

Six Sigma Seminar

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Abstract: Six Sigma is a powerful problem solving methodology that focuses on improving performance by reducing variability. The Six Sigma project approach to problem solving includes a step by step implementation plan using the Define Measure Analyze Improve Control (DMAIC) steps. Six Sigma reflects the expectation of improving process capability from the traditional three sigma (99.73% yield) to world class levels of 3.4 defects per million opportunities. A collection of statistical tools such as Design of Experiments (DOE), Analysis of Variance (ANOVA), and Discrete Event Simulation (DES) make up the Six Sigma toolbox, and aid the practitioners in achieving breakthrough performance improvement.

This seminar will introduce the key concepts that make up the Six Sigma approach. The American Society for Quality (ASQ) has defined a body of knowledge for Green Belts, Black Belts and Master Black Belts. Some of the statistical tools that provide insight into process variability will be demonstrated in the seminar.

Applications of Six Sigma in manufacturing and supply chain [1] will be used to illustrate the key concepts. A particular focus on the integration of Six Sigma with Computer Simulation will provide some insight to how Discrete Event Simulation can help analyze the variability in real-world systems that include queues of work-in-process [2].

Keywords: Six Sigma, Discrete Event Simulation, Queueing Systems, Lean Manufacturing.

References:

- [1] Paul Babin and Allen Greenwood, "Discretely Evaluating Complex Systems," *Industrial Engineering*, February 2011, Institute for Industrial Engineering, pp 34-38.
- [2] Paul Babin and Doug Geyer, "Six Sigma Process Improvement in the Supply Chain using SCOR", MAESC Conference, Presentation Session 1A, March 31, 2006.

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