



भारतीय प्रबंध संस्थान कोषिककोड

Indian Institute of Management Kozhikode

Globalizing Indian Thought



PROFESSIONAL CERTIFICATE PROGRAMME IN ADVANCED DATA ANALYTICS FOR MANAGERS

STARTS SEPTEMBER 30, 2021 | 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.



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

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By 2024, over 50% of enterprises will replace outdated operational models with cloud-centric models that facilitate rather than inhibit organizational collaboration, resulting in better business outcomes:

SOURCE: IDC, 2021



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

SOURCE: Economic Times, 2021

Starts On

September 30, 2021

Duration

10 Months

Format

Live Online Sessions

Programme Fee

INR 1,65,000 + GST



Who is this Programme for?

There's a growing demand for skilled data analytics professionals across industries, management levels and job functions. Joining this programme will be most beneficial for:

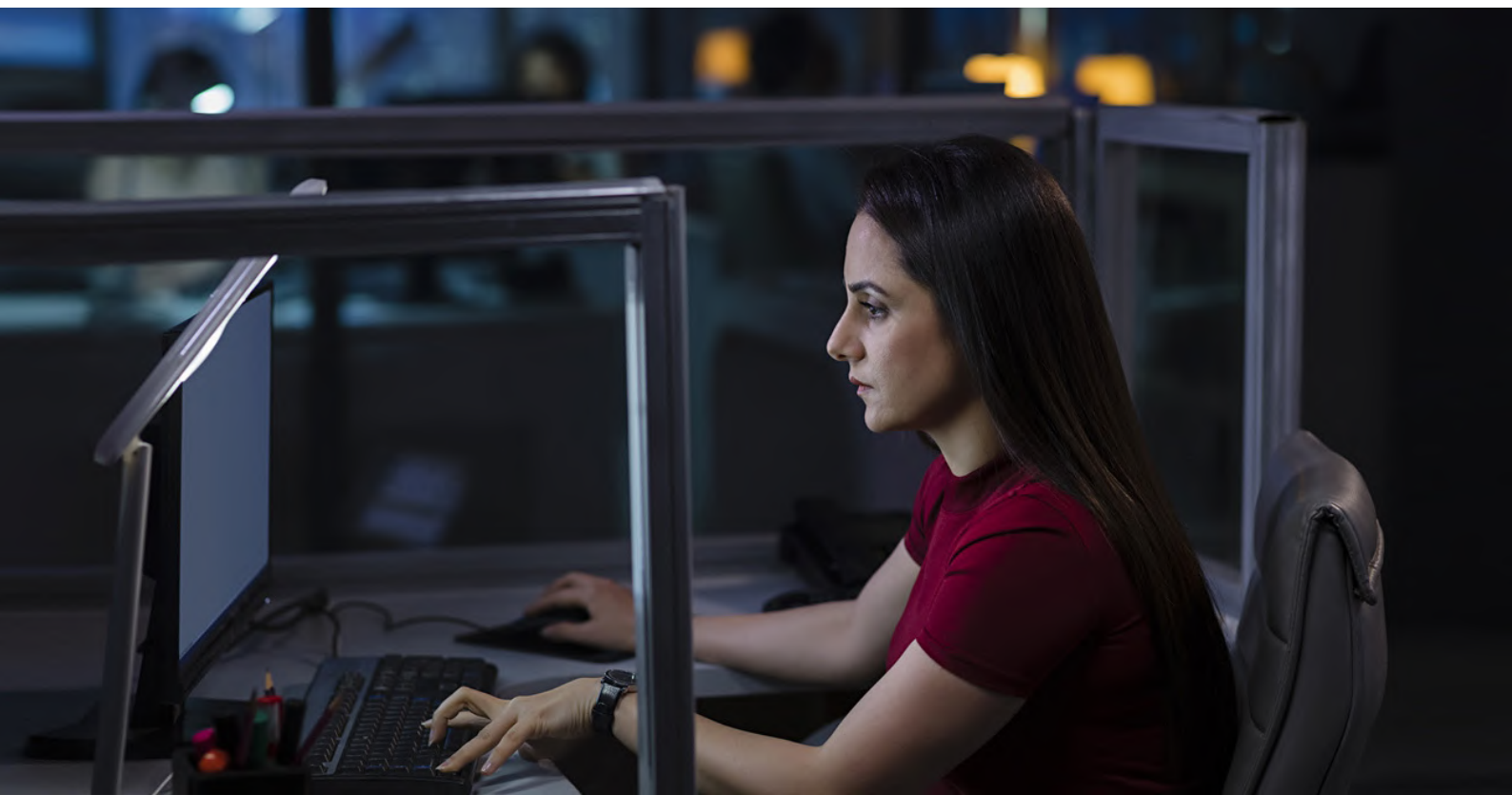
- Working professionals looking for a career in business data analytics and data science
- Managers interested in improving their analytical skills and effectively managing analytics, data science and machine learning projects
- Business Analysts who want to transition to data science/ analytical roles or projects and become more efficient in data-driven decision-making
- Senior Managers and Leaders interested in establishing a data-driven culture at their organisation
- Consultants who are driving client projects and looking for cutting edge analytical techniques & solutions
- Entrepreneurs who want to leverage analytics and data science capabilities as a competitive advantage to scale their business

