



**TRAINING TITLE:**

ASQ Certified Six Sigma Green Belt  
Academia (ACAD-003)

**OVERVIEW:**

The Certified Six Sigma Green Belt is a professional who operates in support of or under the supervision of a Six Sigma Black Belt, analyzes and solves quality problems and is involved in quality improvement projects. A Green Belt is someone with at least three years of work experience who wants to demonstrate his or her knowledge of Six Sigma tools and processes.

**TARGET GROUP FOR THE TRAINING:**

This training is aimed at all persons interested in preparing for the ASQ Certified Six Sigma Green Belt exam provided twice per year. Attendees will obtain a better understanding of some of the Lean Six Sigma principles required to become a Six Sigma Green Belt.

**LEARNING OBJECTIVES:**

- Identify the most widely used Lean Six Sigma tools and techniques
- Apply the appropriate tools for each situation faced on a daily basis by a Six Sigma Green Belt
- Prepare for the ASQ Certified Six Sigma Green Belt exam

**MATERIALS:**

Each participant will receive:

- *CSSGB Primer and Solution Text*, published by Quality Council of Indiana
- *The Certified Six Sigma Green Belt Handbook*, published by ASQ Quality Press
- Certificate of Attendance

**TRAINING DURATION:**

35 contact hours



BEC is authorized by IACET to offer 3.5 CEUs for this program. FULL attendance to the learning event is mandatory to receive CEUs.

**COURSE INSTRUCTOR:**

**Hector Ortiz Beltrán** is Senior Business Excellence Manager for Johnson & Johnson and has been responsible for supporting the institutionalization of Process Excellence for J&J-PR affiliates, reinforcing the leadership competencies and change management mindset needed for an effective deployment of continuous improvements techniques. He has over 20 years of experience at Johnson & Johnson, in positions of increasing responsibility on the consumer (J&J Hemisferica) and medical devices (Ethicon) sectors as well as J&J Business Services organization. He also provides internal and external consulting services to J&J Master Black Belt Leadership Groups. He received his Master's Degree (MBA) in Materials Management from Turabo University, in Gurabo PR. He is also a licensed Professional Engineer registered in Puerto Rico. Hector is a Master Black Belt for Johnson & Johnson and ASQ Certified Quality Engineer.

**Arlene Delgado Velázquez** is a training consultant within the FDA-regulated industries and educational sectors with over 20 years of experience. She has a Bachelor Degree in Industrial Microbiology from the University of Puerto Rico, at Humacao Campus. She also has a Master Degree in Industrial Engineering in Manufacturing Competitiveness and Quality Management from the Polytechnic University of Puerto Rico, in Hato Rey, P.R. Since year 2013, she is fully devoted to consulting under Business Excellence Consulting Inc, focusing on training on related Quality sectors. She also serves as professor in the Humacao Community College for Biology, Biotechnology, Microbiology and Validation, and GMP courses. She is an ASQ Certified Six Sigma Green Belt, Manager of Quality & Organizational Excellence and Certified Quality Auditor.

**Manuel E. Peña-Rodríguez** is a process improvement and training consultant within the textiles, electronics, and FDA-regulated industries with more than 20 years of experience in those fields. Since January 2006, he is fully devoted to consulting under Business Excellence Consulting Inc, focusing on training and implementation of Lean Six Sigma initiatives and CAPA / Root Cause Analysis workshops. He also serves as professor in the graduate program in biochemistry at the University of Puerto Rico, Medical Sciences Campus, in San Juan. Manuel received his J.D. degree from the Pontifical Catholic University of Puerto Rico and his master's of engineering in Engineering Management from Cornell University in Ithaca NY. He is also a licensed Professional Engineer registered in Puerto Rico. Manuel is an ASQ Certified Six Sigma Black Belt, Manager of Quality & Organizational Excellence, Quality Engineer, Quality Auditor, Biomedical Auditor, and HACCP Auditor. He is also a Senior member of ASQ and former Chair of the Puerto Rico ASQ Section. He is the author of the book "*Statistical Process Control for the FDA-Regulated Industry*", published by ASQ Quality Press in April 2013 and co-author (with José Rodríguez-Pérez) of the article "*Fail-Safe FMEA*" published in the January 2012 edition of the ASQ Quality Progress magazine.



