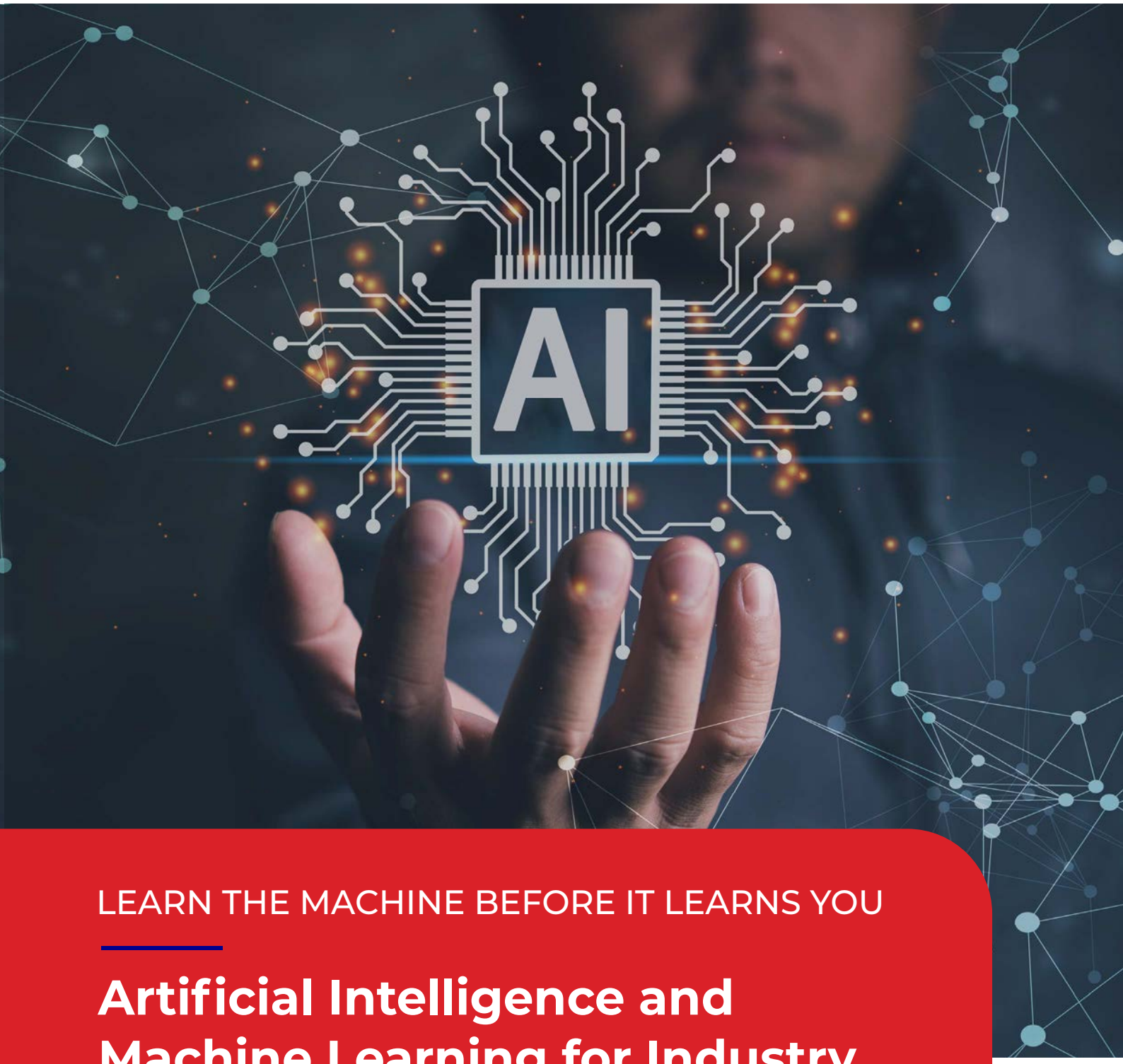
भारतीय प्रौद्योगिकी संस्थान दिल्ली
Indian Institute of Technology Delhi



