

Guru Nanak Dev Engineering College, Ludhiana

An Autonomous College u/s 2(f) and 12(B) of UGC Act 1956

Department of Mechanical Engineering

Activity report on Multivariate Data Analysis

The faculty development program was organized by the mechanical engineering department from December 11th to 24th December, 2019 under the guidance of Pincipal GNDEC Ludhiana & Head of the dept. Mechanical engineering GNDEC Ludhiana)Dr. P S Bilga (sponsorship by AICTE) on topic **Multivariate Data Analysis**. The programme was designed especially for the Faculty Members (AICTE/UGC/MHRD), Research Scholars, Industry Professionals and R&D Persons. The participants will be exposed to expert lectures on the logic and the theory behind the various techniques of MDA such as multivariate hypothesis testing, dimensionality reduction, latent structure discovery and clustering etc. along with multi attribute or multi objective decision making strategies. The hands on practice will be provided on statistical software like Minitab, SPSS, SYSTAT, Design Expert, Excel Sheet, Quality Companion and AMOS etc. through practice sessions in the laboratory. 44 participants were present in this session.

COURSE CONTENTS

Introduction to MDA, Basic Matrix Algebra, Probability and Statistics, Data Collection, Basics of Design of Experiments (Taguchi Method, RSM etc.), Data Mining, Multiple Regression, Regression Diagnostics and Model Adequacy, Binary and Multinomial Logistic Regression, Analysis of Variance (ANOVA) and MANOVA, Principal Component Analysis, Factor Analysis, Discriminant Analysis and Cluster Analysis, Structural Equation Modeling (SEM) using AMOS, Multi Objective Optimization, Significance of Weights of Importance (AHP and Entropy Weights method etc.), Multi Attribute Decision Making (SAW, WPM, WASPAS, TOPSIS etc.)

Organizing Committee

Chief Patron Prof. (Dr.) Sehijpal Singh (Principal)

Patron Prof. (Dr.) P.S. Bilga (HOD-ME)

Course Coordinator Prof. (Dr.) Harwinder Singh

Course Co-Coordinator Dr. Raman Kumar