



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

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WRITE YOUR OWN ALGORITHM FOR CAREER GROWTH

Professional Certificate Programme in **Applied Data Science and Machine Learning**

12 Months | Blended | ₹2,15,000 + GST



A Times Of India Group Initiative

IIM Kozhikode Advantage

From the Director's Desk



"IIM Kozhikode has designed **Applied Data Science and Machine Learning** programme to give participants a holistic experience of the marketing industry with vital concepts of strategy and marketing analytic fundamentals. We also want to promote their learning to forecast and influence business decisions by using insights provided through analytical techniques and tools.

Businesses today have seen a complete transition than they used to run a decade ago. Recent industry reports suggest that close to 68% of business leaders in India have reported that having high agility reduced their costs by 25%. It is thus imperative for business leaders of today and the future to expand their knowledge across domains and proactively make decisions to be effective leaders. IIM Kozhikode programmes designed by world-class faculty with their cutting-edge thought leadership and industry-leading insights empower participants to manage and lead complex business challenges with confidence and data-driven, informed decision-making ability. Our growing global footprints acknowledged and accredited by leading institutions of the world are a testimony to growth we have achieved in our 25-year journey of academic excellence.

At this juncture, it is also pertinent to share that both future and past are integral to the path taken by an institution on this journey of excellence. Having a wide, far-seeing vision is not an indulgence but an activity that is necessary to give meaning to our present, to give this Institution a sense of purpose, direction and imagination. That is why we have chosen to think in terms of what IIM Kozhikode will be able to contribute to India and the world some three decades from now with 'Vision 2047: Globalizing Indian Thought'. The Institute has set for itself a pre-eminent role with the above motto. The sheer scale, scope and potential impact that India will have on 21st century business makes us believe that this is a legitimate aspiration."

Wishing you all the very best!

A handwritten signature in orange ink that reads "Debashis Chatterjee". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Prof. Debashis Chatterjee,
Director, IIM Kozhikode

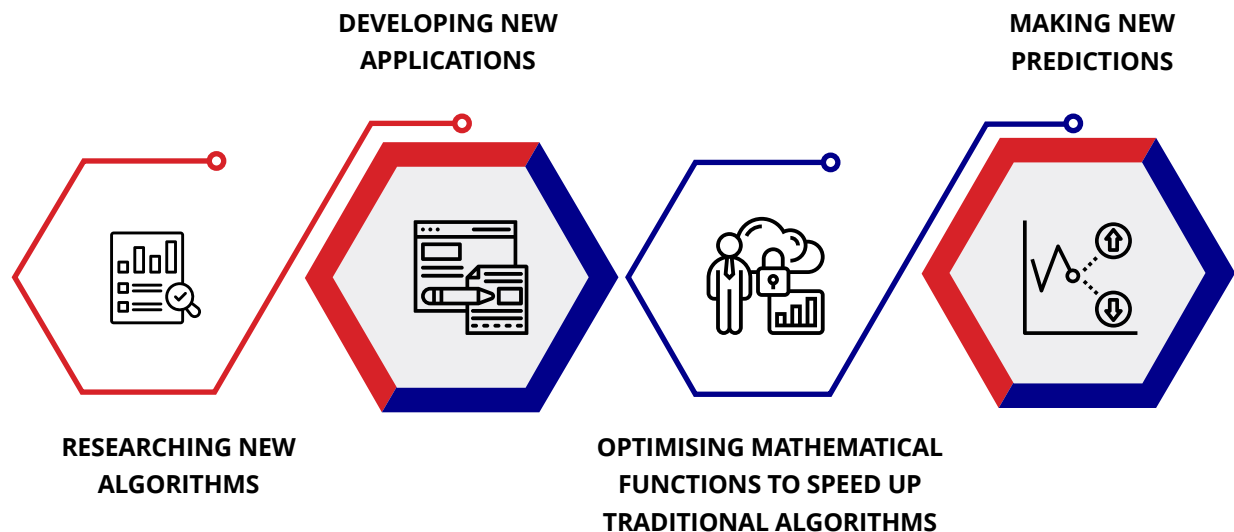
Data Science v/s Applied Data Science

Data Science is an interdisciplinary field focused on extracting knowledge and insights from typically large data sets (Big Data) and unifying statistics, mathematics, data analysis, and informatics. Data Science, however, is different from Computer Science and Information Science.

