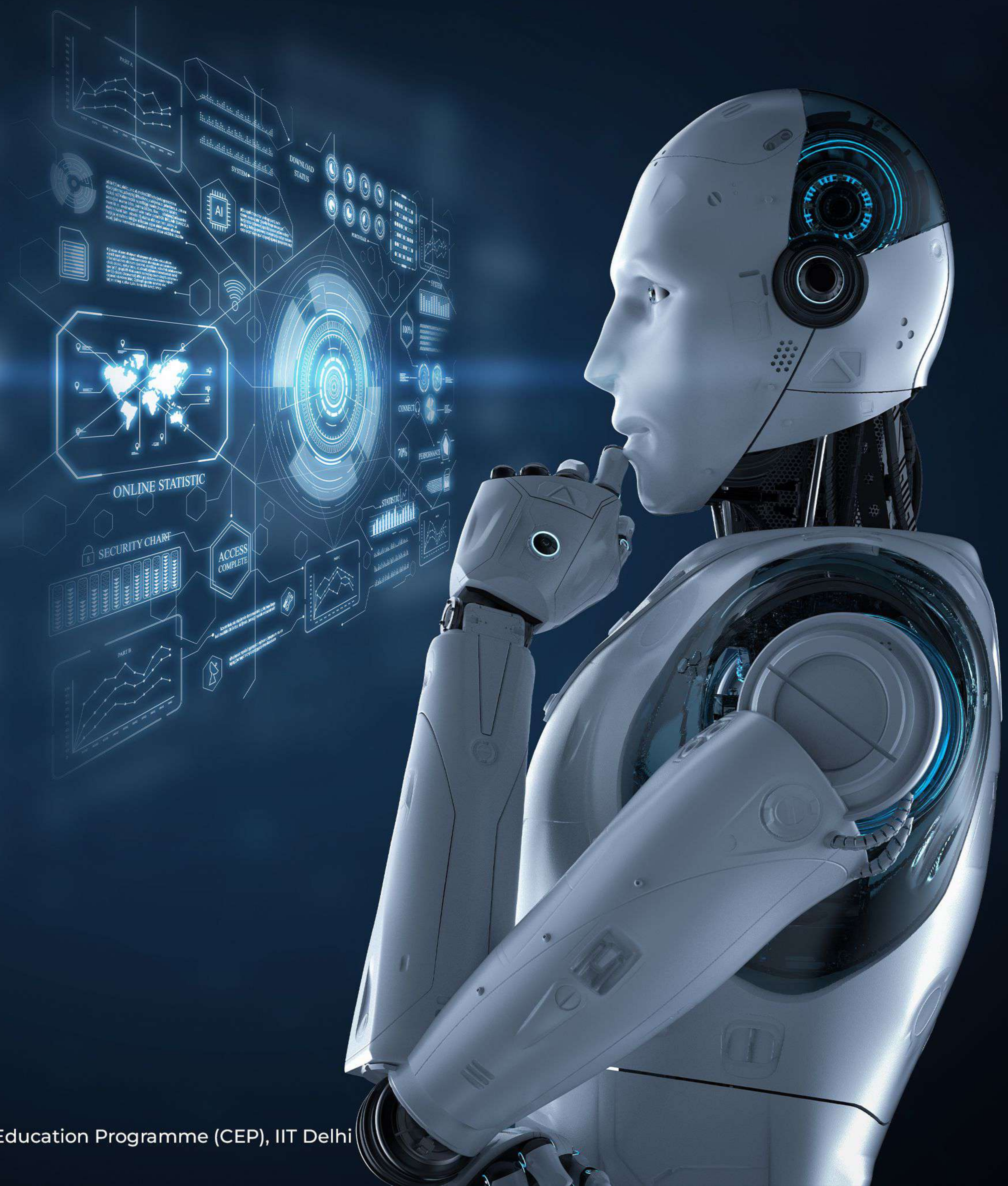




भारतीय प्रौद्योगिकी संस्थान दिल्ली  
Indian Institute of Technology Delhi

# Executive Programme in **Applied Data Science using Machine Learning & Artificial Intelligence**

6 Months | Live Online | Starts on- 24<sup>th</sup> September 2023







## Elevating AI & ML Strategies through Data Science Lens

**\$15.7 trillion**

Potential contribution to the global economy by 2030 from AI

\*PWC

**+26%**

Up to 26% boost in GDP for local economies from AI by 2030

\*PWC

**300 AI**

use cases identified and rated are captured in our AI Impact Index

\*PWC

**\$302.62 billion**

Expected total global economic impact of ML in the period to 2030

\*GlobalNewsWire

**\$695.0 billion**

Estimated reach in Data Science Platform Market Size by 2030,  
Growing at 27.6% CAGR Annually