**Title:** ASQ Certified Six Sigma Green Belt (Day 1)

**Lunch** from 12:00 – 13:00.

**Coffee break:** 15 min. each during morning and afternoon session. Time schedule are rough estimates and may vary consequently.

**Agenda**

8:30 – 9:00	<b>Certification Overview</b>
9:00 – 10:15	<b>Six Sigma Goals</b> <ul style="list-style-type: none"> <li>• Value of Six Sigma</li> <li>• Origins of Six Sigma</li> <li>• Organizational drivers</li> <li>• Goals and projects</li> </ul>
10:15 – 10:30	<b>Break</b>
10:30 – 12:00	<b>Lean and DFSS</b> <ul style="list-style-type: none"> <li>• Lean concepts and tools</li> <li>• Non-value added activities</li> <li>• Theory of constraints</li> <li>• Quality function deployment</li> <li>• FMEA</li> <li>• Practice exercises</li> </ul>
12:00 – 13:00	<b>Lunch</b>
13:00 – 15:00	<b>Define – Teams and Customers</b> <ul style="list-style-type: none"> <li>• Process elements</li> <li>• Owners and stakeholders</li> <li>• Identify customers</li> <li>• Collect customer data</li> <li>• Analyze customer data</li> </ul>
15:00 – 15:15	<b>Break</b>
15:15 – 17:00	<b>Define – Teams and Customers (cont.)</b> <ul style="list-style-type: none"> <li>• Team stages and dynamics</li> <li>• Team roles</li> <li>• Team tools</li> <li>• Communications</li> <li>• Practice exercises</li> </ul>



**Title:** ASQ Certified Six Sigma Green Belt (Day 2)

**Lunch** from 12:00 – 13:00.

**Coffee break:** 15 min. each during morning and afternoon session. Time schedule are rough estimates and may vary consequently.

**Agenda**

8:30 – 10:15	<b>Define – Projects, Tools, and Results</b> <ul style="list-style-type: none"> <li>• Project charter</li> <li>• Project scope</li> <li>• Project metrics</li> <li>• Project planning tools</li> <li>• Project documentation</li> </ul>
10:15 – 10:30	<b>Break</b>
10:30 – 12:00	<b>Define – Projects, Tools, and Results (cont.)</b> <ul style="list-style-type: none"> <li>• Project risk analysis</li> <li>• Project closure</li> <li>• Management and planning tools</li> <li>• Business results for projects</li> <li>• Practice exercises</li> </ul>
12:00 – 13:00	<b>Lunch</b>
13:00 – 15:00	<b>Measure – Data and Process Analysis</b> <ul style="list-style-type: none"> <li>• Process analysis and documentation</li> <li>• Process modelling</li> <li>• Process inputs and outputs</li> </ul>
15:00 – 15:15	<b>Break</b>
15:15 – 17:00	<b>Measure – Data and Process Analysis (cont.)</b> <ul style="list-style-type: none"> <li>• Data types</li> <li>• Data collection methods</li> <li>• Data accuracy and integrity</li> <li>• Descriptive statistics</li> <li>• Graphical methods</li> <li>• Practice exercises</li> </ul>



**Title:** ASQ Certified Six Sigma Green Belt (Day 3)

**Lunch** from 12:00 – 13:00.

**Coffee break:** 15 min. each during morning and afternoon session. Time schedule are rough estimates and may vary consequently.

