



भारतीय प्रबंध संस्थान कोषिकोड

Indian Institute of Management Kozhikode

Globalizing Indian Thought



ADVANCED DATA ANALYTICS FOR MANAGERS

STARTS MARCH 30, 2022 | 10 MONTHS | LIVE ONLINE SESSIONS

Overview

The concept of data and analytics is now part of the business lexicon. Indian multinational organisations are integrating data science and analytics in their operations and have already seen big wins. Companies like Infosys (Times of India, 2020), Tata Consultancy Services (Analytics India Magazine, 2018), and Titan (Economic Times, 2020) have used analytics to inform their business strategy and added millions of dollars to their revenue. Yet only a minority of business managers have perfected the practice of using data to manage information and performance.

IIM Kozhikode's **Professional Certificate Programme in Advanced Data Analytics for Managers** is a guidepost to spur your understanding of analytics. This programme will help you manage and maximize a company's data assets, integrate analytics into decisions and processes, and power innovation for businesses.

This programme's focus on real-world examples, case studies, and practical sessions will ensure that you build a strong foundation in business analytics and make high-output business decisions.

Starts On

March 30, 2022*

Duration

10 Months

Format

Live Online Sessions

Programme Fee

INR 1,65,000 + GST

**Begins with an introduction to the platform*



The Indian analytics industry is predicted to grow to a market size of \$98.0 billion by 2025 and \$118.7 billion by 2026.

(Analytics India Magazine, 2021)



By 2024, over 50% of enterprises will replace outdated operational models with cloud-centric models that facilitate rather than inhibit organizational collaboration, resulting in better business outcomes.

(IDC, 2021)



The most in-demand skills currently are Data Analytics, Digital Literacy, Sales & Influencing, Data-based Decisions and Innovative Thinking.

(Economic Times, 2021)

Who is this Programme for?

- This programme is best suited for mid to senior-level professionals seeking to gain cutting-edge analytical skills to establish a career in Business data Analytics and Data Science.
- Professionals looking to develop a data-driven decisionmaking approach and the ability to leverage analytics for business growth and scale will also benefit from the programme.

**Data reveals impact, and with data,
you can bring more science to your decisions.**

- Matt Trifiro, CMO, Vapor IO



Programme Highlights

IIM Kozhikode's Professional Certificate Programme in Advanced Data Analytics for Managers imparts in-depth skills to master analytics, data science and machine learning. Its high-impact learning pedagogy will build your analytical abilities to make real-time, data-driven business decisions. This programme also equips participants with a comprehensive understanding of advanced data science tools so that they can effectively manage and lead high-performing data science and analytics teams.



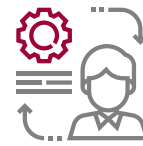
Develop a data-driven mindset to manage, visualise and analyse data effectively



Immersive learning journey with real-world case studies, business decision-related projects & Capstone Project



Certificate of Completion from IIM Kozhikode, one of India's Leading B-Schools



Hands-on exercises using real-world data sets & practical sessions



Taught by eminent IIM Kozhikode faculty, Eruditus global faculty & renowned industry experts



Receive Lifelong Executive Alumni Status & Networking Opportunities

Tools



Note:

- R will be the primary tool for Data Science
- Tableau will be the primary tool for Data Visualisation

Programme Director



Prof. Sreejesh S, PhD

*Programme Director & Assistant Professor,
Marketing Management*

Professor Sreejesh's primary research interests include marketing analytics, brand management, services marketing, and online marketing & advertising. His publications have appeared in Journal of Brand Management, Industrial Marketing Management, European Journal of Marketing, Computers in Human Behaviour, Journal of Travel and Tourism Marketing, International Journal of Contemporary Hospitality Management, Internet Research, Journal of Product and Brand Management, Journal of Service Theory and Practice, International Journal of Bank Marketing, etc. He serves on the editorial board of International Journal of Consumer Studies. He has also authored books of international repute with Pearson India and Springer International. Prof. Sreejesh S is currently working as an Assistant Professor of Marketing Management at IIM Kozhikode.

Note: Programme Directors might change due to unavoidable circumstances, and revised details will be provided closer to programme start date.

Programme Directors' Message

The Professional Certificate Programme in Advanced Data Analytics for Managers will equip professionals to have practical and interlocking competencies that maximise the best use of data and interpret the insights generated from the data, which will drive them to have better business decisions in their day-to-day business scenario. Moreover, the machine learning focus of the programme using powerful data analytics platforms will develop industry-ready professionals with in-depth expertise in extracting meaningful insights from the complex data.