LEARN THE MACHINE BEFORE IT LEARNS YOU

Artificial Intelligence and Machine Learning for Industry

06 Months | Online | ₹1,25,000 + GST

Programme offered by Continuing Education Programme (CEP), IIT Delhi

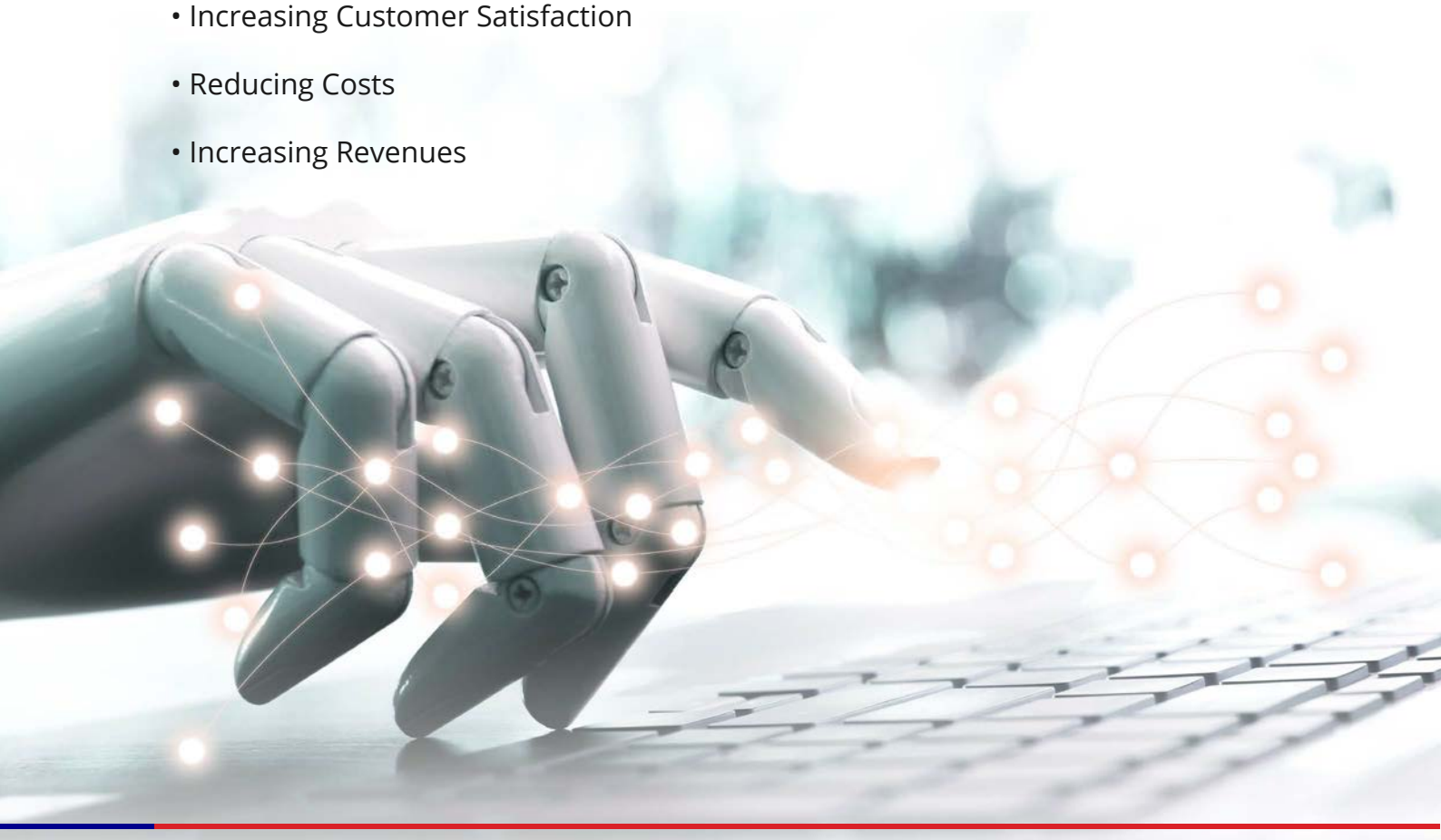
Artificial Intelligence & Machine Learning

Artificial Intelligence (AI) and Machine Learning (ML) are a significant evolution in computer science and data processing that is not only rapidly revolutionising industries and businesses, but also spawning new business processes and models. As industries and businesses adapt and adopt technology and undergo digital transformation, they generate a humongous amount of data, the value of which can only be unlocked by properly collecting, processing, and analysing it to gain insights and drive decisions. Enter AI & ML.

