Introduction

Design of Experiments (DOE) techniques, a branch of applied statistics, deals with planning, conducting, analyzing and interpreting controllable tests to evaluate the factors that control the value of a parameter or group of parameters. A strategically planned and executed experiment may provide a great deal of information about the effect on a response variable due to one or more factors. DOE simply helps to pin point the sensitive parts and sensitive areas in designs that cause problems in yield. Designers are then able to fix these problems and produce robust and higher yield designs prior going into production.

This programme gives participants a comprehensive understanding of planning and conducting scientific experiments for collecting data and analysing the data to have fruitful conclusions. The programme has been designed to be generic in nature for satisfying the needs of students and faculty pursuing their higher studies from academic institutions and industry personnel carrying out research in any field. Lectures will be delivered on the basic principles of scientific research, identifying/defining research problem, design of experiments, data collection, and statistical tools for analyzing data.

Course outline

Module I

Introduction, Background and Overview

A brief history of Design of Experiments (DOE), Overview of basic statistical concepts, Basic principles of DOE and Types and purposes of DOE methods

Module II

Full Factorial Design

The basics of "full factorials", ANOVA, Factorial effects and plots, and Model evaluation

Module III

Fractional Factorial Design

The one-half fraction and one-quarter of the 2^k design, The general 2^{k-p} fractional factorial design and Resolution III, IV and V designs

Module IV

The Robust Design

The basics of robust designs, Taguchi designs and Robust design example

Module V

Response Surface Methodology

Central composite designs, Box-Behnken design, Analysis of second-order response surfaces and Process optimization

Module VI

Multi response Optimization

Grey-Taguchi Method, Desirability function approach, Utility theory, Fuzzy inference system and Principal component analysis

Resource persons

Faculties from NIT,Rourkela, IIT, Kharagpur and professionals from industries.

Who should attend?

All practicing engineers working in private, public, government organizations/industries, scientists/engineers from R&D establishments, faculties, research scholars and students from engineering institutions are eligible to apply.

Course fee

Professionals from Industry & R&D units: Rs.10, 000/-
Outstation Participants: Rs. 3, 500/-
(Faculty/Research Scholars)
Students from NIT, Rourkela: Rs. 2, 500/-

The course fee includes accommodation, course material and working launch.

Participant who attends the full course will be issued a certificate of participation.

Mode of Payment

All payments should be made through A/C payee demand draft drawn in favour of “Continuing Education, NIT Rourkela” payable at SBI, NIT campus branch, Rourkela (Code-2109).

How to apply?

Interested participants may send their application in prescribed form along with the registration fee to the program coordinator on or before December 3rd, 2013.

Boarding and Lodging

Accommodation on twin sharing basis will be arranged in the institute guest houses if registration for the course is made on-time. The participants registering late should arrange accommodation of their own.

Room tariff (May change without notice) in NIT Guest Houses.

Twin sharing per person per day: Rs.250/- (South Block)
Twin sharing per person per day: Rs.150/- (North Block)

Breakfast and dinner can be availed in the guest house on payment.

There are also many good hotels in Rourkela; the same can be booked on request and prior payment.

Short Term Training Program

on

Design of Experiments: An Optmisation Tool (DOEOT-2013)

27th Dec. – 29th Dec. 2013

Organised

by

Department of Mechanical Engineering
National Institute of Technology
Rourkela 769008 India

Mechanical Engineering Department

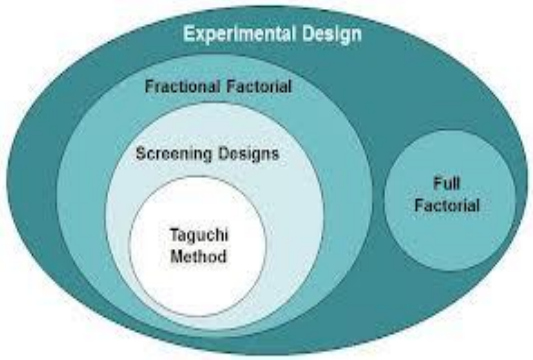
The erstwhile Regional Engineering College, Rourkela was converted to a deemed to be university and renamed National Institute of Technology, Rourkela on 26th June, 2002. It was declared as an institution of national importance through the act of parliament on 15th August, 2007. The institute has made a rapid stride in earning a reputation as a place of higher learning in the field of engineering during the last decade. The mechanical engineering department is one of the oldest departments being set up from the date of inception of the institute in the year 1961. It is the first QIP center of the institute. The department offers four specialisations under M.Tech degree and has more than hundred Ph.D. research scholars enrolled. The department is well equipped with infrastructure to meet the requirements of UG, PG courses and to carry out advanced level research work.

How to reach?

Rourkela is on the Howrah (Kolkata) - Mumbai main line of South Eastern railway. The railway station and intrastate bus stand are 6kms and 2kms from NIT Rourkela campus respectively. The airports near to Rourkela are Ranchi, Bhubaneswar and Kolkata. Rourkela is well connected to these cities by rail and train frequency is very good.

Important Dates

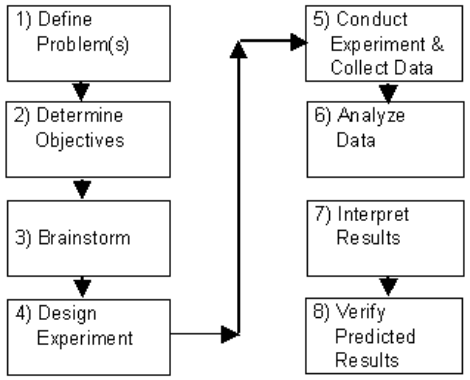
Last Date of registration: 16th Dec. 2013
Selection Intimation to the applicant: 21st Dec., 2013 (Through E-mail only)
Course date: 27th – 29th Dec. 2013.



Program Coordinators

Dr. Siba Sankar Mahapatra
Coordinator, DOEOT -2013
Department of Mechanical Engineering
National Institute of Technology
Rourkela 769008 ODISHA INDIA
Ph. No: 0661-2462512(O)
09437115659 (M)
Email: ssm@nitrkl.ac.in

Experimental Design Process



APPLICATION FORM

Short Term Training Program

on

Design of Experiments: An Optmisation Tool (DOEOT-2013)

(27th Dec. – 29th Dec. 2013)

Last date of registration: 16th Dec. 2013

Name:

Gender: M / F

Highest Qualification:

Designation:

Organisation:

Address: ----------

E-mail: ----------

Mobile No: ----------

Details of registration fee:

D.D. No:

Amount: **Date:**

Place: **Signature**
Date: