



# Machine Learning & Data Visualization for Senior Police Officers



## Introduction (Programme)

Welcome to the Machine Learning and Predictive Analytics Program, an immersive journey into the dynamic realms of artificial intelligence (AI), machine learning (ML), and predictive analytics. This program equips participants with essential knowledge and practical skills to navigate the rapidly evolving landscape of data science and decision-making.

Throughout the program, you'll delve into fundamental concepts in machine learning, exploring techniques such as classification modelling, regression modelling, clustering and text mining. We'll cover supervised and unsupervised learning, classification, social network analysis, text mining and regression, providing a comprehensive understanding of these methodologies.

Hands-on experiences are integral, allowing participants to train machine learning models, evaluate performance, and engage in related dataset applying predictive analytics and machine learning techniques.

Additionally, participants will immerse themselves in Tableau, one of the most popular data visualization tools in the analytics industry. By signing up for a Tableau Public account, participants will connect to data sources and explore various components of Tableau, enhancing their ability to communicate insights effectively.

The program will cover the following topics in depth with relevant use cases:

- Classification modeling
- Regression modelling
- Clustering
- Text mining
- Data visualization
- Social network analysis

## Objectives

The key objectives of the program are as follows:

- Gain a deep understanding of the significance and excitement surrounding machine learning, predictive analytics, and data visualization in today's technological landscape.
- Describe and illustrate different artificial intelligence and machine learning problems and techniques, including supervised and unsupervised learning, clustering, and reinforcement learning.
- Identify and articulate the key characteristics of the social network analytics, along with its versatile text mining applications across various machine learning contexts.
- Explain the comprehensive process of training and utilizing a machine learning model, encompassing data collection, analysis, feature engineering, and model evaluation.

- Evaluate the importance of data features in machine learning, analyze their impact on the performance and functionality of machine learning systems, and develop the ability to discern effective and poor data visualizations based on Tufte's guidelines and Gestalt Principles.

## For Whom

- Middle level managers/Government official
- Business consultants/ Senior policy makers

## Pedagogy

The program will offer a highly interactive learning experience, incorporating multimedia presentations, engaging case studies, insightful lectures, and role play/ active participation in various formats.

## Programme Directors



**Dr. Manojit Chattopadhyay**  
Professor, Information Systems

Dr. Manojit Chattopadhyay is an Associate Professor and affiliated to the IT and systems area. He received his PhD in Business Management from the University of Calcutta. He has around 20 years of work experience in Industry, Teaching and Research. His research focuses on application of AI based models in business decision making, strategic information visualization in the New digital economy, data privacy, Policy mining, Visual Clustering and social network analysis. He teaches various courses including Management Information Systems, Data visualization for decision making, Digital strategy for business, Artificial Intelligence in Business, and ERP, and Digital Strategies in Business Using Social Network Analysis, Business Data Analytics Uses in Management, and Robotics Automation of Business to PGP, executive PGP (PGPMWE), Senior Management Programme (SMP) and General Management Programme (GMP) batches at IIM Raipur. He has published more than 50 papers in various reputed International journals and conferences.



**Dr. Sumeet Gupta**  
Professor, Information Systems

Dr. Sumeet Gupta is currently Professor of information Systems at IIM Raipur. He received PhD (Information Systems) and MBA from the National University of Singapore and BE (Mining) from GEC Raipur. He has 18 years of work experience in Industry, Teaching and Research, during which he worked with L&T India, The Logistics Institute-Asia Pacific, Singapore and SSGI Bhilai before joining IIM Raipur. He participated in Global Colloquium at Harvard Business School in 2015. He has held visiting faculty assignments with IIIT Naya Raipur and Huazhong University of Science and Technology, Wuhan, China. He has been accredited by AIMA as an Accredited Management Teacher and was awarded Prof. Manubhai M Shah Memorial Award by Indian Commerce Association in 2017. He was also awarded the President Graduate Fellowship at the National University of Singapore. He has published extensively in top-ranked International Journals.