Report on

Faculty Development Programme (FDP)

"Data Analytics and Machine Learning"

Organized by: ICT Academy in collaboration with CSE & IT Department
Venue: Maharaja Surajmal Institute of Technology (MSIT)
Duration: 15th December 2025 to 19th December 2025
Mode: Hands-on Training (Python with Google Colab)

1. Introduction

A five-day Faculty Development Programme (FDP) on "Data Analytics and Machine Learning" was successfully conducted by ICT Academy in collaboration with CSE & IT Department from 15th December to 19th December 2025 at Maharaja Surajmal Institute of Technology (MSIT). The FDP aimed to enhance the analytical and machine learning skills of faculty members by providing both theoretical knowledge and practical exposure to core machine learning algorithms using Python.

2. Objectives of the FDP

The key objectives of the FDP were:

- To familiarize faculty members with the fundamentals of Data Analytics and Machine Learning
- To provide hands-on experience with popular machine learning algorithms
- To enable participants to implement models using Python programming
- To promote the use of real-world datasets and problem-solving approaches in teaching and research

3. Resource Person

The FDP was conducted by **Mr. Sarthak Pathak**, who served as the resource person for the program. He explained complex machine learning concepts in a clear and structured manner using real-life examples, making the sessions highly engaging and effective. His step-by-step explanation of model implementation and interpretation greatly benefited the participants.

4. Topics Covered

The FDP covered the following major topics:

- Introduction to Data Analytics and Machine Learning
- Data preprocessing and exploratory data analysis
- **Linear Regression** – theory and implementation
- **Logistic Regression** – classification techniques
- **Decision Trees** – model construction and visualization
- **Random Forest** – ensemble learning methods
- Model evaluation and performance metrics

All topics were accompanied by hands-on coding sessions using Python on the Google Colab platform, allowing participants to practice and implement the concepts in real time.

5. Hands-on Implementation

Participants worked on practical examples and datasets during the FDP. They learned:

- How to build and train machine learning models
- How to interpret model outputs
- How to improve model accuracy
- Best practices for implementing ML workflows using Python libraries such as NumPy, Pandas, Scikit-learn, and Matplotlib

6. Participation

The FDP was attended by a total of 24 faculty members from various departments of Maharaja Surajmal Institute of Technology (MSIT). The diverse academic background of participants encouraged interdisciplinary discussions and knowledge sharing.

7. Outcomes of the FDP

By the end of the FDP, participants:

- Gained strong foundational knowledge of machine learning algorithms
- Acquired hands-on experience in implementing ML models using Python
- Developed confidence in integrating data analytics and ML concepts into teaching and research
- Understood practical applications of machine learning in real-world scenarios

8. Conclusion

The Faculty Development Programme on "Data Analytics and Machine Learning" was highly informative and successful. The balanced approach of theory combined with hands-on practice made the FDP extremely beneficial for faculty members. The program significantly contributed to enhancing the technical competence of participants and will support their future academic and research endeavours.

Prof. Koyel Datta Gupta & Dr. Manoj Malik

Co-ordinator, ICT Academy