Introduction

Multivariate models are widely used popular statistical methods that uses multiple variables for decision-making or to predict possible outcomes. Today, in the era of data-driven decision-making, where the practical phenomena are mostly multivariate in nature, the use of multivariate modelling and data analysis has become a natural choice to researchers and practitioners from engineering, science, and management disciplines dealing with real-word data. In this context, IIT Kharagpur, being an internationally recognized technical institution of India having a number of experts with proven knowledge, expertise, and research experiences, offers this short term course on Multivariate Data Analysis with Applications for industry professionals, scientists and academicians. The course mainly focuses on model building and problem solving under real-world multivariate situations. The primary objectives of the course are as follows:

- To make the participants understand how to collect and analyze multivariate data, extract patterns, build relationships, and make objective decisions.
- To make the participants understand how a practical problem can be converted to a statistical problem and how the statistical solution can be interpreted as a practical solution.

Course Contents

The course will address the following main issues/topics:

(i) **Descriptive statistics (DS):** Population, Sample and Statistics, Sampling Distribution, Central Limit Theorem, Estimation, Hypotheses Testing, Multivariate Descriptive Statistics, Multivariate Normal Distribution, Computations using R (5 hours)

(ii) **Multiple Linear Regression (MLR):** Conceptual Model, Estimation of Model Parameters, Model Adequacy Tests, Test of Individual Regression Parameters, Test of Assumptions, Case Studies, Computations using R (5 hours).

(iii) **Factor Analysis (FA):** Exploratory Factor Analysis, Confirmatory Factor Analysis, Case Studies, Computations using R (5 hours).

(iv) **Structural Equation Modeling (SEM):** Conceptual Model, Assumptions, Parameter Estimation, Evaluating Model Fit, Test of Model Parameters, Case Studies, Computations using R (10 hours)

*LEARN directly from the Author of ‘Multivariate Statistical Modeling in Engineering and Management’ CRC Press (Taylor & Francis Group), 2022*
The interested participants are requested to apply online through the link provided with the brochure. The total number of seats is restricted to 50. The participants will be selected on “first-cum-first-served” basis out of the eligible candidates.

The fee for the five-day programme is as follows:

- **Students** - Rs 5,000.00
- **Academicians** - Rs 15,000.00
- **From industries** - Rs 20,000.00

*Payment is to be made online following the instructions provided in the CEP website (link given below). The course fee includes course materials and participation fee.

Venue for the course will be IIT Kharagpur. Boarding and lodging will be at IIT technology guest house on self-payment basis.

All queries regarding the course may be addressed to:

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