

## **Six Sigma Black Belt Course Details**

### **Module 1: The Responsive Six Sigma Organization**

- What is Six Sigma?
- Six Sigma Philosophy
- Change Imperative
- Implementing Six Sigma
- Timetable
- Infrastructure
- Recognizing Opportunity
- Methods for Collecting Customer Data
- Becoming a Customer and Market-Driven Enterprise
- Quality Function Deployment
- Benchmarking
- Constraint Management Measurements

### **Module 2: Data-Driven Management and Maximizing Resources**

- Attributes of Good Metrics
- The Balanced Scorecard
- Customer Perspective
- Internal Process Perspective
- Innovation and Learning Perspective
- Financial Perspective
- Strategy Deployment Plan
- Business Planning
- Data Mining
- Choosing the Right Projects
- Analyzing Project Candidates
- Ongoing Management Support
- Individual Barriers to Change
- Throughput-Based Project Selection
- Ongoing Management Support

### **Module 3: Project Management and Define Phase**

- DMAIC and DMADV Deployment Models
- Project Scheduling
- Project Reporting & Budgets
- Six Sigma Teams

- Stages in Group Development
- Member Roles and Responsibilities
- The Define Phase
- Project Charters
- Project Decomposition
- Deliverables
- Top-Level Process Definition
- Assembling the Team

#### **Module 4: Measure Phase and Process Behavior Charts**

- Process Definition
- Metric Definition
- Process Baseline Estimates
- Control Charts for Variables Data
- Poisson Distribution
- Frequency and Cumulative Distributions
- Sampling Distributions
- Binomial Probability Distribution
- Hypergeometric Probability Calculations
- Normal Probability
- Lognormal Probability
- Exponential Probability
- Control Charts for Variables Data
- Control Limit Equations for Averages and Ranges Charts

#### **Module 5: Measurement Systems Evaluation and Analyze Phase**

- Definitions
- Measurement System Discrimination
- Stability
- Repeatability
- Linearity
- Output
- Value Stream Analysis
- Value Stream Mapping
- Spaghetti Charts
- Analyzing the Source of Variation
- Cause and Effect Diagrams
- Boxplots

- Regression and Correlation Analysis

### **Module 6: Improve/Design and Control/Verify Phases**

- Using Customer Demands to Make Decisions
- Lean Techniques for Optimizing Flow
- Using Empirical Model Building to Optimize
- Data Mining
- Artificial Neural Networks
- Virtual Process Mapping
- Optimization Using Simulation
- Risk Assessment Tools
- Failure Mode and Effect Analysis
- Defining New Performance Standards Using Statistical Tolerancing
- Validating the New Process or Product Design
- Business Process Control Planning