\*PRNewsWire





## Overview

In the current data-driven landscape, organisations demand individuals skilled in data science, machine learning, and artificial intelligence. The Executive Programme in Applied Data Science using Machine Learning & Artificial Intelligence by CEP, IIT Delhi caters to this need by empowering executives and professionals with the required expertise. Through this programme, participants gain a thorough comprehension of data science principles, machine learning algorithms, and AI techniques, while also honing their practical application in real-world contexts. This programme serves as a catalyst for driving business growth and fostering innovation, enabling professionals to leverage the power of these technologies effectively in their respective industries.

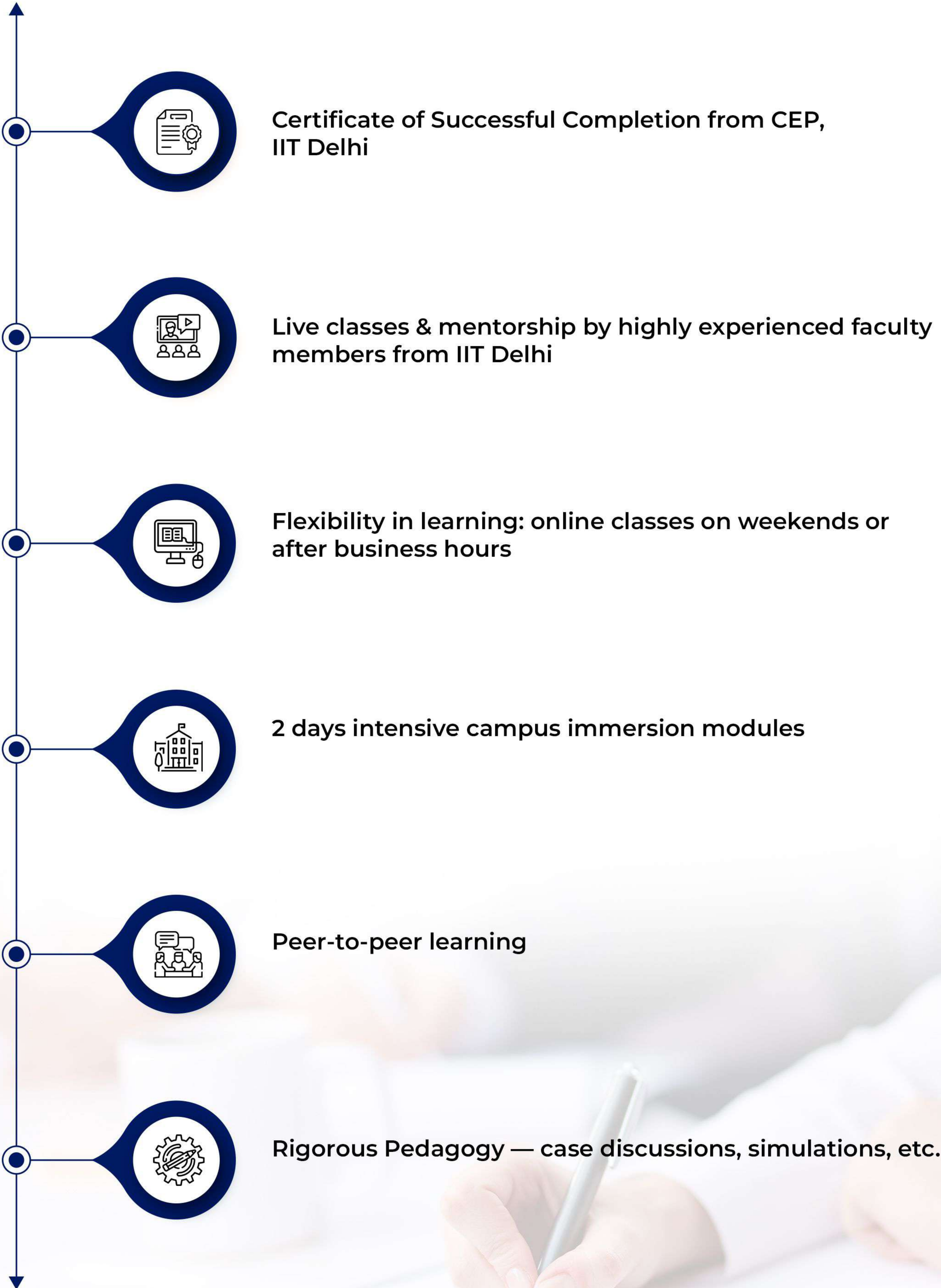
## Programme Objectives

- ◆ Provide participants with a solid foundation in data science, ML, and AI, enabling them to make informed decisions and solve complex business problems.
- ◆ Enhance participants' analytical and mathematical skills to extract valuable insights from large and diverse datasets.
- ◆ Develop expertise in applying machine learning algorithms and AI techniques to develop predictive models and automate decision-making processes.