Programme Modules

MODULE 1: INTRODUCTION TO DATA ANALYTICS & R

- Introduction R environment
- IDE-R studio
- Installing packages and loading packages in R
- Creating variables
- Scalars, vectors & matrices
- List, data frames & data types
- Converting between vector types
- Cbind & Rbind
- Attach and detach functions
- Reading .csv and .txt files
- Importing data from excel
- Loading and storing data with a clipboard
- Saving in R data, loading R data objects
- Writing data into the file
- Writing text and output from analyses to file
- Rmarkdown

MODULE 2: UNDERSTANDING DATA STRUCTURE

- Data subsets
- Selecting rows/observations
- Rounding a number
- Creating a string from variable
- Factor labels
- Selecting columns/fields
- Merging data
- Relabelling the column names
- Data sorting, data aggregation, and finding and removing duplicate records
- Application of dplyr package (select, arrange, mutate, aggregate, summarise, and group)

Programme Modules

MODULE 3: DATA VISUALISATION

- Basics of data visualisation using ggplot2
- Aesthetic mappings
- Common problems
- Facets
- Geometric objects
- Position adjustments
- Coordinate systems
- The layered grammar of graphics
- Combining plots
- Execution of various types of plots (box plot, histogram, pie chart, line chart, scatterplot, word cloud, probability plots, mosaic plots, correlograms, and interactive graphs)

MODULE 4: PRE-PROCESS THE DATA

- Data cleaning
- Handling missing data
- Data imputation
- Feature filtering
- Categorical feature filtering
- Identifying misclassifications
- Data transformation
- Min-max normalisation
- Z-score
- Standardisation
- Decimal scaling
- Transformations to achieve normality
- Outliers
- Graphical methods for identifying outliers
- Numerical methods for identifying outliers
- Flag variables
- Transforming categorical variables into numerical variables
- Binning numerical variables reclassifying categorical variables
- Adding an index field
- Removing variables that are not useful
- Data balancing techniques

Programme Modules

MODULE 5: EXPLORATORY DATA ANALYSIS

- Hypothesis testing versus exploratory data analysis
- Getting to know the data set
- Exploring categorical variables
- Exploring numeric variables
- Exploring multivariate relationships
- Selecting interesting subsets of the data for further investigation
- Using EDA to uncover anomalous fields
- Binning based on predictive value
- Deriving new variables: flag variables
- Deriving new variables: numerical variables
- Using EDA to investigate correlated predictor variables
- Need for dimension-reduction in data mining
- Principal components analysis (PCA)
- Application of PCA

MODULE 6: STATISTICAL INFERENCE

- Statistical inference
- Confidence interval estimation of the mean
- The margin of error
- Confidence interval estimation of the proportion
- Hypothesis testing for the mean
- Assessing the strength of evidence against the null hypothesis
- Using confidence intervals to perform hypothesis tests
- One-sample t-test
- Paired sample t-test
- Chi-square test for goodness of fit of multinomial data
- Analysis of variance (ANOVA)

Programme Modules

MODULE 7: BASICS OF MODELLING

- Supervised versus unsupervised methods
- Statistical methodology and data mining methodology
- Cross-validation
- Overfitting
- Bias-variance trade-off
- Balancing the training data set
- Establishing baseline performance
- Simple regression analysis
- Model formulation
- Verifying the regression assumptions
- Inference in regression
- Multiple regression analysis
- Dummy variable
- Stepwise regression analyses

MODULE 8: CLASSIFICATION

- k-nearest neighbour algorithm
- Decision tree
- Random forest
- Neural networks for estimation and prediction
- Application of logistic regression for estimation and prediction
- Naïve bayes and Bayesian networks

MODULE 9: CLUSTERING

- Hierarchical Clustering Methods
- k-Means Clustering
- Measuring Cluster Goodness
- Affinity Analysis
- Market Basket Analysis

MODULE 10: TEXT MINING & SOCIAL MEDIA ANALYSIS

- Text mining and sentiment analysis
- Social media analytics (Twitter)
- Lexicon analysis
- Social network analysis

Holistic Curriculum

This comprehensive programme curriculum is integrated with a judicious blend of immersive learning tools such as live online lectures, hands-on exercises using data, real-world case studies, business decision-related projects as well as a final capstone project to reinforce an advanced understanding of data analytics in decision-making. Taught by renowned IIM Kozhikode faculty, this engaging learning experience will empower participants to implement data-driven analytics for making insightful and impactful business decisions in their organisation.

Note: Modules/topics are indicative only, and the suggested time and sequence may be dropped/ modified/ adapted to fit the total programme hours.