AI & ML: Driving Business Transformation

AI & ML applications enable organisations to extract value out of the data they collect, delivering business insights, automating tasks, and advancing system capabilities. AI/ML has the potential to transform all aspects of a business by helping them achieve measurable outcomes including:

- Optimising Existing Business Services
- Automating Business Operations
- Offering Differentiated Services
- Increasing Customer Satisfaction
- Reducing Costs
- Increasing Revenues



AI & ML: Market Size & Projection

	Global	Indian
2021	$58.3 bn	$2.8 bn
2026	$309.6 bn	$7.8 bn

In today's data and technology-driven world, data is a highly treasured resource and now it's cheaper than ever to capture and store it due to cutting-edge technologies. For some businesses, AI & ML helps in improving operational efficiency and decision-making, while for others it assists by eliminating losses and increasing revenue. Upskilling yourself in this domain through a well-curated programme from a premier institute will equip you to intelligently apply AI & ML techniques of complex real-world problems.

Artificial Intelligence and Machine Learning for Industry

Programme Highlights

- A programme from IIT Delhi Yardi School of Artificial Intelligence IIT Delhi is ranked #3 as per QS World University Rankings 2023 in India
- 6-month online training programme for working professionals
- 64 hours of live online sessions by IIT Delhi faculty and industry experts
- Contemporary case studies and hands-on practice sessions
- International guest lectures
- Certification from CEP, IIT Delhi

Who Should Attend?

- Fresh graduates from science or engineering background seeking a career in the AI/ML domain
- Professionals in the IT industry seeking to gain AI/ML expertise and become AI/ML specialists
- Professionals seeking to upskill themselves and apply it in their strategic decision-making

Learning Outcomes

Understanding of machine learning tools, algorithms, and industrial applications

Gain hands-on experience in applying advanced ML techniques through case studies and practice exercises

Understand the working of neural networks and gain the ability to design and implement using various tools and techniques

Able to design and implement various AI & ML techniques in a range of real-world applications

Programme Curriculum

Module 1: Practical Python for Industry Professionals

Module 2: ML Foundations

- Motivations, backgrounds, and different ML paradigms
- Storytelling with data with tableau demonstration
- Linear algebra
- Probability theory and estimation
- Project: Toy problem in ML

Module 3: Regression

- What is regression and why do we need it?
- Simple and multiple linear regression
- Least squares approach
- Non-linear regression
- How to use regression for industry problems
- Project: Regression application
- Model selection and regularisation

Module 4: Classification

- What is classification and why do we need it?
- Logistic regression
- Decision trees, bagging, random forests, and boosting
- Project: Application of decision trees in industry
- Support vector machines, kernel SVM, SVM regression
- Clustering methods
- Project: Application of SVM in industry

Module 5: Deep Learning

- Fundamental of neural networks
- Recurrent neural networks
- Convolutional neural networks
- Long-short term memory networks
- Project: Application of LSTMs
- Graph neural networks
- Project: Application in natural language processing
- Project: Application in recommendation systems

Pedagogy

The teaching approach will be highly interactive leveraging technology and deploying diverse pedagogical tools and techniques, including lectures, case studies, assignments, quizzes, project work, etc.

Programme delivery

Sessions will be conducted via a state-of-the-art Interactive Learning (IL) platform and delivered in Direct-to-Device (D2D) mode that can be accessed by learners on their Desktop, Laptop, Tablet, or Smartphone.

Class Schedule

Every Saturday & Sunday:
10:00 a.m. to 12:00 p.m.

Duration

6 Months (64 hours of online live sessions and 15 hours of self-paced Python and Data Analysis bootcamp)

Eligibility Criteria

- Any science, engineering, or commerce graduate
- At least 1 year of experience is preferred (optional)

Admission Criteria

The selection will be based on candidate's profile evaluation, subject to meeting eligibility criteria.

Assessment Criteria

- 50% - End of programme MCQ-based exam
- 30% - Assignments and project
- 10% - Class interaction
- 10% - Attendance
- Candidates need to secure minimum 50% overall to be eligible for the certificate.

Certification*

Candidates who score at least 50% marks overall and have minimum attendance of 50% will receive a 'Certificate of Completion' from IIT Delhi Yardi School of Artificial Intelligence.

