

# Public Seminar in Mumbai

## Product and Process Design Improvement Using The Taguchi Approach



This 4-day seminar with application workshop is intended to prepare the attendees for immediate applications. About 80% of class discussions involve address issues on 'how to apply'.

### WHERE?

- In Mumbai (several times a year)
- At your facility (For larger group)

Visit <http://sixsigmaalchemy.com/calendar.asp> for scheduled event.

### DETAILS:

For more information, please visit:

- [www.sixsigmaalchemy.com/ppdi.asp](http://www.sixsigmaalchemy.com/ppdi.asp) - public Seminar
- [www.Nutek-us.com/wp-q4w.html](http://www.Nutek-us.com/wp-q4w.html) - Software

### WHO SHOULD ATTEND?

- Product/Process Design Engineers
- R&D Scientists
- Marketing Specialists and Project Managers
- QA Personnel who have immediate applications in product optimization or production problem solving
- Manufacturing Manager, Director or Senior Engineer wishing to lead application project teams
- Instructors in academic institution who are looking toward sharpening the application knowledge
- Consultants and Trainers

### REGISTRATION:

The cost for this 4-day seminar/workshop is Rs 45000 + service taxes/attendee. (SAVE cost by registering early and in group)

### WHAT PARTICIPANTS RECEIVE?

- Seminar handout (over 250 pages)
- Single user copy of Nutek's Qualitek-4 (Retail at \$1,996 value)
- Certificate of completion

Be sure to visit us in the web and explore our sites on training, software, consulting services, and client information.

[www.sixsigmaalchemy.com](http://www.sixsigmaalchemy.com)

### WHY SHOULD YOU CONSIDER OUR SEMINAR?

Attendees to this session learn hands-on, how to apply the Taguchi experimental technique. Upon completion, they are able to:

- Optimize product/process designs
- Lay out efficient validation test plan
- Resolve technical & production problems cost effectively
- Build robust products, processes, recipes & formulations
- Increase response from conventional and web based advertisements

### COURSE DESCRIPTION:

This 4-day seminar prepares participants for immediate application of the Taguchi technique to your projects. Basic steps of experiment designs using the Taguchi orthogonal arrays will be discussed in detail. The Taguchi Robust Design strategy, which deals with treatment of the uncontrollable factors and how to make the performance insensitive to the influence of the uncontrollable factors by controlling those factors that can be controlled, is also covered in this course. Major emphasis will be placed on how to apply the method. Practical application steps, including brainstorming, team approach, and consensus decisions, are demonstrated through example project applications. Discussions of theory and mathematical treatments are kept to a minimum. A large number of review questions in the reference handout provide opportunities to test what is learned in the class. The participants are encouraged to attend as a team and bring their own projects to the class.

**Workshop:** Attendees learn hands-on, how to accomplish design and analysis tasks using Qualitek-4 computer software. All attendees are requested to bring their own laptop computer for the last two days of the class

This Seminar is conducted by **Six Sigma Alchemy (P) Ltd.** in association with **Nutek, Inc. USA.**  
[www.Nutek-us.com](http://www.Nutek-us.com)

## Product and Process Design Improvement Using The Taguchi Approach



### TOPICS OF DISCUSSIONS

- Overview of the Taguchi concepts of quality engineering
- New philosophy and Definition of - Quality Loss to the society from poor quality
- Standardized technique - Measuring cost of quality by Loss Function
- Review basic concepts in experimental design
- Types of factors and levels Common experiment designs
- Orthogonal array vs. one-factor-at-a-time experiments
- Project objective and Overall Evaluation Criteria
- Need for combining multiple evaluation criteria into a single index
- Experiments designed using orthogonal arrays
- Main effect study for influence of factors
- ANOVA for relative influence of factors
- Performance at optimum condition
- Confidence level and interval (C.I.)
- Transformation of S/N data
- Brainstorming for experimental design

### COURSE INSTRUCTOR

This seminar will be led by Mr. Naveen Iyengar. Mr. Naveen Iyengar is a university rank holder in B.E.(Mech) and a certified Six Sigma Black Belt & Certified Quality Improvement Associate from ASQ (American Society for Quality). Presently he is one of the Directors of Six Sigma Alchemy (P) Ltd., a leading business excellence enabler in Mumbai. Mr. Naveen Iyengar has been trained by Nutek Inc, Detroit, USA in Taguchi methods and has been consulting various engineering companies for solving large scale complex engineering problems using six sigma and Taguchi DOE methods. He has achieved a wide recognition as a consultant and trainer for his down-to-earth teaching style of the Six Sigma technique, Taguchi experimental design technique and several other quality engineering topics.



He has lead company wide six sigma deployments for over 15 major corporate and trained over 200 Black Belts and led more than 50 Breakthrough projects and played a pivotal role in their success. Apart from manufacturing he has a wide experience in application of Six Sigma in many service industries.

- Experiments to study interaction
  - Trade off between factors and interactions
  - Test for presence of interactions
  - Test for relative influence of interaction
- Experiments with mixed level factors
- Upgrading 2-level columns into a 4-level array
- Downgrading (dummy treatment) columns
- 15 different experiments using an L-8 array
- Combination Design (special design tool)
- Strategy for Robust Designs -New attitude toward uncontrollable factors
- Outer array for robust design
- An overview of Systems with Dynamic Response
- Understanding dynamic systems - Analysis of Results
- TEAM - the new disciplines in the workplace
- Order of discussions in the planning session
- Participants and facilitation of planning
- Computation of cost/ LOSS FUNCTION
- Reference and Application assistance
- Project application guidelines
- Design and analysis using computer software
- Group reviews and exercise Computer Software (Qualitek-4)

### ATTENDEES EVALUATION

"Excellent presentation and approach to all with or without Taguchi background."

"It's a great relief to know that there are software packages available to do all of the number crunching and prepare the reports."

Please visit [www.sixsigmaalchemy.com](http://www.sixsigmaalchemy.com) for further details.

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