	C. REFERENCES .....	VI-41
5. Analyze Customer Data .....	IV-21	VII. MEASURE - PROBABILITY .....	VII-1
6. Translate Customer Requirements ..	IV-23	A. PROBABILITY AND STATISTICS .....	VII-2
B. TEAM DYNAMICS AND PERFORMANCE ...	IV-32	1. Valid Statistical Conclusions .....	VII-2
1. Team Stages and Dynamics .....	IV-32	2. Central Limit Theorem .....	VII-5
2. Six Sigma and Other Team Roles ....	IV-49	3. Basic Probability Concepts .....	VII-7
3. Team Tools .....	IV-56	B. PROBABILITY DISTRIBUTIONS .....	VII-13
4. Communications .....	IV-62	1. Binomial Distribution .....	VII-13
C. REFERENCES .....	IV-72	2. Poisson Distribution .....	VII-16
		3. Normal Distribution .....	VII-18
		4. Chi-Square Distribution .....	VII-20

5. Student's T Distribution .....	VII-22	3. Application of Control Charts .....	XI-9
6. F Distribution .....	VII-24	i. Variable Charts .....	XI-10
C. REFERENCES .....	VII-26	ii. Attribute Charts .....	XI-21
VIII. MEASURE - CAPABILITY & MEASUREMENT ..	VIII-1	4. Analysis of Control Charts .....	XI-29
A. MEASUREMENT SYSTEM ANALYSIS .....	VIII-2	B. CONTROL PLANS .....	XI-36
B. PROCESS CAPABILITY AND PERFORMANCE	VIII-15	C. REFERENCES .....	XI-42
1. Process Capability Studies .....	VIII-15	XII. APPENDIX/TABLES .....	XII-1
2. Process Performance Vs. Spec ....	VIII-21	A. INDEX .....	XII-13
3. Process Capability Indices .....	VIII-25	B. ANSWERS .....	XII-25
4. Short-Term Vs. Long-Term Capability .	VIII-27		
5. Process Capability for Attributes ..	VIII-29		
C. REFERENCES .....	VIII-30		
IX. ANALYZE .....	IX-1		
A. EXPLORATORY DATA ANALYSIS .....	IX-2		
1. Multi-Vari Studies .....	IX-2		
2. Correlation and Regression .....	IX-8		
B. HYPOTHESIS TESTING .....	IX-24		
1. Basic Concepts .....	IX-24		
2. Point & Interval Estimation .....	IX-34		
3. Major Tests .....	IX-37		
4. Paired-Comparison Tests .....	IX-43		
5. Single-Factor Anova .....	IX-50		
6. Chi-Square .....	IX-56		
C. REFERENCES .....	IX-62		
X. IMPROVEMENT TECHNIQUES .....	X-1		
A. DESIGN OF EXPERIMENTS (DOE) .....	X-2		
1. Introduction .....	X-2		
2. Terminology .....	X-9		
3. Design Types .....	X-18		
B. IMPLEMENT AND VALIDATE SOLUTIONS ..	X-28		
1. Response Surfaces .....	X-30		
2. EVOP .....	X-31		
3. DOE Improvement Analysis .....	X-32		
4. Measurement System Re-Analysis ...	X-38		
C. REFERENCES .....	X-40		
XI. CONTROL CONCEPTS .....	XI-1		
A. STATISTICAL PROCESS CONTROL (SPC) ...	XI-2		
1. Objectives and Benefits .....	XI-2		
2. Rational Subgrouping .....	XI-6		