**Agenda**

8:30 – 10:15	<b>Measure – Probability</b> <ul style="list-style-type: none"> <li>• Valid statistical conclusions</li> <li>• Central limit theorem</li> <li>• Basic probability concepts</li> </ul>
10:15 – 10:30	<b>Break</b>
10:30 – 12:00	<b>Measure – Probability (cont.)</b> <ul style="list-style-type: none"> <li>• Binomial distribution</li> <li>• Poisson distribution</li> <li>• Normal distribution</li> <li>• Chi-square distribution</li> <li>• Student-t distribution</li> <li>• F distribution</li> <li>• Practice exercises</li> </ul>
12:00 – 13:00	<b>Lunch</b>
13:00 – 15:00	<b>Measure – Capability and Measurement</b> <ul style="list-style-type: none"> <li>• Measurement system analysis</li> <li>• Process capability and performance</li> <li>• Process capability studies</li> <li>• Process performance vs. specs</li> </ul>
15:00 – 15:15	<b>Break</b>
15:15 – 17:00	<b>Measure – Capability and Measurement (cont.)</b> <ul style="list-style-type: none"> <li>• Process capability indices</li> <li>• Short-term vs. long-term capability</li> <li>• Process capability for attributes</li> <li>• Practice exercises</li> </ul>



**Title:** ASQ Certified Six Sigma Green Belt (Day 4)

**Lunch** from 12:00 – 13:00.

**Coffee break:** 15 min. each during morning and afternoon session. Time schedule are rough estimates and may vary consequently.

**Agenda**

8:30 – 10:15	<p><b>Analyze</b></p> <ul style="list-style-type: none"> <li>• Multi-vari analysis</li> <li>• Correlation and regression</li> <li>• Hypothesis testing</li> </ul>
10:15 – 10:30	<p><b>Break</b></p>
10:30 – 12:00	<p><b>Analyze (cont.)</b></p> <ul style="list-style-type: none"> <li>• Point and interval estimates</li> <li>• Paired comparison tests</li> <li>• Single factor ANOVA</li> <li>• Chi-square test</li> <li>• Practice exercises</li> </ul>
12:00 – 13:00	<p><b>Lunch</b></p>
13:00 – 15:00	<p><b>Improvement Techniques</b></p> <ul style="list-style-type: none"> <li>• Design of Experiments introduction</li> <li>• Design of Experiments terminology</li> <li>• Design types</li> </ul>
15:00 – 15:15	<p><b>Break</b></p>
15:15 – 17:00	<p><b>Improvement Techniques (cont.)</b></p> <ul style="list-style-type: none"> <li>• Implement and validate solutions</li> <li>• Response surfaces</li> <li>• EVOP</li> <li>• DOE improvement analysis</li> <li>• Measurement system re-analysis</li> <li>• Practice exercises</li> </ul>



**Title:** ASQ Certified Six Sigma Green Belt (Day 5)

**Lunch** from 12:00 – 13:00.

**Coffee break:** 15 min. each during morning and afternoon session. Time schedule are rough estimates and may vary consequently.

**Agenda**

8:30 – 10:15	<b>Control Concepts</b> <ul style="list-style-type: none"> <li>• Statistical process control</li> <li>• Objectives and benefits</li> <li>• Rational subgrouping</li> </ul>
10:15 – 10:30	<b>Break</b>
10:30 – 12:00	<b>Control Concepts (cont.)</b> <ul style="list-style-type: none"> <li>• Applications of control charts</li> <li>• Variables control charts</li> <li>• Attributes control charts</li> </ul>
12:00 – 13:00	<b>Lunch</b>
13:00 – 15:00	<b>Control Concepts (cont.)</b> <ul style="list-style-type: none"> <li>• Analysis of control charts</li> <li>• Control plans</li> <li>• Practice exercises</li> </ul>
15:00 – 15:15	<b>Break</b>
15:15 – 17:00	<b>Wrap Up</b> <ul style="list-style-type: none"> <li>• Training summary</li> <li>• Practice exercises</li> </ul>