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

- Matt Trifiro,
CMO, Vapor IO

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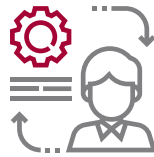


Programme Highlights

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



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



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



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



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



Earn Lifelong Executive Alumni Status & Networking Opportunities

“
Every company will become a technology company, and every company will become a data company.

- Steve Brown in
The Innovation
Ultimatum



Programme Directors



Prof. Anandakuttan B Unnithan, PhD

Professor, Marketing
Dean (Academic Affairs &
Development)

Prof. Anandakuttan B Unnithan obtained his PhD degree in Marketing from Cochin University of Science and Technology, Kochi, Kerala. He has extensive experience of two decades as a business educator, researcher and administrator. Currently, he is a Professor of Marketing Management and Dean (Academic Affairs and Development) at the Indian Institute of Management Kozhikode. His research interests include consumer behaviour, services marketing, and advertising. His publications have appeared in leading journals in marketing, advertising, and other business disciplines. He has consulted with major corporations and government agencies and is actively engaged in executive education and management development programmes.



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)

Holistic Curriculum

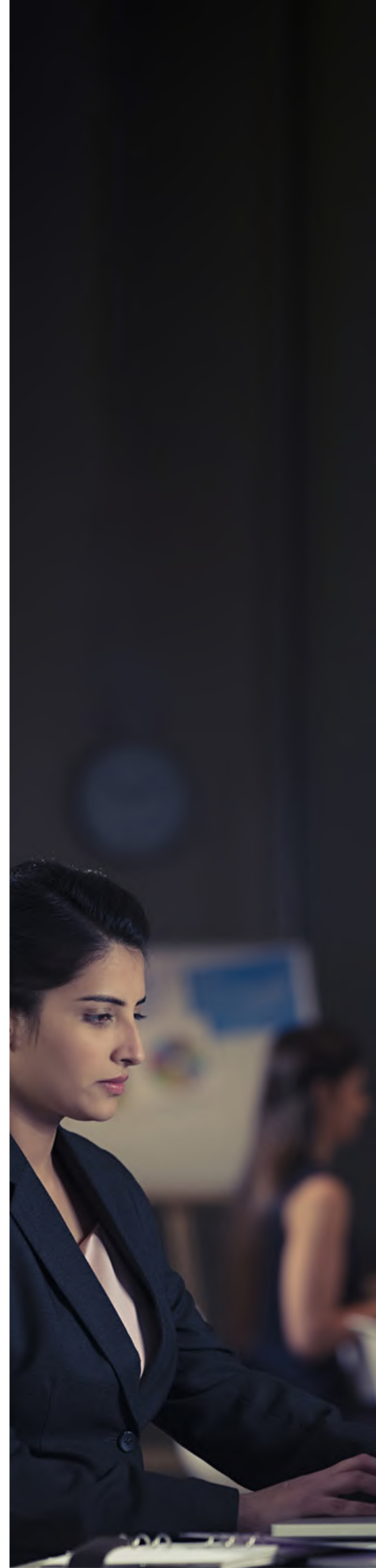
This comprehensive programme curriculum is integrated with a judicious blend of immersive learning tools such as live online lectures, hands-on exercises using data, real-world case studies, business decision-related projects as well as a final capstone project to reinforce an advanced understanding 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.