Applied Data Science combines the skill of analysis with Data Science. It encompasses investigating novel data science applications and developing innovative forms or operations for quick data retrieval and processing. It requires a deeper technical understanding of how Data Science and its approaches work.

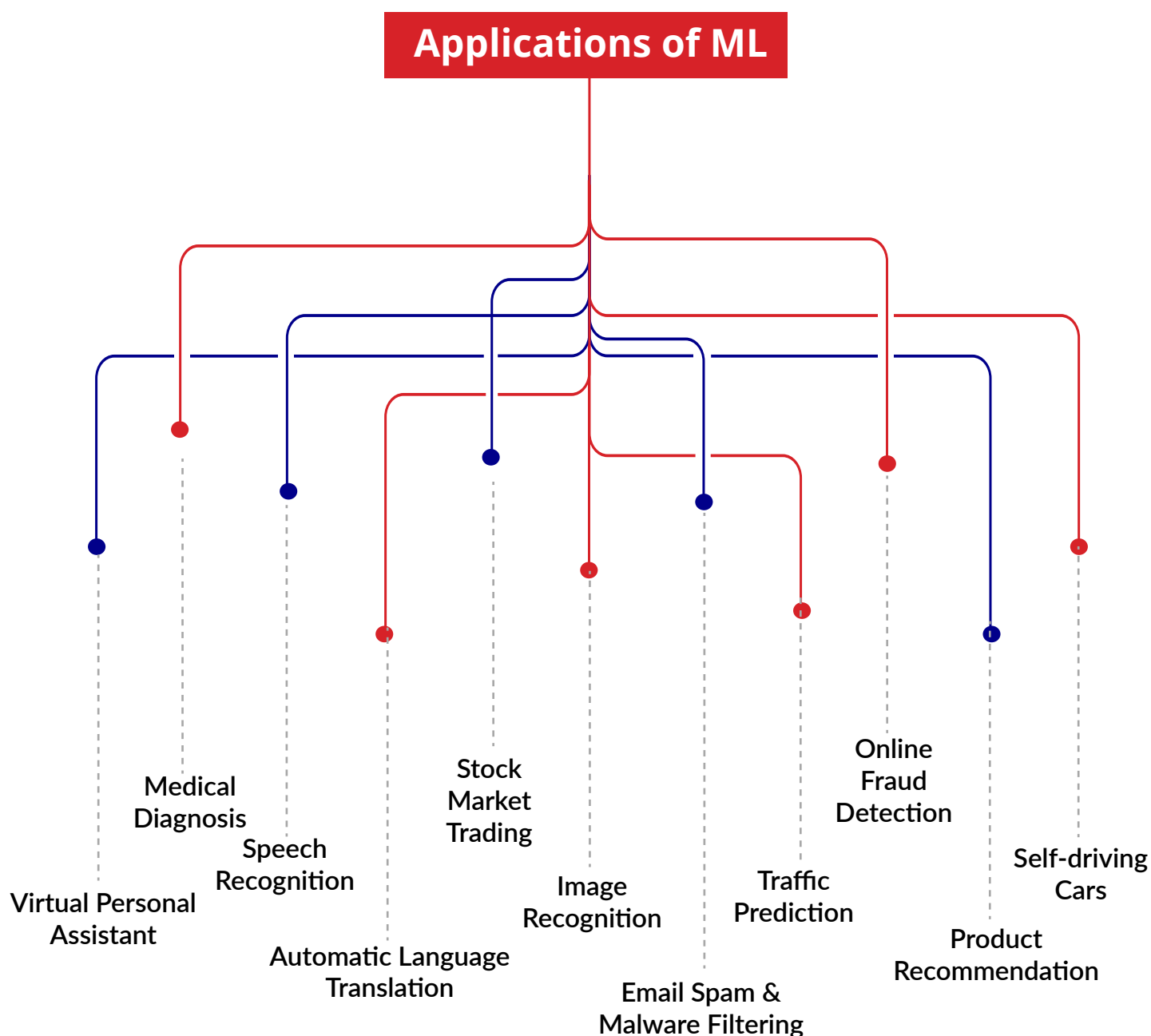
An Applied Data Scientist applies Data Science to provide actionable solutions to business problems by applying theoretical and conceptual frameworks and algorithms on the underlying data.

