INDIAN STATISTICAL INSTITUTE ANNOUNCES

“Workshop on Design and Analysis of Experiments”

DOEWS-2015

Target Participants: Scientists and Researchers from Research Laboratories and R&D Establishments.

Duration: 30 November to 5 December 2015 (6 days)

Timing: 10:30 AM – 18:30 PM

Venue: Indian Statistical Institute, Kolkata Campus.

Organized by:

SQC & OR Unit,
Indian Statistical Institute,
Kolkata
Introduction:

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

Therefore, a simple common sense approach to experimentation may not suffice. A systematic scientific approach towards planning, and executing a set of experiments, collection of appropriate data and analysis thereof are now prerequisites for faster and effective knowledge acquisition.

Statistically Designed Experiments and the associated data analysis methods have been proved to be extremely useful in this respect. Statistically Designed Experiments, 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 many 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 among the Indian Industries for about 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.

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.
Program Coverage:

Introduction to Design of Experiments:
- Why Designed Experimentation?
- Concept of Experimental Error
- Fundamental Principles of Experimentation

Statistical Preliminaries:
- 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
  - Concepts of Design Optimality

Concept of Design Optimality

Concept of Mixture Experiments

Brief introduction to Computer Experiments

Multiple Response Optimization Methods

Case Studies
**Program Benefits:**

The important concepts and steps involved in a statistically designed experimental study will be elaborated by conducting live experiments 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.

**Accommodation:**

Accommodation may be arranged at the ISI guest house on request. We, however, recommend that the participants stay at the ISI guest house. This would facilitate smooth organization of the workshop.

**Please note:** Twenty participants will be provided accommodation on first come first serve basis.

**Registration Fee:**

**With Accommodation:**

INR 10,000/- per participant + Applicable tax (14%)

Includes the cost of workshop kit, accommodation at the ISI guest house and food (breakfast, lunch, dinner & snacks).

**Without Accommodation:**

INR 7,000/- per participant + Applicable tax (14%)

Includes the cost of workshop kit, lunch & snacks.
Mode of Payment:

Registration fees to be paid by bank draft favouring *Indian Statistical Institute*, payable at Kolkata.

Steps in Nomination:

1. Contact the organising secretary and ascertain your eligibility.
2. **Download the Nomination Form.**
3. Send an advanced copy of the filled up Nomination Form in pdf format to the Contact Person.
4. Send the filled up Nomination Form along with the bank draft(s) to the Contact Person by post.
5. **Note that the Last Date of submission of nominations is 20th November 2015.**

Contact Person:

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Organizing Secretary  
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