Candidates who score less than 50% marks overall and have minimum attendance of 50% will receive a 'Certificate of Participation' from IIT Delhi Yardi School of Artificial Intelligence.

* 1. *The organising department of this programme is IIT Delhi Yardi School of Artificial Intelligence.*
2. *Only e-certificates will be issued by CEP, IIT Delhi*

Programme Faculty

Dr. Sandeep Kumar

Assistant Professor, Department of Electrical Engineering & Yardi School of Artificial Intelligence, and Bharti School of Telecommunication Technology and Management IIT Delhi.

Dr. Sandeep Kumar is an assistant professor in the Department of Electrical Engineering, Yardi School of Artificial Intelligence, an associate faculty at Bharti School of Telecommunication Technology and Management at the Indian Institute of Technology Delhi (IIT Delhi) and heads the Machine Intelligence Signals and Networks (MISN) lab at IIT Delhi. In his academic journey thus far, he has received the DST Inspire Faculty Fellowship Award, 2019 - 2024, and TCS doctoral fellowship 2015-2017. His research focuses on the coherent interaction of machine learning, graphical models, statistics, and deep learning for developing tools and methods that help solve complex problems arising from data ubiquity. The contributions from his research work have been published in reputed machine learning conferences and journals including NeurIPS, JMLR, and IEEE Transactions. At IIT Delhi, he has taught several courses in the area of machine learning such as mathematical foundations for Machine Learning, Advanced Machine Learning, Software Fundamentals, and Optimisation Methods.

Programme Faculty

Dr. Manabendra Saharia

Assistant Professor,
Department of Civil Engineering & Yardi School of Artificial Intelligence, IIT Delhi.

Dr. Manabendra Saharia is an assistant professor in the Department of Civil Engineering at the Indian Institute of Technology Delhi. Previously, he worked in the Hydrology Lab of NASA Goddard Space Flight Center and the National Center for Atmospheric Research. He obtained his Ph.D. in Water Resources Engineering from the University of Oklahoma during which he worked at the Advanced Radar Research Center. His primary expertise is in developing techniques and systems for monitoring and mitigating natural hazards such as floods and landslides, with a special focus on the worst-affected regions of the world. His research seeks to disentangle the complex relationships between geomorphology, climate, precipitation, and runoff generation using physics-based and data-driven models.

Programme Fee

Particulars	Amount (₹)
Programme Fee	1,25,000
GST@18%	22,500
Total	**1,47,500**

Note: All fees should be submitted in the IITD CEP Account only, and the details will be shared post-selection.

Instalment Schedule

Instalment	Date	Amount (₹)*
I	Within one-week of offer-rollout	31,250
II	10th April, 2023	31,250
III	10th May, 2023	31,250
IV	10th June, 2023	31,250

*GST @18% will be charged extra in addition to the fee.

Programme Timelines

Application Closure Date	31st December, 2022
Shortlisted Candidates will be informed by	4th January, 2023
Last Date to submit the 1st Instalment	8th January, 2023
Programme Start Date	18th March, 2023
Programme End Date	August 2023

APPLY NOW

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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 the College of Engineering in 1961, the Institute was later declared 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, conduct its own examinations, and award its own degrees. Since its inception, over 48,000 students have graduated from IIT Delhi in various disciplines including Engineering, Physical Sciences, Management, and Humanities & Social Sciences.

The Department of Electrical Engineering has been playing a vital role in producing scientists and technologists of highest calibre ever since it was established in the year 1961. The department runs three undergraduate programmes and 9 post-graduate programmes to cater to the ever challenging needs of technical excellence in all areas of electrical engineering such as Integrated Electronics and Circuits, Tele-communications, Computer Technology, Control & Automation, Power Systems & Power Electronics.

In addition to the strong undergraduate programmes, the department has been playing a pioneering role in producing world class postgraduates and research scholars. The infrastructure and lab facilities are upgraded from time to time and provide adequate opportunities for students and researchers to learn and

innovate. The department has distinguished faculty, all holding Ph.D. degrees from renowned institutes in India and abroad. There are two Fellows of IEEE in the department and many other faculty members are Fellows of several national and international scientific bodies. The faculty of the department has been constantly carrying out research on many cutting-edge technologies and regularly publishes in IEEE and other top international journals. The department also undertakes many research projects sponsored by both the government and the industry.

For more details, please visit: www.iitd.ac.in

Continuing Education Programme (CEP)

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 in 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 and 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 levels 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.

