

ROBUST X

DESIGN OF EXPERIMENTS FUNDAMENTALS & TAGUCHI METHODS

A CII – IQ Professional Certification
Programme



8 - 10 APRIL 2026
CII GURUGRAM OFFICE
UDYOG VIHAR

Design Better • Decide Faster • Build Robust Processes

WHY YOU SHOULD ATTEND?

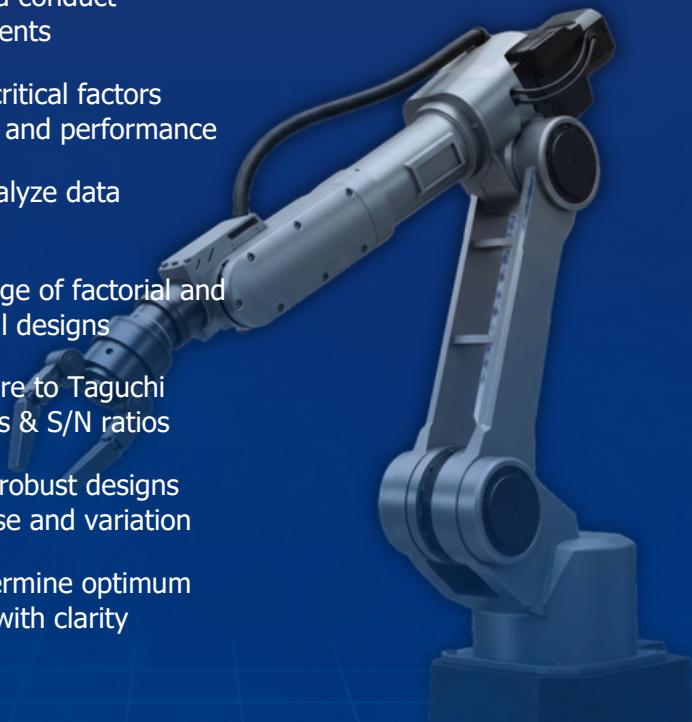


In today's competitive manufacturing and product development environment, guesswork is expensive. Design of Experiments (DOE) provides a structured, scientific and statistically sound approach to understand cause-effect relationships, reduce variability and optimize performance using minimum experiments and maximum learning.

This program blends classical DOE and Taguchi's robust design methods to help professionals design better products, stabilize processes and make confident, data-driven decisions. The focus is not theory alone but practical application that works on the shopfloor and in design labs.

WHAT YOU WILL GAIN?

- Ability to plan and conduct effective experiments
- Skills to identify critical factors impacting quality and performance
- Confidence to analyze data using ANOVA
- Practical knowledge of factorial and fractional factorial designs
- Hands-on exposure to Taguchi Orthogonal Arrays & S/N ratios
- Tools to develop robust designs insensitive to noise and variation
- Capability to determine optimum process settings with clarity





PROGRAM COVERAGE

Foundation of
Experimentation

Design & Analysis of
Experiments



Taguchi Methods & Robust
Design

FOUNDATION OF EXPERIMENTATION

- **Role of experimentation in problem solving & product development**
- **Need for structured experimentation vs trial-and-error**
- **Key terms, objectives and definitions**
- **Refresher on essential statistical concepts**
- **Experiment planning strategies**



DESIGN & ANALYSIS OF EXPERIMENTS

Conducting experiments:

- **Replication**
- **Local Control**
- **Randomization**

Multi-factor experiments

- **Two-way and N-way factorial designs**

Data analysis using ANOVA

Fractional factorial designs for reduced experimentation effort

TAGUCHI METHODS & ROBUST DESIGN

- Orthogonal Array experiments (2 & 3 level designs)
- Taguchi Quality Loss Function
 - Larger-the-Better
 - Nominal-the-Best
 - Smaller-the-Better
- Robust design & parametric design concepts
- Signal-to-Noise ratios and interpretation
- Identifying optimum and robust process conditions

Learning Methodology

This program is designed to be highly engaging and experiential:

Hands-on

Hands-on exercises and group tasks

Discussions

Real industrial examples and case discussions

Experimental

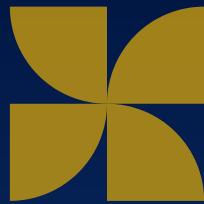
Practical interpretation of experimental results

Assessment

Assessment test to reinforce learning

Certificate

CII – IQ Professional Certificate on successful completion



Who Should Attend

(Production, Quality, Design & R&D)



R&D / Product Design Engineers



Process, Quality & Manufacturing Engineers



Production Engineers & Supervisors



Improvement Team Members



Process Technicians



Engineering Managers & Technical Leads



Plant Heads & Senior Managers

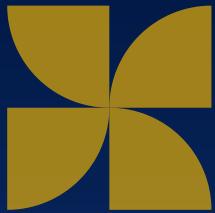
Faculty



Mr. V. V. Iyer

(V. Venkateswaran Iyer)

A **Senior Quality Management** expert and alumnus of the **Indian Statistical Institute (ISI)** with over **30 years of experience** in industry-focused training and consultancy. Former Professor at ISI, Chennai and Associate Vice President (L&D) at TCS. He has trained **20,000+ professionals** across **100+ organizations**. His core expertise includes **DOE (Classical & Taguchi), SPC, MSA, Six Sigma, QFD, FMEA, Reliability and TQM**.



Program Fee (Per Participant)

CII Members: ₹ 40,000 + GST

Non - CII Members: ₹45,000 + GST

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