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



MODULE 5: Exploratory Data Analysis

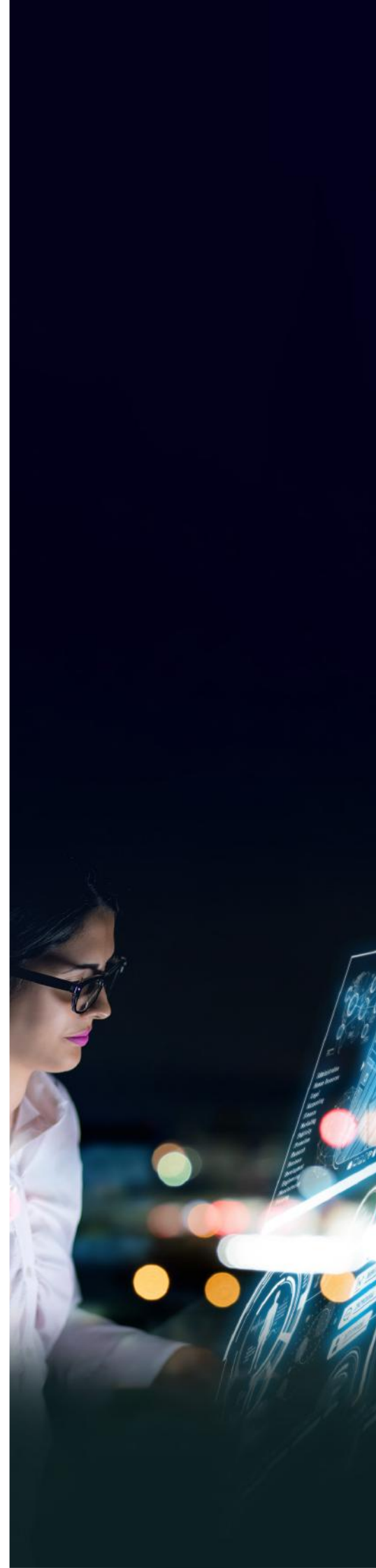
- Hypothesis testing versus exploratory data analysis
- Getting to know the data set
- Exploring categorical variables
- Exploring numeric variables
- Exploring multivariate relationships
- Selecting interesting subsets of the data for further investigation
- Using EDA to uncover anomalous fields
- Binning 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 Inferences

- 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)

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

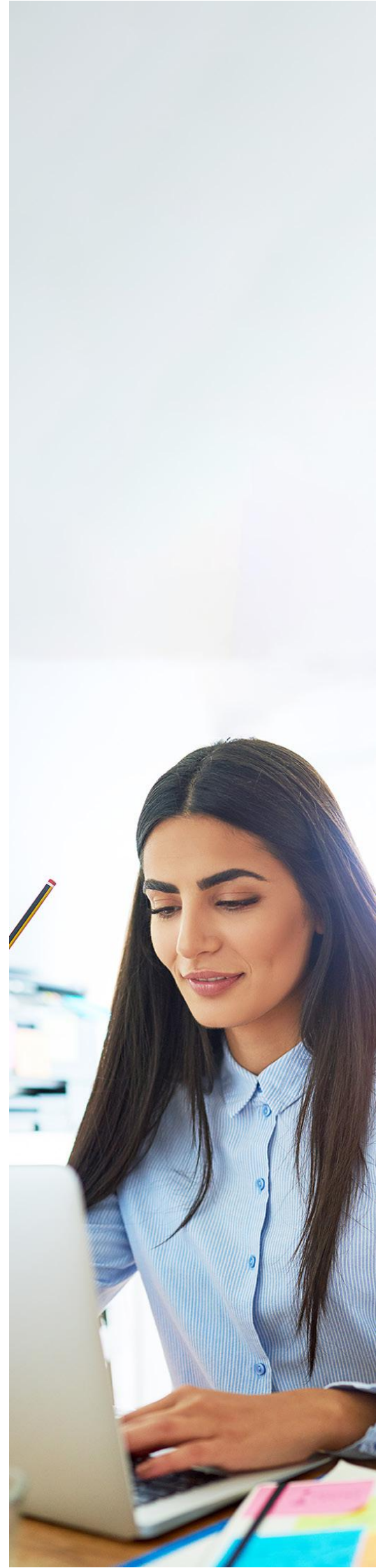
MODULE 10: Text Mining & Social Media Analysis

