

Cost Reduction Strategies: Assembly Industries

Course format: Instructor-led Online Training, Beginner-level

Course duration: 40 hours, typically ten 4-hour sessions

Course overview

Cost Reduction Strategies: Assembly Industries is a hands-on, workflow-based course. It covers key fundamentals, reinforced with sports equipment, aerospace/automotive sub-assembly, consumer goods and other assembly-related case studies, error-proofed workflows and hands-on practice. Topics covered include:

- Lean Process and Statistical mindset
- Exploratory Data Analysis (EDA)
- Analysis of data from customers and Subject Matter Experts
- Measurement Systems Analysis (MSA)
- Process Behavior Studies and Capability Analysis (SPC/PCA)
- Predictive Analytics
- Design of Experiments (DOE)

People with intermediate-level experience with statistical methods should consider a more detailed alternative: the Pyzdek *Measurement Systems Analysis*, *Statistical Process Control* and *Design of Experiments* courses, in that order.

Course attendees will learn to approach tough assembly challenges with a sequential, error-proofed method designed to avoid unnecessary expense, avoid common pitfalls and improve processes in a cost-effective manner. At the end of the course, attendees will have the ability to gather the process insight needed to ***make good technical and business decisions***. Certificates will be issued to attendees that regularly attend and demonstrate a good understanding of the course content.

Pre-requisites

The course can be taught with either Minitab or JMP statistical software. In either case, attendees should have a good understanding of software fundamentals including navigation, menu structure, data integrity, annotations and graphing. For those without statistical software experience, please inquire about our (free) *Intro to Minitab* or *Intro to JMP* short courses. To get the most out of the course, attendees should have their own PC, a valid Minitab license (Version 19 or higher) or JMP license (Version 12 or higher), a 2-way headset and a webcam. Two monitors are highly recommended.

Designed for:

This course is designed for Engineers, Scientists, Six Sigma Belts, Supervisors, Managers and Technicians who need to solve difficult assembly & packaging problems, optimize existing processes or set up new processes.

Benefits to attendees

- Use error-proofed workflows to improve processes, gain new process knowledge, increase corporate profits and avoid common DOE pitfalls
- Minimize the cost of data-centric process improvement work
- Analyze data and interpret results in group discussion
- Multiply the effectiveness of Lean-based process improvement
- Learn many useful statistical principles
- Improve return on statistical software and past/future training investment
- Two hours of free course content support after the completion of class

Course structure

Course content	% of time spent
Hands-on exercises and interpretation of results	80%
Basic principles	20%

Specific topic covered

- The statistical mindset and *The Great Mathematical Quandary*
- *EDA tools*: variability chart, scatter plots & matrices, Principal Component Analysis, etc.
- *Understanding the customer*: analysis of survey and Subject Matter Expert data
- AIAG Gage R&R (Minitab) or Wheeler's EMP method (JMP)
- IMR, XBar-R and Short Run charts for Process Behavior Studies, Capability indices
- CART® Classification & Regression (Minitab) or Partition Analysis (JMP)
- Fundamentals of Factorial, Response Surface & Definitive Screening experiment design

Schedule options

- Ten 4-hour segments spread over 4-5 weeks is recommended
- Other scheduling based on customer need



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