Capstone Project

With the capstone project, participants will gain hands-on learning experience in conducting data analysis scientifically and make insightful and powerful connections between quantitative data analysis and real-world business challenges. This project will provide participants with an opportunity to integrate their theoretical and practical understanding of data science and explore ways to apply their learnings in a real-world competitive business scenario.



Real-world Case Studies

- **Understanding Text Mining and Sentiment Analysis in Hotel Booking** by Rasha Kashef, Sakariya Ahmed (Harvard Business Publishing)

This case study explores the unpleasant experience of a management science professor with a hotel she stayed at in New York City. Consequently, she wanted to figure out if hotel ratings were enough to recommend a hotel, or if customers' text reviews could be used as more important and accurate indicators of customers' hotel experiences.



- **Predicting Earnings Manipulation by Indian Firms Using Machine Learning Algorithms** by Dinesh Kumar Unnikrishnan, Tousif Ahmed Inayath Syed, Suresh Ganeshan (Harvard Business Publishing)

This case explores how Sachin Kumar, Director at MCA Technology Solutions, was approached by one of his clients, a commercial bank, to assist them in detecting earnings manipulators among the bank's customers with the help of machine learning algorithms to get better accuracy compared to the other traditional models such as Beneish model used for predicting earnings manipulation.



- **Armacord Incorporated: Combatting Money-laundering Using Data Analytics** by Davit Khachatryan (Harvard Business Publishing)

This case focuses on enhancing students' understanding and appreciation of data analytics for fraud detection in financial institutions. It explores a predictive analytic solution, in the form of a time series model, for combating money laundering at a regional bank.



- **Data Science at Target** by Srikant M. Datar, Caitlin N. Bowler (Harvard Business Publishing)

The case explores the technological and organisational challenges faced by Paritosh Desai, VP of Business Intelligence, Analytics & Testing, and the trade-offs he considered in his four-year journey to develop the larger retail business into a data science organisation.



Note: The programme curriculum includes more such case studies for integrated learning.

Learning Outcomes

Joining this live online programme will enable participants to gain proficiency in data science and business analytics to manage the most challenging business situations with data-driven insights and analysis.

Gain an in-depth understanding of data structures and data analysis to explore and visualise data for meaningful insights and identify relationships between large data sets



Learn to use analytical tool such as R to manipulate and analyse complex data sets and become proficient in building machine learning models using R

Explore text mining analysis/techniques to understand the influence of social media applications



Understand the nuances and applications of descriptive, predictive, and prescriptive analytics to enhance analytical skills and make real-time, data-driven business decisions

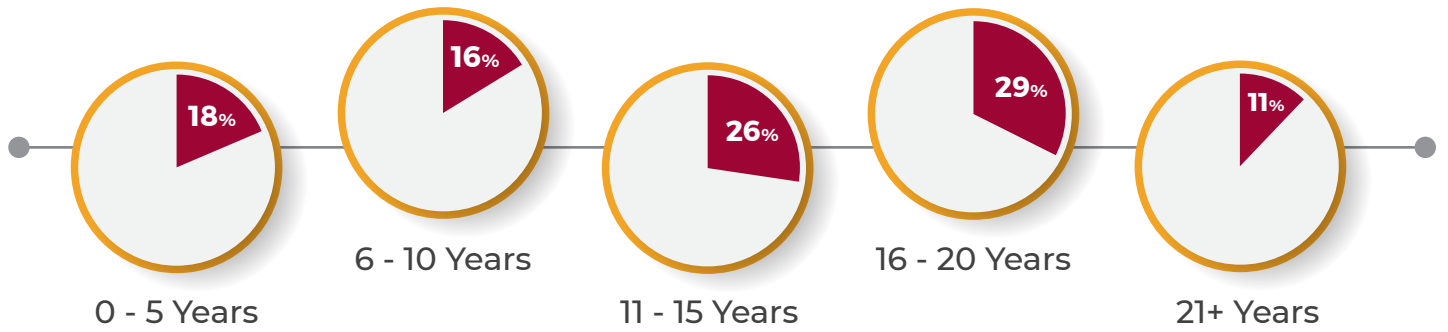
Gain the skills and knowledge required to manage data science and analytics teams or projects at your organisation