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

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.

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



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 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.

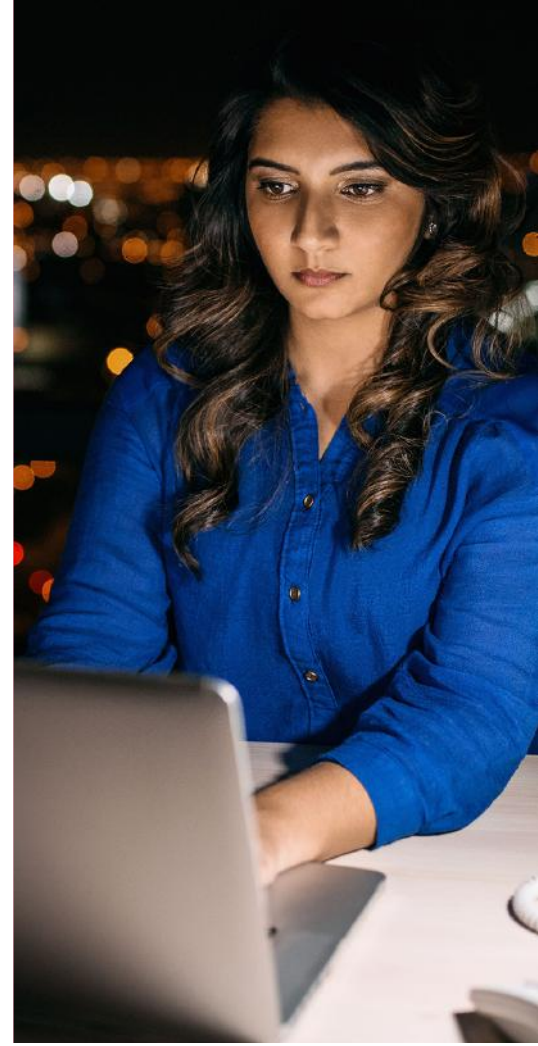
- **Armacord Incorporated: Combatting Money-laundering Using Data Analytics by Davit Khachatryan** (Harvard Business Publishing)

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



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The goal is to turn data into information and information into insight.

- Carly Fiorina,
Former CEO,
Hewlett Packard

”

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

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It's important to leverage data the same way, whether it's a strategic or tactical issue: Have a vision for what you are trying to do.

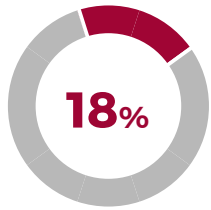
- Andrew Chen,
General Partner,
Andreessen Horowitz

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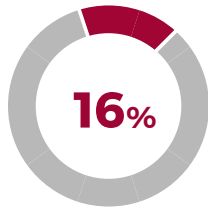