Applied Data Science: Focus Areas



Applied Machine Learning

Applied Machine Learning is the application of Machine Learning to a specific data-related problem. It is all about solving real world problems and is generally characterised by the use of statistical algorithms and techniques to make sense of, categorise, and manipulate data. It can be applied wherever there are non-deterministic elements to a problem, and especially where the manipulation and analysis of a large amount of statistically generated data is required.





Programme Overview

Across sectors and businesses, Data Science and Machine Learning has been established as a prerequisite for developing effective data-driven decisions and executing business strategies. Thus, the demand for trained data scientists has witnessed massive growth in recent years. The **Applied Data Science and Machine Learning** programme is designed to give participants holistic skills and knowledge of the most potent software, social media analytics, and visualisation platforms.

The programme also provides valuable real-life data exposure that will help managers apply the same in their day-to-day business decision-making situations. It will allow them to gain expertise in data science tools and techniques and apply them in critical business decision scenarios.

Programme Highlights



A comprehensive 12-month programme for analysts and managers



Real-life data exposure and simulation-based pedagogy



2-day campus immersion module



IIM Kozhikode Executive Alumni status and certification



Capstone project

Learning Outcomes

After completing this programme, the participants will:



Master software like R, Python, NodeXL, Gephi, LIWC, Tableau, PowerB, and many more



Understand the nuances of data-driven decision-making and apply the same in their day-to-day business decision-making situations



Gain expert training on robust Data Science and visualisation tools and techniques, which are very much essential in the current business decision scenario

Programme Curriculum

Module 1: Introduction to Data Management and Data Pre-processing

- Understanding Data Science
- Introduction to Data Analytics Using R and Python
- Understanding Data Structures
- Prepare the Data for ML Algorithms

Module 2: Statistics for Data Science

- Basics of Statistics
- Exploratory Data Analysis
- Inferential Statistics
- Hypothesis Testing and Evaluation

Module 3: Data Visualisation and Storytelling

- Basics to Advanced Data Visualisation Using R and Tableau
- Story Telling with Data
- Discover and Visualise Data to Gain Insights
- Designing Business Dashboards

Module 4: Introduction to Machine Learning

- Understanding ML Landscape
- Types of ML
- Challenges of ML Implementation
- Hyperparameter Turning in ML
- Implementation of ML Projects

Module 5: Implementing End-to-End Supervised ML Projects

- Prepare the Data for ML Implementation
- Supervised ML Models
- Linear Regression
- Regularised Regression (Ridge, Lasso, and Elastic Net Regression)
- Decision Tree for Regression Problems
- Ensemble Models for Regression Problems
- ML Algorithms for Classification
- Logistic Regression
- Support Vector Machine (SVM)
- KNN Algorithm
- Decision Tree for Classification Problem
- Random Forest for Classification Problem
- Boosting for Classification (ADA boost, Gradient, and XG-Boost)

Module 6: Implementing End-to-End Unsupervised ML Projects

- Clustering Algorithm (Hierarchical and K-means clustering)
- DBSCAN
- RFM Analysis
- Association Rule Mining and Recommendation System
- Dimensionality Reduction Using PC

Module 7: Neural Networks and Deep Learning

- Artificial Neural Networks
- RNN
- Deep Learning: Backpropagation
- CNN

Module 8: Social Media Analytics

- Social Network Analysis (SNA)
- Introducing NodeXL
- Advanced SNA
- Gephi
- Text Analytics
- LIWC for Analysing Social Media Data

Module 9: Project

- Capstone/Final Project

Pedagogy

The teaching approach will be highly interactive and shall deploy diverse pedagogical tools and techniques including lectures, case studies, live corporate examples, general discussions, simulation, and participants' experience sharing.

Programme Delivery

Sessions will be conducted via a state-of-the-art Interactive Learning (IL) platform and delivered on the BCCL technology platform to participants from Direct-to-Device (D2D) mode that can be accessed by learners on their Desktop, Laptop, Tablet, or Smartphone. Participants will be provided reading materials, etc., for each course. They may also interact with the concerned faculty through e-mail/chat mode. Archives for students will be provided till the end of the programme.



Duration

12 Months

Schedule

Sundays

12:15 p.m. to 3:15 p.m.

Campus Immersion

There will be 2 days of campus immersion at IIM Kozhikode.

The in-campus modules are subject to the conditions that prevail at that point of time. These conditions pertain to the pandemic or other unavoidable reasons. In case the current situation maintains the status quo, adequate alternate options with regard to the in-campus modules will be made available via online sessions.