For more details, please visit: http://cepqip.iitd.ac.in

2nd in NIRF Rankings 2022 (Engineering)	**4th** in Outlook ICARE Rankings 2022 (Engineering)	**3rd** in QS World University Rankings 2023 in India

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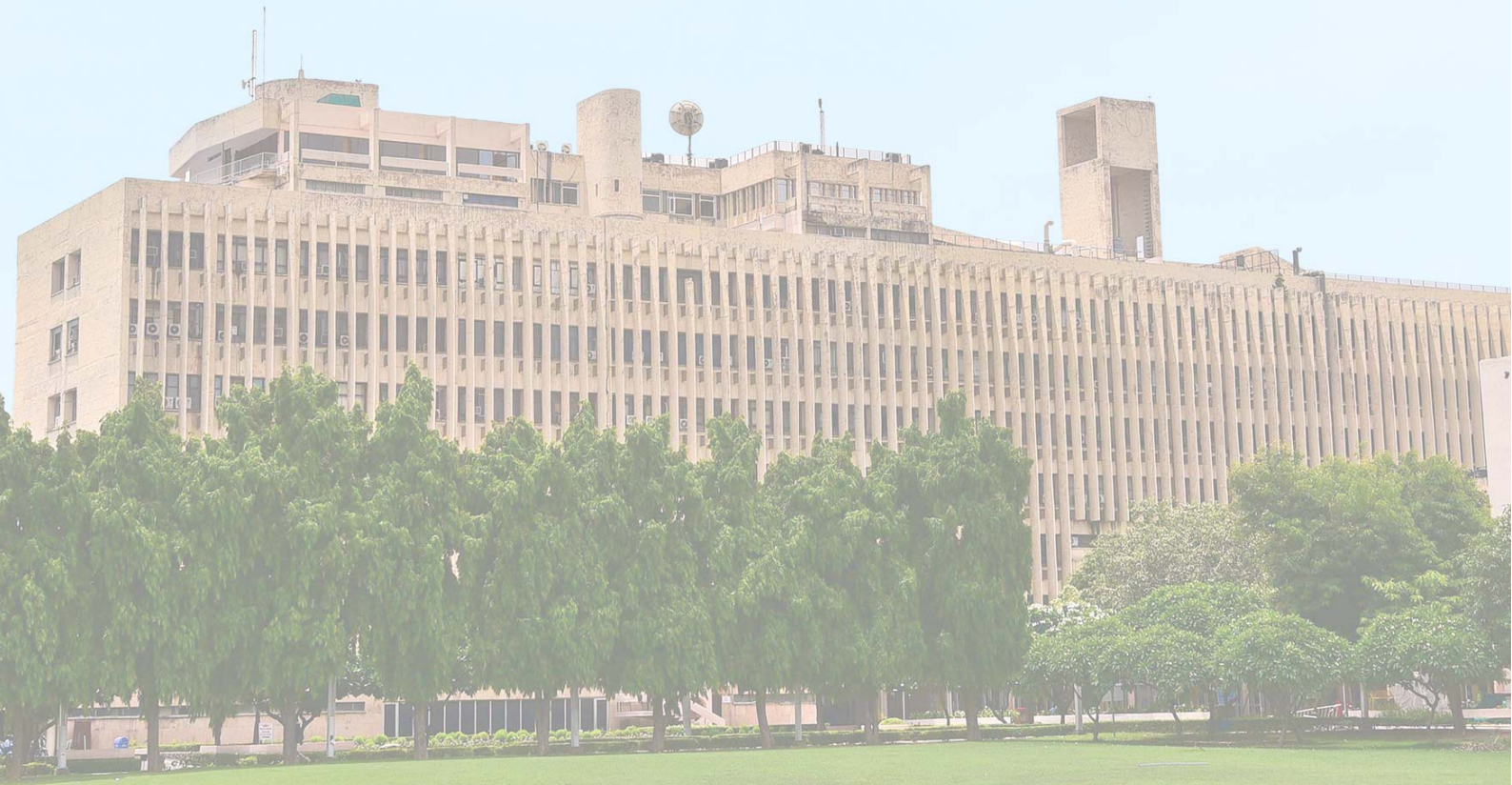
CEP, IIT Delhi at
contactcep@iitd.ac.in



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.