Past Participant Profiles

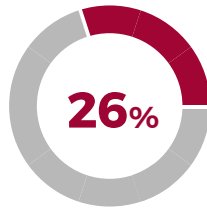
Work Experience



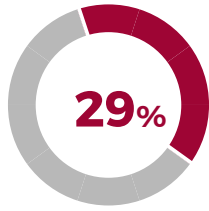
1 to 5 years



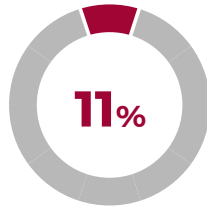
6 to 10 years



11 to 15 years

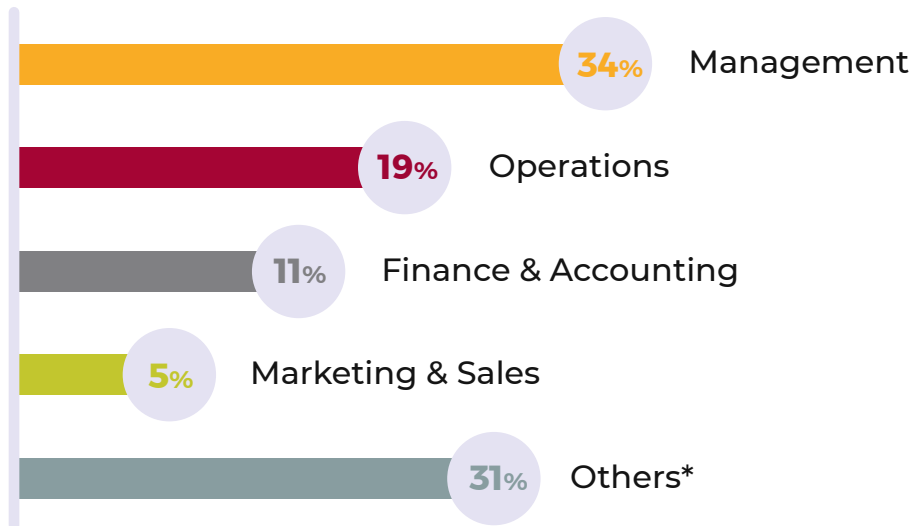


16 to 20 years



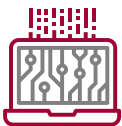
21+ years

Job Function



* Customer Service, Engineering, Consulting, Legal etc.

Industries



41%

IT & Services



13%

Banking & Finance



8%

Manufacturing



7%

Infrastructure &
Logistics



4%

Healthcare &
Pharmaceuticals



27%

Others#

Shipping, Retail, Media, Consulting, 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.

IIM Kozhikode Executive Alumni Status

On successful completion of the programme, participants will be eligible for the prestigious IIM Kozhikode Executive Alumni Status. These participants will subsequently receive the alumni registration details from 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 September 1, 2021.

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.



Programme Details

Programme Fee INR 1,65,000 + GST

Academic Orientation Oct 21, 2021

Instalment Schedule

	Remarks	Amount
Booking Amount	Within 7 days post selection	INR 20,000 + GST
Instalment I	Oct 15, 2021	INR 55,000 + GST
Instalment II	Dec 15, 2021	INR 40,000 + GST
Instalment III	Mar 15, 2022	INR 50,000 + GST

Round-wise Application Dates

	Application Fee	Dates
Round 1	INR 1,500 + GST	Jul 28, 2021
Round 2	INR 2,000 + GST	Aug 27, 2021
Round 3	INR 2,500 + GST	Sep 22, 2021

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

Finance options available. [Click here](#) to learn more.

Programme Schedule

Live Online Sessions

3 hours / week

Thursday, 6:45 PM to 9:45 PM

Attendance

Minimum 75%

Programme Application Link

[Click here](#) to apply to the programme.

For more information, please email at iimk@eruditus.com



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

IIM Kozhikode ranks 15th in Asia Pacific and #101+ globally in the QS World University Global Executive MBA Rankings 2020. Since its inception, IIM Kozhikode has successfully carved its niche in the area of management education, through a judicious blend of academics and real-world practice. The Institute continually adapts to the rapid influx of changes in the Indian business landscape by providing cutting-edge Management Development Programmes with innovative pedagogy and content to impart industry-relevant knowledge and skills to its executive education participants. Last year, IIM Kozhikode trained more than 3,400 executives through a wide gamut of programmes uniquely crafted for agile minds interested in thought-provoking questions and learning centred on business transformation and growth.

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

In collaboration with



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