Eligibility Criteria

- Bachelor's Degree (10+2+3 or 10+2+4)/Diploma (10+2+3) from any recognised university
- Minimum 3 years of full-time work experience* post completion of qualifying education

**Internships and trainee experiences will not be considered as full-time work experience.*

Who Should Attend?

- Senior associates, managers/team leads interested in improving their analytical skills and effectively managing Data Science and Analytics projects
- Business and data analysts and mid-stage professionals looking to upskill or transition into the field of Data Science

Admission Criteria

Applications will be considered for selection based on the candidate's credentials. The final selection of participants will be solely done by IIM Kozhikode.

Attendance Criteria

A minimum of 75% attendance is a prerequisite for the successful completion of the programme.





Assessment & Evaluation

- Evaluation methodology is at the discretion of the faculty. The methodology includes online exams, case analysis, class contribution and any other component as decided by the faculty.
- The programme may require participants to work on individual/group assignments and/or projects. The main objective of such assignments/projects will be to help the participants apply their conceptual learning in the programme to actual organisational decision scenarios.
- The participants will have to secure the minimum pass marks in the respective evaluation components.

Certification & Alumni Status

- Participants who successfully fulfil the evaluation criteria and satisfy the requisite attendance criteria will be awarded a 'Certificate of Completion'.
- Participants who are unable to clear the evaluation criteria but have the requisite attendance will be awarded a 'Participation Certificate'.
- Successful participants passing the programme will also be accorded IIM Kozhikode Executive Alumni status.

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

Programme Directors



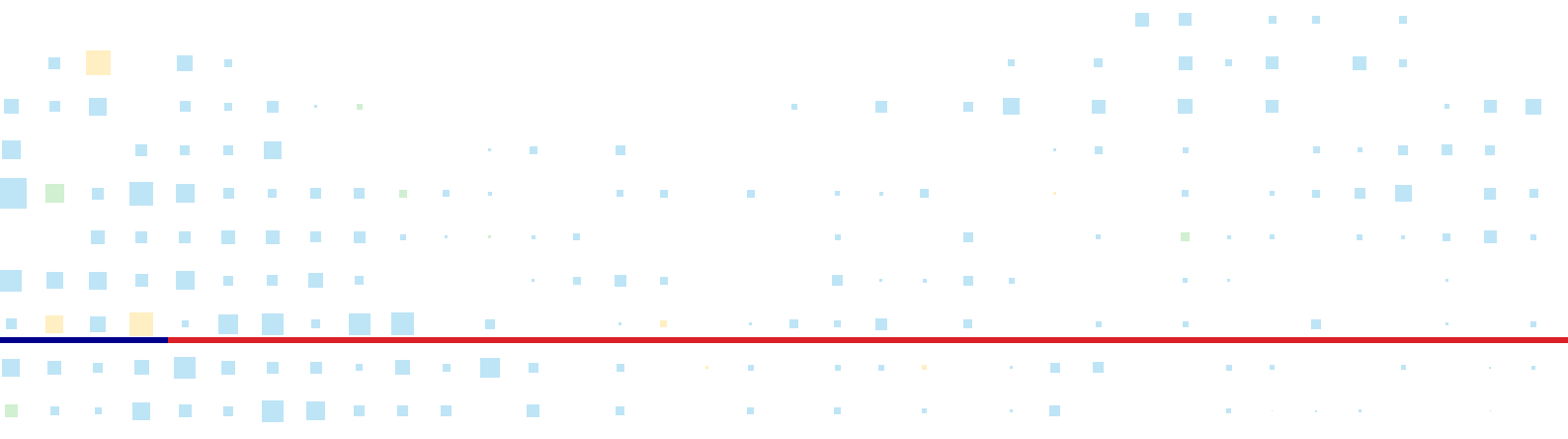
Prof. Sreejesh S

Prof. Sreejesh S is currently working as an Associate Professor of Marketing at the Indian Institute of Management Kozhikode, India. His main research interests include brand management, services marketing, and online marketing & advertising. His publications have appeared in: The Journal of Business Research, The Journal of Brand Management, The Industrial Marketing Management, The European Journal of Marketing, The Computers in Human Behaviour, The Journal of Travel and Tourism Marketing, The International Journal of Contemporary Hospitality Management, Internet Research, The Journal of Product and Brand Management, The Journal of Service Theory and Practice, The International Journal of Bank Marketing, etc. He serves on the editorial board of the International Journal of Consumer Studies. He has also authored books of international repute with Pearson India and Springer International. He is also extensively involved in corporate training and consultancy work.