# Programme Highlights





## Key Learning Outcomes

- ▶ Data Science Concepts: Exploration, Preprocessing, Engineering, Model Evaluation
- ▶ Applied Machine Learning Skills: Regression, Classification, Clustering, Reinforcement learning and Deep learning
- ▶ AI Techniques Mastery: Develop Intelligent Systems for Different Applications
- ▶ Ability to Design and Implement End-to-End Data Science Projects: Preprocessing, Model Building and Deployment

# Who can Attend?

- Individuals with backgrounds in Science, Technology, Engineering, and Mathematics, including fields like computer science, physics, mathematics, statistics, and engineering.
- Professionals working in the IT industry, software development, programming, and related fields who want to specialise in data science and AI.
- Professionals involved in business analysis, market research, and strategic planning who wish to develop expertise in data-driven decision-making.
- Early to mid-career level professionals looking to grow in the field of Data Science & AI.





## Projected Career Growth

The Executive Programme in Applied Data Science using Machine Learning & Artificial Intelligence will significantly contribute to participants' career growth by opening up various opportunities in the data science and AI domain. Some projected career growth prospects include:

- **Data Scientist:** Participants can pursue roles as data scientists, responsible for extracting insights from data, building predictive models, and developing data-driven strategies.
- **Machine Learning Engineer:** With expertise in machine learning algorithms, participants can take on roles that involve designing, implementing, and optimising machine learning systems.
- **AI Specialist:** Participants can explore career paths as AI specialists, focusing on the development and deployment of intelligent systems using techniques like natural language processing and computer vision.
- **Business Analyst:** The program will equip participants with analytical skills and the ability to communicate data insights effectively, making them valuable assets in business analysis and strategy development.
- **Managerial Roles:** Participants will gain a holistic understanding of data science and AI, enabling them to lead data-driven initiatives and make informed decisions at managerial levels.





# Programme Content

- Overview of Artificial Intelligence and Machine Learning
- Data Analysis with Python
- Mathematics for AI
- Advanced Statistics
- Regression
- Logic and Knowledge Representation
- Foundation of NLP (Natural Language Processing)
- Project
- Data types and Pre-processing
- Supervised Learning Techniques
- Advanced Classification Techniques
- Unsupervised Learning – Clustering
- Project
- Deep Learning with TensorFlow and Keras
- Reinforcement Learning
- Applications of NLP
- Recommender System + ChatGPT
- Conversational Systems + Applications of AI/ML and Future Scope

