



Statistical Quality Control & Operations Research Division

INDIAN STATISTICAL INSTITUTE

ANNOUNCES

“Workshop on Design and Analysis of Experiments”

DOEWS-2019

Target Participants: Scientists, Researchers and Engineers from Laboratories, R & D Establishments and Universities.

Duration: 25 - 30 November' 2019 (Monday to Saturday)

Timing: 10:00 AM - 18:30 PM

Venue: Indian Statistical Institute, Kolkata Campus.

Organized by:

**SQC & OR Unit,
Indian Statistical Institute,
Kolkata**



“Workshop on Design and Analysis of Experiments”

Preamble:

In the pursuit of knowledge in the field of applied scientific and industrial research, often experiments are carried out. Today, the products and processes have become extremely complex and as a consequence the days of plucking the low hanging fruits are over.

A simple intuitive and common sense **One-Factor-At-a-Time (OFAT)** approach to experimentation which is still being practiced by many **has long become obsolete.**

Statistically Designed Experiments and the associated data analysis methods have been proved to be extremely useful, especially when many variables are involved, have the potential to reduce the cost and effort of experimentation to a great extent.

SQC & OR Division, Indian Statistical Institute

The Statistical Quality Control & Operations Research Division is one of the Divisions of the Indian Statistical Institute. It has been engaged in promotion, training and application of Statistical Techniques, Operations Research and other associated methodologies for Quality Improvement in the Indian Industries for more than six decades. In the process, the faculties of the division have acquired expertise in practical applications of various kinds of statistical methodologies for solving real life problems besides the necessary skills communicate the concepts in plain English.

Objective of the Workshop:

The workshop has been **planned to share the knowledge and experience that the faculties have acquired in the field of Design and Analysis of real Experiments.**

Frequency of the Workshop:

This is now a yearly event and will generally be organised in the month of November / December.

“Workshop on Design and Analysis of Experiments”

Program Coverage:

- **Introduction to Design of Experiments:**
 - Why Designed Experimentation?
 - Concept of Experimental Error
 - Fundamental Principles of Experimentation
- **Statistical Preliminaries:**
 - Concepts of Statistical distributions
 - Hypothesis Testing
 - One-Way Analysis of Variance
 - Two-Way Analysis of Variance
- **Classical Design and Analysis of Experiments:**
 - Factorial Experiments
 - Fractional Factorial Experiments
- **Taguchi Methods:**
 - Designing Experiments using Orthogonal Arrays
 - Multi-Level and Dummy-Level Designs
 - Signal to Noise Ratio Analysis
 - Dynamic Signal to Noise Ratio Analysis
- **Response Surface Methodology:**
 - Method of Steepest Ascent
 - Analysis of Second Order Response Surface
 - Designs for fitting Response Surfaces
 - Analysis of the fitted Second Order Response Surface
- **Design Optimality**
 - Concepts of Design Optimality
- **Concepts of Mixture Experiments**
- **Brief introduction to Computer Experiments**
- **Multiple Response Optimization Methods**
- **Case Studies**

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Program Highlights:

- The important concepts and steps involved in a statistically designed experimental study will be elaborated by conducting live experiments using Catapult during the workshop.
- The participants themselves will plan and conduct the experiments, collect the relevant data and analyse the same under the guidance of the faculty members.
- This would help develop a clear understanding of the statistically designed experimental process among the participants, who will be enabled to replicate the same at their respective work areas.

Registration Fee:

	Reg. Fee/ Participant (INR)	With 18% GST (INR)
1. <i>Research Scholars (Ph.D. Students)</i>	9,000	10620
2. <i>Government and Public Sector Institutional Participants</i>	14,000	16520
3. <i>Private Sector Institutional Participants</i>	18,000	21240

Please Note:

GST @18% will be collected additionally on the registration fee.

Accommodation:

Accommodation for Twenty outstation participants may be arranged on first come first serve basis at the ISI guest house.

Expenses towards accommodation and food (Breakfast and Dinner) per head for 7/8 days will be about INR 4000/-

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Steps in Nomination:

1. Contact the organizing secretary and ascertain your eligibility.
2. [Download the Nomination Form.](#)
3. Fill in the Nomination Form and get it signed by appropriate authority. Send an advanced copy of the duly filled in Nomination Form in pdf format to the organizing secretary.
4. Pay the registration fee by NEFT, fill up the UTR no. in the Nomination Form and intimate the organising secretary.
5. Submit the original Nomination Form at the time of Registration.
6. Last Date of submission of nominations: 18 November 2019.

Mode of Payment:

Registration fees to be paid by NEFT favouring *Indian Statistical Institute*. Details will be provided to willing eligible organisations/ candidates.

Contact Person:

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