



भारतीय प्रबंध संस्थान कोषिककोड
Indian Institute of Management Kozhikode
Globalizing Indian Thought

Data-Driven Decision-Making Using Data Analytics

July 27 – 31, 2026

Programme Overview

In an era where decisions are expected to be timely, informed, and strategically sound, data-driven decision-making has become a cornerstone of competitive advantage. This immersive 5-day executive programme equips professionals with practical analytical capabilities using Tableau/Power BI, R, and Python. Participants explore the full analytics value chain—from data visualization and exploratory analysis to advanced machine learning models such as XGBoost and Neural Networks.



Programme Objectives

- To develop a strong conceptual foundation in data analytics and its application in managerial decision-making
- To enable participants to explore, visualize, and interpret business data using Tableau or Power BI
- To impart hands-on skills in R and Python for data manipulation, exploratory data analysis, and model building
- To expose participants to unsupervised and supervised machine learning techniques including clustering, regression, classification, ensemble models, and neural networks
- To foster a strategic mindset towards using analytics for solving real business problems across functions

Learning Outcomes

- Apply principles of data-driven decision-making in various business contexts
- Use Tableau/Power BI to build interactive dashboards and data stories
- Perform data preparation, transformation, and exploratory analysis using R and Python
- Build and interpret machine learning models including clustering, regression, classification, random forest, XGBoost, and neural networks
- Translate analytical findings into strategic business recommendations
- Assess model performance using appropriate validation and visualization techniques
- Understand the ethical considerations and limitations associated with algorithmic decision-making

Who Can Attend



Ideal Participants

- Mid-to-senior-level managers seeking to embed analytics in their strategic decision processes
- Business analysts and functional heads across domains like marketing, operations, finance, and HR
- Professionals from startups and corporates aiming to transition into data-centric roles
- Academicians and researchers interested in learning applied data science with business relevance
- Anyone interested in gaining practical analytics skills using R, Python, and Tableau/Power BI with a focus on business decision-making

Mode of Delivery

The programme will be delivered through interactive in-class sessions, combining concept lectures, hands-on coding labs, dashboarding exercises, case-based discussions, and a capstone simulation project. Participants are expected to bring their laptops preloaded with the required software (installation guidelines will be shared prior to the program). Instruction will be supported by practical datasets, curated notebooks, and real-world business problem scenarios to ensure high engagement and applied learning.

Programme Schedule

Day 1: Data Visualization for Insightful Decision-Making

Tool: [Tableau](#) / [Power BI](#)

- Importance of visual analytics in decision-making
- Best practices in data visualization
- Dimensions, measures, filters, hierarchies & aggregation
- Building dashboards and executive stories
- What-if analysis, parameters, tooltips & interactivity

Hands-on: Build a management dashboard showing sales trends, regional performance, and product contribution.

Day 2: Data Preparation, Clustering, and Dimensionality Reduction (R/Python)

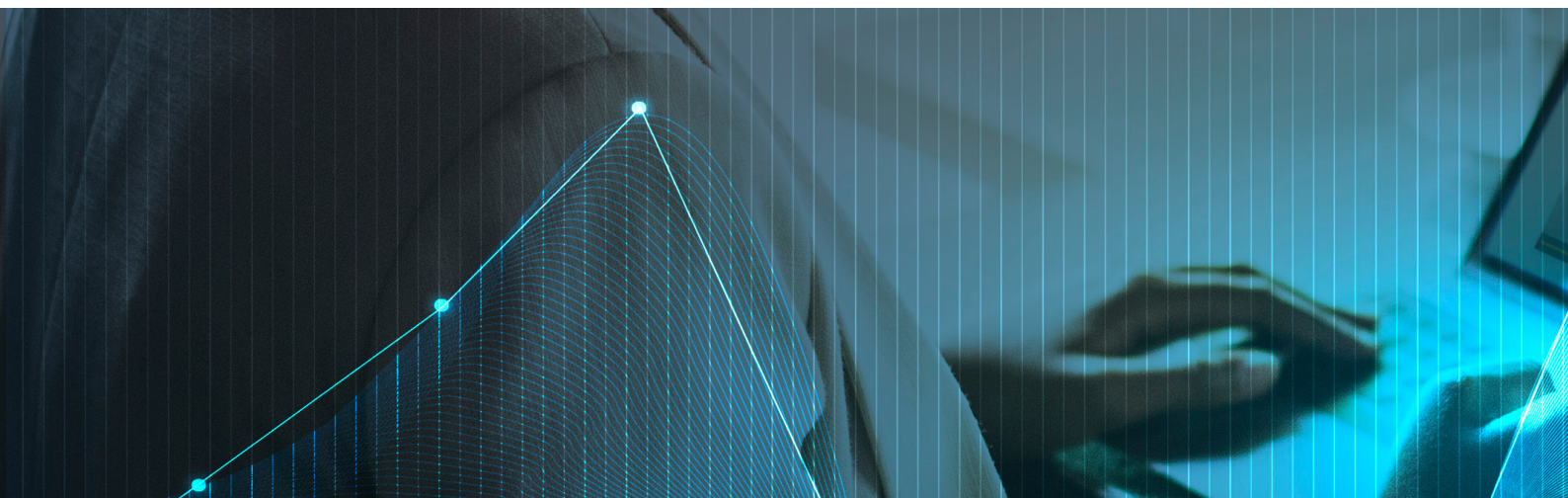
Tools: [R \(dplyr, ggplot2, cluster, factoextra\)](#), [Python \(pandas, scikit-learn, seaborn\)](#)

Topics:

- Data preparation: Importing, cleaning, feature engineering
- Basic EDA (descriptive stats, correlation, missing value treatment)
- Unsupervised Learning:
 - K-Means Clustering: Business applications in segmentation
 - Hierarchical Clustering: Dendrograms, linkages
 - PCA (Principal Component Analysis): Dimensionality reduction
 - Factor Analysis: Psychographic and attitudinal segmentation

Hands-on:

- Customer segmentation based on behavioral variables
- Visualizing clusters and interpreting factor loadings



Day 3:

Supervised Learning – Regression and Decision Trees

Tools: R (caret, rpart, lm), Python (scikit-learn, statsmodels)

Topics:

Linear Regression:

- Assumptions, interpretation of coefficients, multicollinearity
- Model evaluation: R^2 , Adjusted R^2 , RMSE

Decision Trees for Regression:

- Tree construction, pruning, overfitting
- Interpretation and visualization

Hands-on:

- Build a sales prediction model
- Compare linear regression and regression trees for decision logic
- Visual diagnostics and model interpretation

Day 4:

Ensemble Models – Random Forest and XGBoost

Tools: R (randomForest, xgboost), Python (scikit-learn, xgboost, SHAP)

Topics:

Random Forest:

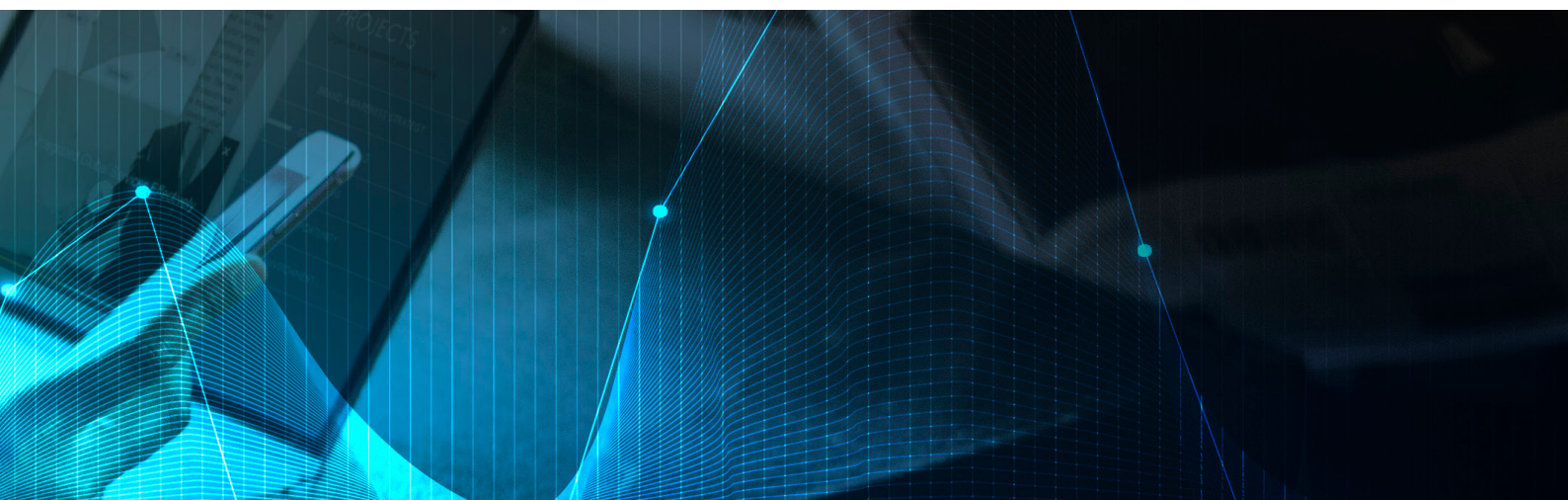
- Bagging, feature importance, out-of-bag error

XGBoost:

- Boosting vs Bagging, hyperparameter tuning
- Feature importance and SHAP values (explainability)

Hands-on:

- Predict customer lifetime value or sales using Random Forest and XGBoost
- Feature importance plots and business interpretation
- Compare model performance using cross-validation



Day 5: Classification Techniques –ANN & CNN

Tools: R (nnet, e1071, keras), Python (scikit-learn, keras, tensorflow)

Topics:

Artificial Neural Networks (ANN):

- Perceptron, multilayer feedforward networks, activation functions

Convolutional Neural Networks (CNN):

- Introduction (images), filters, pooling layers
- Applications in image classification, text detection

Hands-on:

- Classify churn vs non-churn customers
- Build a simple ANN using Keras for structured data
- Run a CNN for digit/image recognition (MNIST-like dataset)



Facilitator:



Prof. Sreejesh S

Associate Professor, Marketing Management

Prof. Sreejesh S is currently working as Associate Professor of Marketing Management Area at Indian Institute of Management Kozhikode, Kerala, India. His main research interests include brand management, services marketing, online marketing & advertising. His publications have appeared in the leading journals of marketing, such as European Journal of Marketing, Industrial Marketing Management, Computers in Human Behaviour, Journal of Travel and Tourism Marketing, Marketing Intelligence and Planning, International Journal of Contemporary Hospitality Management, Internet Research, etc. In addition to the chapter contributions in books and case study developments, he has also authored books of international repute with Pearson India and Springer International.

Programme Fee

Residential: Rs. 1,12,500 + GST @18%

Non-Residential: Rs. 1,02,500 + GST @18%

Discount available for IIMK Alumni & Corporate Group Nominations

Cancellation Policy:

Joining instructions will be sent to the selected candidates 10 days prior to the start of the programme. Kindly do not make your travel plans unless you receive the confirmation email from IIM Kozhikode. If the programme is cancelled, the participants or the sponsoring organization will have the option to either get the fee paid by them adjusted against any other future management development programme(s) of the Institute or get a refund. IIM Kozhikode will not be liable for any other expenses incurred by the organization or the participant. Also the transaction fee will not be refunded.



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