**Prof. Satish
Krishnan**

Prof. Satish Krishnan received his PhD in Information Systems from the National University of Singapore. He is the Chair Associate Professor of Information Systems at the Indian Institute of Management (IIM) Kozhikode. His research includes IT resistance, fake news and disinformation, gender gap, e-government, e-business, virtual social networks, technostress, cyberloafing, and cyberbullying. He has published in leading journals, such as the Journal of Applied Psychology, Organisational Behavior and Human Decision Processes, Information and Management, The International Journal of Information Management, The Journal of Association for Information Science and Technology, The International Journal of Hospitality Management, Communications of the Association for Information Systems, Computers in Human Behavior, Information Systems Frontiers, The Scandinavian Journal of Information Systems, Technological Forecasting and Social Change, The Journal of Retailing and Consumer Services, Human Resource Development Review, The Journal of Global Information Technology Management, and The e-Service Journal. He is on the editorial boards of various journals such as Internet Research, Technological Forecasting and Social Change, Information Systems Frontiers, International Journal of Information Management, and Computers in Human Behavior. He also serves at conferences such as PACIS and ICIS as Track Chair, Review Coordinator, or Associate Editor. He won the Outstanding Associate Editor Award for ICIS 2017 and ICIS 2019, and the Best Reviewer Award for PACIS 2022.



Programme Fees

Particulars	Amount (₹)*
Programme Fee	2,15,000
Total	2,15,000

Note:

*Taxes will be added as applicable

*All fees will be collected by BCCL

- This is with reference to the refund of the Processing Fee. Please note that the Processing Fee shall not be refunded in the following circumstances:
 - a. In case the candidate rejects the offer issued by the Institute; and
 - b. In case the application is rejected due to submission of incomplete documents and/or providing incomplete information and/or eligibility criteria not fulfilled.

Instalment Schedule

Instalment	Date	Amount (₹)*
I	At the time of Application	15,000
	Within one week of offer roll-out	50,000
II	10 th July, 2023	50,000
III	10 th September, 2023	50,000
IV	10 th November, 2023	50,000

*GST will be additional as applicable

Programme Timelines

Programme Start Date	4 th June, 2023
Programme End Date	June 2024

APPLY NOW 



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Started in 1997 with its Post Graduate Programme (PGP), the **Indian Institute of Management Kozhikode (IIMK)** is on a high growth trajectory today, offering widest range of academic programmes in the field of management education. These include Doctoral Programmes in Management, Executive PG Programmes, Management Development Programmes, and Faculty Development Programmes. IIMK set up a Satellite campus at Infopark, Kochi, in 2013 dedicated to Executive Education. IIMK has also the unique distinction of launching a PhD (Practice Track) programme for working professionals besides bringing in new dynamic courses in Women Leadership, one-year Post Graduate programme in Business Leadership (2019) MBA in Finance, and MBA in Liberal Studies & Management (2020). The institute is also home to IIMK LIVE, a first-of-its-kind startup incubation programme, and the Indian Business Museum.

IIMK aims to create a unique and futuristic space of global reckoning so as to nurture the finest management thinkers in the pursuit of developing innovative, socially responsible, and environmentally friendly practitioners, leaders and educators. Strategically moving towards a better future, the Institute strives to provide holistic learning – giving equal weightage to academic solidarity and practical application. IIMK integrates concepts with applications and values, thus transforming individuals into dependable, capable, caring and fair-minded personalities who will contribute towards the development of communities.



5th

NIRF India Rankings
2022: Management

2nd

Atal Innovation
Rankings (ARIIA) 2021

16+

QS Executive MBA Rankings
(EPGP) in Asia Pacific for 2021



TimesPro, the award-winning EdTech initiative of The Times Of India Group, was established in 2013 to cater to the diverse learning needs of Indians with aspirations of career growth.

Taking the rich legacy of trust, knowledge, and learning of The Times Of India Group forward, TimesPro strives to embody the values of Education 4.0 – learner-centric, industry-relevant, role-specific, and technology-enabled – in its executive education programmes.

Ranging across industries and domains, these programmes are curated and offered in collaboration with premier national and global educational institutions to fulfil the aspirations of millions of professionals by equipping them with the right knowledge and skills.



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