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About the Institute

Visvesvaraya National Institute of Technology, Nagpur is one of the thirty National Institutes of Technology in the country. It is an Institute of National Importance, named after Bharat Ratna Sir M. Visvesvaraya. Earlier, the Institute was known as Visvesvaraya Regional College of Engineering (VRCE). It was established in the year 1960 under the scheme sponsored by Govt. of India and Govt. of Maharashtra. The vision of institute is to contribute effectively to the national endeavour of producing quality human resource of world class standard by developing a sustainable technical education system to meet the changing technological needs of the country incorporating relevant social concerns and to build an environment to create and propagate innovative technologies for the economic development of the nation.



About the Department

The Department of Civil Engineering is one of the finest and oldest engineering department of the Institute and stands with an immortal reputation. The department was formed along with the Institute itself and therefore is as old. The Department has highly educated and well experienced faculty members who endeavor to produce finest engineers, contributing incredibly to the nation. The alumni of the department are widespread in India and abroad, occupying high positions in their respective fields. The Department has an intake of 120 students per year under UG Course and 100 students per year under PG Courses.

High-End Workshop

on

**Design of Experiments: A statistical tool
for systematic data collection, analysis
and optimization**

25th – 29th July 2022



Organized by:

Department of Civil Engineering
Visvesvaraya National Institute of Technology
Nagpur

Funded by:

Science & Engineering Research Board (SERB)
under
'Karyashala' Abhyas Programme
Accelerate Vigyan Scheme

Introduction

Design of experiments (DOE) is a systematic method to determine the relationship between factors affecting a process and the output of that process. A well planned and executed experiment may provide a great deal of information about the effect on a response variable due to one or more factors. Many experiments involve holding certain factors constant and altering the levels of another variable. An understanding of DOE first requires knowledge of basic statistical concepts. Although a DOE can be analyzed in many software programs, it is important to understand basic DOE concepts for correct application and interpretation

Course Objectives

- ✓ The main objectives of this inter-disciplinary training program are:
- ✓ Understand the importance of statistical design of experiments and benefits in research and process development.
- ✓ Choose an appropriate experimental design based on the study objectives
- ✓ Construct and implement the design selected
- ✓ Analyze the data collected based on the design used and its underlying assumptions

Course Topics

- ✓ The broad outline of the course is as follows:
- ✓ Introduction to Experimental Design
- ✓ Hypothesis Testing ,ANOVA
- ✓ Full factorial Designs;
- ✓ Fractional-Factorial Designs
- ✓ Taguchi Designs
- ✓ Introduction to Minitab software

Tentative Schedule

Topics	Tentative Speakers*
Basic statistical concepts, Hypothesis Testing	Dr. Santosh Rane (S.P.C.E, Mumbai)
Analysis of Variance	Dr. Sugata Adhikary (ISI, Kolkata)
Randomized block design	Dr. Jhareshwar Maiti (IIT Kharagpur)
Factorial design	Dr. Mukesh Doble (IIT Madras)
Fractional Factorial Designs	Dr. E V Gijo (ISI, Bangalore)
Taguchi Design	Dr. M Giridhar (IISc Bangalore)
Linear Regression	Dr. Ashok Sarkar (ISI, Mumbai)
Response surface methodology	Mr. Sanjit Ray (ISI Bangalore)
Solving the problem on MS-Excel and Minitab	

*The list of expert speakers is tentative and may be changed depending on the availability of the speakers

Eligibility Criteria

The candidate should be pursuing PhD Degree in full time / part-time in any engineering or allied disciplines or

The candidate should be pursuing a Master's Degree in full time / part-time in any engineering or allied disciplines

Registration Details

- ✓ **The course is completely free of cost for all shortlisted participants (SERB norms).**
- ✓ **Travelling expenditure of 3AC train fare will be reimbursed** to all selected candidates upon submission of train tickets by the shortest route to and from Nagpur.
- ✓ **Accommodation will be provided to all selected candidates** by VNIT during the course in the hostels on sharing basis subject to availability.
- ✓ The participants are limited to **25 candidates only**.
- ✓ Preference shall be given to students from Tier-II / Tier-III institutes as per the norms of the Accelerate Vigyan "Karyashala" scheme.
- ✓ **Interested candidates should fill out the Google Form at the earliest:** <https://forms.gle/Vvmp7fJL6MAcAfn18>
- ✓ If the number of applicants are more than 25, VNIT Nagpur may **set a selection criteria** to select the final list of 25 students.
- ✓ **A caution money of Rs. 1000/-** will be collected from all shortlisted participants which will be **returned back only** on successful completion of the workshop.

Important Dates

Last date for registration : 30th June 2022
Notification to selected participants : 10th July 2022

Shortlisted candidates will get complete instructions to deposit "Fully Refundable" Caution Money (₹ 1,000) and submit a No-Objection Certificate duly signed by their respective Head of the Department by 12th July 2022.