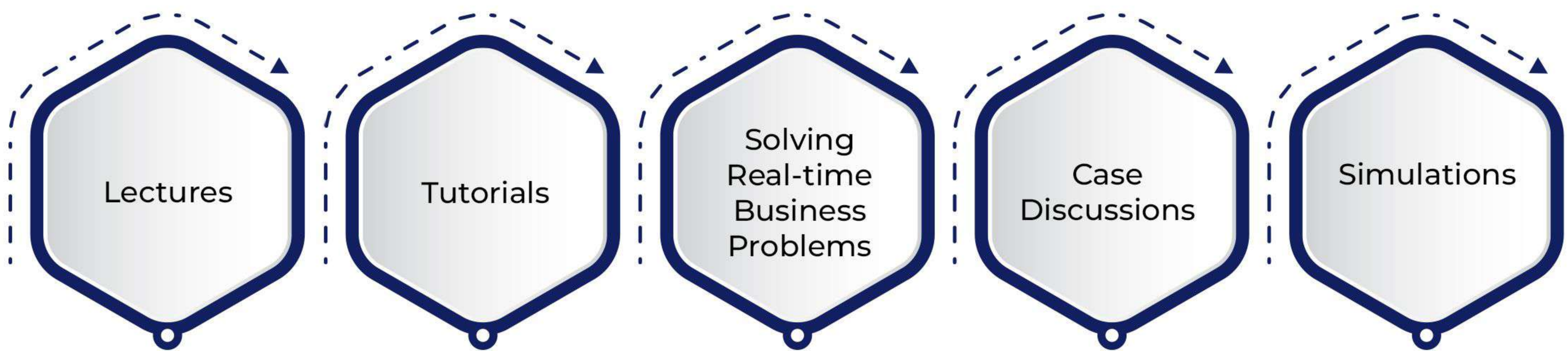


# Libraries of Tools and Techniques Taught

## Tools & Languages



## Pedagogy





## Programme Details

|                                  |                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Duration</b>                  | <ul style="list-style-type: none"><li>• 6 Months</li></ul>                                                                                                                                                                                                                                                                                                |
| <b>Delivery</b>                  | <ul style="list-style-type: none"><li>• Live Online Sessions</li></ul>                                                                                                                                                                                                                                                                                    |
| <b>Schedule</b>                  | <ul style="list-style-type: none"><li>• Session Timings: 10.00 am to 01.00 pm</li><li>• Commencement Date: 24<sup>th</sup> September 2023</li><li>• Application Closure Date: 30<sup>th</sup> June 2023</li></ul>                                                                                                                                         |
| <b>Eligibility</b>               | <ul style="list-style-type: none"><li>• Graduate/Diploma holder (10+2+3) in the discipline of Science, Engineering, Mathematics or Statistics with a minimum of 1 year of experience.</li><li>• Documents required:<ul style="list-style-type: none"><li>• Graduation Mark sheet/ certificate</li><li>• SOP</li><li>• Work Experience</li></ul></li></ul> |
| <b>Screening &amp; Selection</b> | <ul style="list-style-type: none"><li>• Screening and selection will be done by IIT Delhi.</li></ul>                                                                                                                                                                                                                                                      |
| <b>Assessment Criteria</b>       | <ul style="list-style-type: none"><li>• Assessment will be conducted via projects.</li></ul>                                                                                                                                                                                                                                                              |
| <b>Attendance</b>                | <ul style="list-style-type: none"><li>• Minimum of 70% attendance is mandatory.</li></ul>                                                                                                                                                                                                                                                                 |

Note: Lectures won't be held during Public Holidays and festivals.





# Programme Fee Details

| Fee Structure       |                          |
|---------------------|--------------------------|
| Particulars         | Amount                   |
| Total Programme Fee | INR 1,30,000/- + 18% GST |

| Instalment Pattern |                           |                                                |
|--------------------|---------------------------|------------------------------------------------|
| Particulars        | Amount                    | Payment Schedule                               |
| Instalment 1       | INR 80,000/-<br>+ 18% GST | 7 days from the release<br>of the offer letter |
| Instalment 2       | INR 50,000/-<br>+18% GST  | On or before<br>20th September, 2023           |

## Easy EMI Options Available

Note:  
• Payment of fees should be submitted in the IIT Delhi CEP account only and the receipt will be issued by the IIT Delhi CEP account for your records.  
• Loan and EMI Options are services offered by Jaro Education. IIT Delhi is not responsible for the same.





# Programme Certification

- Participants who meet the evaluation criteria, which includes successfully completing the projects conducted by the faculty, and fulfil the necessary attendance criteria, specifically a minimum requirement of 70%, will receive a 'Certification of Completion.'
- Participants who do not meet the evaluation criteria but meet the attendance requirements will be presented with a 'Participation Certificate.'

**Indian Institute of Technology Delhi**

Programme Code: .....

HAUZ KHAS, NEW DELHI- 110016

Department/Centre/School of .....

Continuing Education Programme

On

Title of the Programme

This is to certify that

Mr./Ms. Name Of The Participant

has participated in the online certificate programme on “Title of the Programme” held from ..... to ..... by the Indian Institute of Technology Delhi.

Prof.  
Programme Coordinator

Prof.  
Head of the Department

Prof.  
Head/Associate Head, QIP/CEP



An initiative under eVIDYA@IITD (ई-विद्या@IITD)

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An initiative under eVIDYA@IITD (ई-विद्या@IITD)

- The above e-certificate is for illustrative purposes only and the format of the certificate may be changed at the discretion of IIT Delhi.
- Only e-certificate will be provided and it will be issued by CEP, IIT Delhi.
- The organising department of this programme is the Department of Mathematics, IIT Delhi.