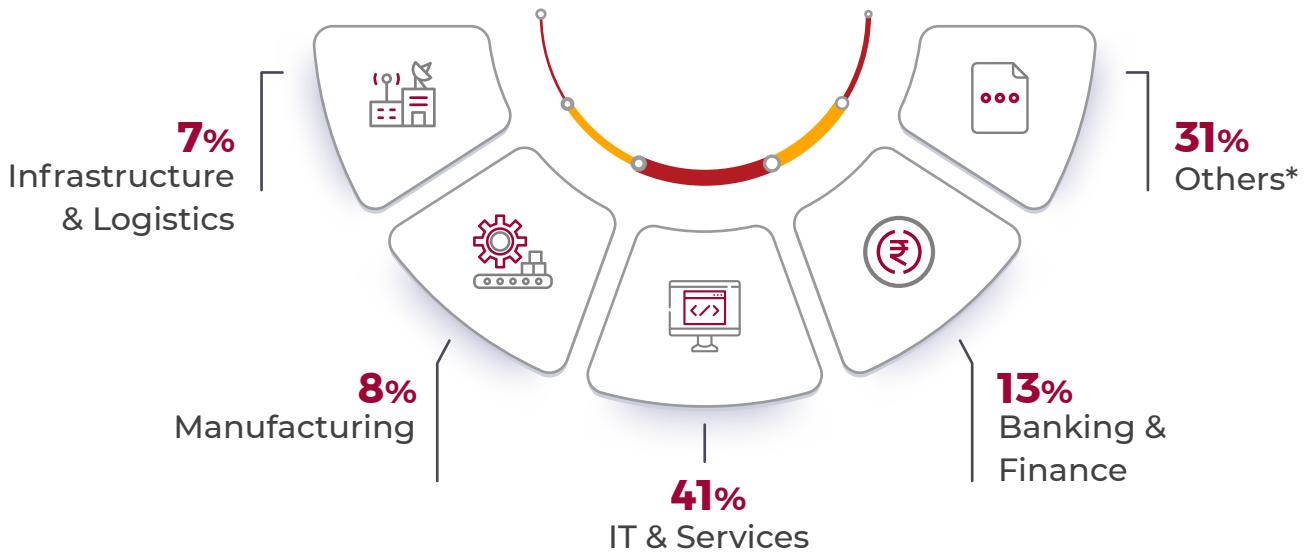
Get the managerial expertise of the tools and techniques used in Data Analytics and Machine Learning for business applications

Past Participant Profiles

Work Experience



Industry



*Others include Healthcare & Pharmaceuticals Shipping, Retail, Media, Consulting, etc.

Functions



#Others include Customer Service, Engineering, Consulting, Legal etc.

Certificate

Participants who successfully complete all evaluation components with minimum pass marks and meet the requisite 75% minimum attendance criteria will be awarded a Certificate of Completion from IIM Kozhikode. Participants who are unable to clear the evaluation criteria but have the requisite attendance will be awarded a Participation Certificate.



Note: All certificate images are for illustrative purpose only and may be subject to change at the discretion of IIM Kozhikode.

Eligibility

Graduates (10+2+3) or Diploma Holders (only 10+2+3) from a recognised university in any discipline with a minimum of 1 year of work experience (after graduation) as on March 30, 2022.

Evaluation

There will be periodic evaluations built-in throughout the programme at regular intervals. These may be in the form of a quiz, assignment, project, case studies or other objective/subjective assessments. A minimum of 75% attendance is a prerequisite for the successful completion of this programme. The participants will have to secure the minimum pass marks in the respective evaluation components.

IIM Kozhikode Executive Alumni Status

On successful completion of the programme, participants will be eligible to apply for the prestigious IIM Kozhikode Executive Alumni Status for an additional fee. These participants will subsequently receive the alumni registration details from IIM Kozhikode.

Note: The Executive Alumni benefits are subject to the discretion of IIM Kozhikode.

Programme Details

Programme Fee INR 1,65,000 + GST

Academic Orientation Apr 09, 2022

Instalment Schedule

| Particulars | Remarks | Amount |
|----------------|------------------------------|------------------|
| Booking Amount | Within 7 days post selection | INR 16,000 + GST |
| Instalment I | Apr 05, 2022 | INR 33,000 + GST |
| Instalment II | Jul 05, 2022 | INR 66,000 + GST |
| Instalment III | Oct 05, 2022 | INR 50,000 + GST |

Round-wise Application Dates

| Particulars | Application Fee | Dates |
|-------------|-----------------|--------------|
| Round 1 | - | Feb 03, 2022 |
| Round 2 | INR 2,000 + GST | Feb 28, 2022 |

Programme Schedule

Live Online Sessions

3 hours / week
Saturday, 3:30 PM to 6:30 PM

Attendance

Minimum 75%

Note

Admissions are on a first-come, first-serve basis. There might not be subsequent rounds if seats are filled in the initial rounds.

Programme Application Link

- Click [here](#) to apply to the programme.
- Finance options available. [Click here](#) to learn more.
- For more information, please email at iimk@eruditus.com

Note: The actual programme schedule will be announced closer to the programme start.

