

## Green Belt Certification Checklist



Earn a Yellow Belt Certificate



Watch Green Belt video tutorials and complete the “dojo” exercises.  
(see list with links below)



Complete an Improvement Project. Your project should use QI Macros and follow the requirements listed pages 3 and 4.

Order your initial project review \$250 and submit your project to jay(at)qimacros.com



- If your project passes review, you will receive an email with a link to order your certification for \$250.
- If your project does not pass review, you will receive an email with feedback. You may purchase an additional review for \$250.

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## Video Checklist - Click on Links to View Videos

### Introduction

[Intro to Lean Six Sigma Training](#)  
[What is Lean Six Sigma?](#)  
[DMAIC - FISH](#)  
[LSSMB Workbook in pdf format](#)

### Planning Tools

[Planning Tools Overview](#)  
[Balanced Scorecard](#)  
[Affinity Diagram](#)  
[Arrow Diagram](#)  
[Matrix Diagram](#)  
[Priority Matrix Diagram](#)  
[PDPC](#)  
[Relationship Diagram](#)  
[Theory of Constraints](#)  
[Tree Diagram](#)

### Optional Videos and Webinars

[Denny Dent Paints Jimi Hendrix](#)  
[Denny Dent](#)  
[QI Macros Webinar](#)  
[LSS Demystified Webinar](#)  
[LSS for Healthcare Webinar](#)

### Forms and Calculators

[AQPQ Control Plan](#)  
[Cost of Quality](#)  
[Defective Parts Per Million – Rolled](#)  
[Throughput Yield](#)  
[Flowchart Diagram](#)  
[FMEA](#)  
[Ishikawa Fishbone Diagram](#)  
[Sample Size Calculator](#)  
[SIPOC Diagram](#)  
[Voice of the Customer](#)

### **Specific Control Charts**

[ANOM Control Chart](#)  
[CUSUM Chart](#)  
[EWMA Chart](#)  
[Hotelling Chart](#)  
[I-MR-R Chart](#)  
[Levey Jennings Chart](#)  
[Moving Average Chart](#)  
[Short Run Chart](#)  
[X Median R Chart](#)  
[XmR Trend Chart](#)

### **MSA Gage R&R**

[What is MSA?](#)  
[Setup a Gage R&R Study](#)  
[Gage R&R](#)  
[Attribute R&R](#)  
[Linearity Study](#)  
[MSA Dojo](#)

### **SPC Charts**

[Control Charts](#)  
[Pareto Chart](#)  
[Histogram](#)  
[Weibull Histogram](#)  
[Box & Whisker Plot](#)  
[Multivari Chart](#)  
[Chart Dojo Exercises](#)

### **Hypothesis Testing**

[Hypothesis Testing Overview](#)  
[Stat Wizard](#)  
[Normality](#)  
[ANOVA 1](#)  
[ANOVA 2](#)  
[F Test](#)  
[Levenes Test](#)  
[t Test 1-Sample](#)  
[t Test 2-Sample](#)  
[t Test Paired](#)  
[Chi-Squared](#)  
[Proportion Test](#)  
[Regression](#)  
[Non-Parametric](#)  
[Hypothesis Testing Dojo Exercises](#)

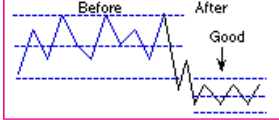
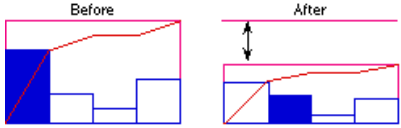
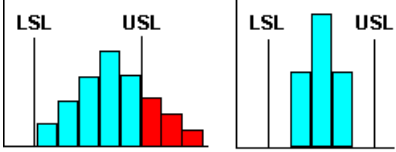
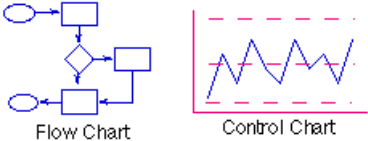
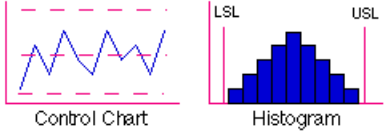
**Green Belt Project Requirements**

1. All projects must be submitted in a single Excel workbook containing all data, charts and templates.
2. All charts and diagrams must be created using QI Macros and Excel.
3. We will not accept Word or PowerPoint files, or pictures of charts, or projects without raw data.
4. Excel worksheets must be in the order shown below to follow the improvement process:

Control chart (before) / Pareto (before) / Fishbone / Countermeasures / Action Plan / Pareto (after) / Control Chart (after)

Step #	Project to Reduce Defects	Project to Reduce Deviation
<b>1</b>	All projects should begin with data about the problem (defects or deviation). Do not try to retrofit a Six Sigma project to some accidental, knee-jerk success. You must submit your raw data with your project. If you ran pivottables on your data include those too.	
<b>2</b>	Control Chart that <b>analyzes defects, mistakes, errors or costs over time</b> . Use time-series data: X axis should be dates or times.	Control Chart that <b>analyzes deviation over time</b> . Use time-series data: X axis should be dates or times.
	Based on the Control Chart - Is the Process Stable? If not, analyze root causes of out-of-control points to stabilize the process before improvement. See Root Causes below.	
<b>3</b>	<b>Draw a Pareto Chart to analyze defect categories</b> using the Control Chart data.  Use category data (e.g. defect types) NOT time series data. There should be two levels of Pareto charts. There may be more than one "Big Bar" resulting in more than one fishbone.	<b>Draw a Histogram to analyze process capability</b> using the Control Chart data.  Is the process capable? (Cp > 1.33, Cpk > 1.33) If not, analyze root causes.
<b>4</b>	<b>Analyze Root Causes of Defects.</b> The head of the Fishbone should be the "Big Bar" on the Pareto Chart. Root causes must be the last bone in any chain. <b>Circle the Root Causes.</b>	<b>Analyze Root Causes of Deviation.</b> Use for special (out-of-control points) and common causes.
<b>5</b>	<b>Countermeasures and Action Plan for Improvement.</b> Copy the Problem Statement and Root Causes from the Fishbone Diagram into the Countermeasures Matrix.  Countermeasures describe clear methods for changing the process to prevent defects and deviation, not detect or correct them after they occur. Cost savings from implementing these changes should be included.	

**Developers of the QI Macros for Excel and Lean Six Sigma Demystified**

	<p><b>Countermeasures should not involve:</b></p> <ul style="list-style-type: none"> <li>• adding more people (especially inspectors) because you don't need more people, you need less rework and waste.</li> <li>• spending more money (process changes are often procedural not mechanical).</li> <li>• automating the detection and correction process (i.e., inspection).</li> <li>• more training (it's not a people problem, it's a process problem).</li> </ul>	
<p><b>6</b></p>	 <p>Comparing Control Charts</p>	<p>Verify Results by comparing before and after control charts showing improvement.</p>
<p><b>7</b></p>	 <p>Comparing Pareto Charts</p> <p>Verify Results by comparing original and new Pareto Chart side-by-side. Adjust Y-axis scale to show reduction.</p>	 <p>Before and After Histogram</p> <p>Verify Results by comparing original and new histogram.</p>
<p><b>8</b></p>	 <p>Flow Chart      Control Chart</p> <p>Control plan to sustain the improvement using a consistent process and control chart.</p>	 <p>Control Chart      Histogram</p> <p>Control plan to sustain the improvement using a consistent process, control chart and histogram.</p>