### **Dr. Niladri Chatterjee**

Soumitra Dutta Chair Professor of Artificial Intelligence  
Prof. (HAG) Department of Mathematics, School of IT, Yardi School of AI  
Indian Institute of Technology Delhi

Dr. Niladri Chatterjee is a Professor of Computer Science & Statistics in the Department of Mathematics, IIT Delhi. His primary research areas are Artificial Intelligence, Natural Language Processing, Machine Learning, Data Science, Statistical Modeling, Mathematical Reasoning, Rough Sets. His association with IIT Delhi is of 22 years. Before that, he had worked as a Lecturer in the Dept. of Computer Science, University of London, and a Computer Engineer (Software) at Indian Statistical Institute, Calcutta. In between he has been a Visiting Professor in Dipartimento di Informatica (Department of Informatics) University of Pisa, Italy. He possesses B.Stat and M.Stat degrees from Indian Statistical Institute, Calcutta. He also did his M.Tech in Computer science from the same institute and Ph.D. in Computer Science from the University of London. He has written more than 100 papers in international and national journals and conferences. He received the "Best Paper" award in CICLING-conference, Haifa, Israel; and also received the "Best Paper" award and the Raizada memorial shield by the Computer Society of India. He is also the recipient of a UNDP scholarship for month-long training in INRIA France. He is also the recipient of a Commonwealth Scholarship of the British Council.





**Dr. B. Chandra**

Adjunct Professor, Amar Nath and Shashi Khosla  
School of Information Technology  
Indian Institute of Technology Delhi

Dr. B. Chandra serves as an Adjunct Professor at the Indian Institute of Technology Delhi. She also delivered lectures at University of Pittsburgh, Penn State University, Eastern Illinois University, University of Hawaii, University of Texas at Dallas, University of Orleans, Virginia Tech and at the National University of Singapore, Bangor University, U.K. and Ecole de Mines Paris.

She has published more than 80 research papers in reputed International journals in the area of Data Science and analytics, Machine Learning, Deep Learning, Data Mining, Neural Networks, Feature Selection and Databases. One of the leading authorities in data analytics, supports the analyse part of Six sigma certifications curriculum, does consulting and other specialised courses for Data Potential Academy.





# About IIT Delhi

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as per NIRF India  
Engineering Rankings (2023)



as per ARIIA  
Ranking (2021)

The Indian Institute of Technology Delhi (IIT Delhi) is one of the 5 initial IITs established for training, research and development in science, engineering and technology in India. Established as College of Engineering in 1961, the Institute was later declared as an Institution of National Importance under the “Institutes of Technology (Amendment) Act, 1963” and was renamed as “Indian Institute of Technology Delhi”. It was then accorded the status of a Deemed University with powers to decide its own academic policy, to conduct its own examinations, and to award its own degrees.

Since its inception, over 48000 students have graduated from IIT Delhi in various disciplines, including Engineering, Physical Sciences, Management, Humanities and Social Sciences. Of these, nearly 5070 received PhD degrees. The rest obtained a Master’s Degree in Engineering, Sciences and Business Administration. These alumni today work as scientists, technologists, business managers and entrepreneurs. There are several alumni who have moved away from their original disciplines and have taken to administrative services, active politics, or are with NGOs. In doing so, they have significantly contributed to the building of this nation and to industrialization around the world.

## About Continuing Education Programme (CEP)

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Executive education is a vital need for companies to build a culture that promotes newer technologies and solutions and builds a workforce that stays abreast of the rapidly transforming needs to the technological, business and regulatory landscape. Committed to the cause of making quality education accessible to all, IIT Delhi has launched Online Certificate Programmes under eVIDYA@IITD (ई-विद्या@IITD): enabling Virtual & Interactive-learning for Driving Youth Advancement@IITD for Indian as well as international participants. These outreach programmes offered by the Indian Institute of Technology Delhi (IIT Delhi) are designed to cater to the training and development needs of various organisations, industries, society and individual participants at national and international level with a vision to empower thousands of young learners by imparting high-quality Online Certificate Programmes in cutting-edge areas for their career advancement in different domains of engineering, technology, science, humanities and management.







## Services provided by jaro education

11th, Vikas Centre, CG Rd, opposite Golf Club,  
Wadavli, Vasant Vihar Complex,  
Chembur, Mumbai

Anand Krishnan  
Jaro Programme Expert

☎ 9043001261

✉ [an@jaro.in](mailto:an@jaro.in)

For any feedback, please write to  
CEP IIT Delhi at  
[contactcep@admin.iitd.ac.in](mailto:contactcep@admin.iitd.ac.in)

Online Certificate Programmes are offered by the Indian Institute of Technology Delhi under the aegis of Continuing Education Programme (CEP) so that the Institute can realise its vision of serving as a valuable resource for industry and society, and fulfil its mission to develop human potential to its fullest extent so that intellectually capable and imaginatively gifted leaders can emerge in a range of professions.