Application Requirements

Applying to the programme? We suggest you keep the following 3 documents ready.

1. Your Photo ID Proof:

- You can submit a scanned copy of **ANY ONE** of: Aadhaar Card, e-Aadhaar, PAN Card or the first two pages of your Passport. In case you submit an e-Aadhaar card, please rename the file to its password so we can open the file.

2. Your Graduation/Degree:

- You can submit a scanned copy of **ANY ONE** of: Degree certificate, provisional Degree certificate, marks transcript or score transcript.

3. Your Work Experience Certificate:

- You can submit scanned copy(ies) of document(s) which demonstrate that you have the minimum work experience required by the programme.
- You can confirm the minimum work experience requirement of a programme under the heading '**Eligibility**' in the brochure or the programme website
- Examples of documents you can submit are joining letter, relieving letter, Bonafide work experience letter from your HR, salary slips etc.
 - These documents must be issued by your company.
 - Please ensure that the document(s) you submit contain a **date of joining** and a **date of leaving** or a **statement** about the **number of years** you have worked at the company.



System Requirements

This programme includes live online classes. To attend a live online class you will need to have a PC/Laptop/Mac with

- Speakers and microphone: built-in or a USB plug-in or wireless Bluetooth
- Webcam: built-in or USB plug-in
- Processor: with Dual Core 2Ghz or higher (i3/i5/i7 or AMD equivalent)
- RAM: 4 GB or higher
- OS: Either MacOS 10.7 or higher OR Windows 8 or higher
- An internet connection: Minimum bandwidth of 3.0 Mbps (up/down)
- Browser: IE 11+, Edge 12+, Firefox 27+, Chrome 30+
- Zoom software client installed on your PC/Laptop/Mac

We use the Zoom software application to conduct live online classes. Zoom works on a variety of PCs/ Laptops/Mac systems and also on phones and tablets.

You can join your live online class from a phone or tablet if it supports the Zoom client.

We recommend that you attend classes from a PC/Laptop/Mac.



About IIM Kozhikode

With its roots dating back to 1997, the Indian Institute of Management Kozhikode (IIMK), started with a batch size of 42 students but has grown tremendously over the years to a current batch strength of 485 students, making it the fastest-growing management school in the country. IIM Kozhikode has achieved its own unique identity, a mix of two cultures, academic and business and is fast emerging as an internationally reckoned fully-integrated management institute of higher learning. One of the most picturesque campuses in the country, the world-class infrastructure includes air conditioned class rooms, guest facilitation zones and wifi connectivity which enables every IIM Kozhikode resident to be exposed to a wholesome experience. Managed by dedicated personnel, it is one of the most efficient institutions in the country. IIM Kozhikode pioneered the Interactive Learning (IL) programme for working executives in India. This programme started with 300 class contact hours in 2001-02, the two-year-long Executive Management Education Programme is today the most rigorous programme in the country having around 738 class contact hours.

Every year IIM Kozhikode offers a rich portfolio of Management Development Programmes crafted for the agile minds on the lookout for thought-provoking questions and enriching learning experiences. Recently, IIM Kozhikode has launched a one year Post Graduate Programme in Business Leadership (PGP-BL) in the year 2019 and has also launched a two years Post Graduate Program in Liberal Studies & Management (PGP-LSM) as well as the Post Graduate Program in Finance (PGP-Finance). Over the years, there has been a significant increase in the number of training programmes and participants. The speed and momentum of changes in the Indian business environment are unabated, and IIM Kozhikode's endeavour is to adapt to these changes through constant innovation.

About Eruditus

Eruditus Executive Education offers customised and open programmes in India, Singapore, Dubai and other global locations in collaboration with MIT Sloan, Columbia Business School, INSEAD, Harvard Business School (HBS), Kellogg Executive Education, Berkeley Executive Education, Wharton Executive Education, IIM Lucknow Executive Education, IIM Calcutta Executive Education and Emeritus. Our world-class executive education programmes, supported by eminent programme experts, provide an immersive learning experience integrated with actionable insights and practical business applications. The meticulously curated programmes are delivered in a different range of formats; in-class, online, as well as blended programmes. Our extensive portfolio also includes short 2-4 day in-class workshops, online courses of 2-3 months duration as well as comprehensive learning journeys that run over 6-9 months, customised to an organisation's requirement.

Apply for the programme here

APPLY NOW

For registration and any other information, please get in touch with us at iimk@eruditus.com

 [WhatsApp an Advisor On +91 7208889990*](https://wa.me/917208889990)

*This number does not accept any calls. Please message your queries.



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