



भारतीय प्रौद्योगिकी संस्थान दिल्ली  
Indian Institute of Technology Delhi

NIRF Rank 2 in Engineering Category 2024

# Executive Programme for AI in Healthcare

Duration: 6 months | Live Online



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





## ➔ ABOUT IIT DELHI

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. NIRF Rank 2 in Engineering Category 2024. Since its inception, over 40,000 students have graduated from IIT Delhi in various disciplines including Engineering, Physical Sciences, Management and Humanities & 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 contributed significantly to the building of this nation, and to industrialisation around the world.



## ➔ ABOUT CONTINUING EDUCATION PROGRAMME (CEP)

Executive Education is a vital need for the organisations 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 enabling Virtual & Interactive-learning for Driving Youth Advancement @IITD for Indian as well as international participants. IIT Delhi was ranked second among engineering schools in India by the National Institutional Ranking Framework (NIRF) in 2024. 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.





## → PROGRAMME OVERVIEW

Artificial Intelligence (AI) is reshaping healthcare—from early diagnosis to personalized care. IIT Delhi's 6-month Executive Programme for AI in Healthcare is designed for professionals looking to lead this transformation. Through 80 hours of live online sessions, including fundamentals and clinical application of AI you'll gain practical skills in AI (Machine Learning (ML) & Deep Learning (DL)), work hands-on with real clinical datasets, and learn to build and deploy predictive models. With expert guidance from IIT Delhi and AIIMS New Delhi, the programme includes a capstone project and an optional two-day campus immersion. No prior coding experience is required – just a drive to innovate in healthcare.

## → FEES

₹1,20,000/- (plus GST @18%)

## → KEY PROGRAMME DETAILS

Eligibility	Any graduate professional working in industry and academia with area relevant to AI in healthcare
Duration	6 months (80 hours)
Mode	Online
Schedule	Saturdays: 6:00 PM – 7:30 PM Sundays: 11:00 AM – 12:30 PM
Campus Immersion	A two-day in-person session at IIT Delhi toward the end of the programme
Program Coordinators	Prof. Anup Singh & Prof. Amit Mehndiratta
Fees	₹ 1,20,000/- (plus GST @18%)
Commencement Date	1st November, 2025



## → PROGRAMME HIGHLIGHTS



### **e-Certificate of successful completion from CEP, IIT Delhi**

Earn a prestigious e-Certificate from IIT Delhi upon completing the programme. Participants with a minimum of 50% attendance and 40% or higher overall marks will receive an e-Certificate of Successful Completion, while those meeting the attendance criteria but scoring below 40% will be awarded an e-Certificate of Participation.



### **Led by Experts from IIT Delhi & AIIMS**

Learn from distinguished faculty who combine deep academic expertise with hands-on research in AI and biomedical engineering—bringing real-world healthcare challenges into the classroom. Some guest lectures from other prestigious institutes/Industry will also be included.



### **Hands-On, Real-World Learning**

Apply AI techniques to real clinical datasets—including EMR, imaging, genomics, and IoT. Build predictive models, automate workflows, and understand how AI is reshaping diagnosis, treatment, and population health.



### **Capstone Project & Campus Immersion**

Work on a real-world healthcare challenge through a faculty-mentored capstone project, and engage in meaningful peer and expert interactions during a two-day on-campus experience (optional) at IIT Delhi.



### **Reputation & Recognition**

Boost your professional credibility with a credential from IIT Delhi - Ranked 2 in Engineering by NIRF 2024 and globally respected for its research and academic excellence.





## → LEARNING OUTCOMES



### **AI Foundations**

Gain a clear understanding of AI/ML/DL fundamentals, including supervised and unsupervised learning methods, with healthcare-focused examples.



### **Data and its Management**

Learn about healthcare data such as EMR/EHR data, medical images, histopathological images, physiological signals, genomics, and IoT sensor data. Learn about applications and challenges of healthcare data. Develop skills to access, preprocess, visualize and analyze healthcare data



### **Ethics & Compliance in Healthcare Data**

Learn about ethics and compliance related to healthcare data.



### **Predictive Modeling Techniques**

Build and evaluate predictive models using machine learning and deep learning tailored to disease diagnosis, treatment planning and risk scoring.



### **AI Applications in Healthcare**

Explore AI use cases in radiology, pathology, physiology, ophthalmology, real-time patient monitoring with IoT devices, and clinical decision support systems.



### **Model Deployment and Integration**

Learn to deploy AI models through dashboards and cloud platforms, and integrate them into healthcare information systems (HIS).



# → PROGRAMME MODULES

## Module 1: Foundations of AI (ML &DL) for Healthcare

- ▶ Fundamentals of AI, Machine Learning, Deep Learning (non- tech explanation), Applications of AI in healthcare
- ▶ Supervised vs. Unsupervised Learning, Key ML/DL algorithm walkthrough (Linear Regression, Decision Trees, Clustering, logistic regression, SVM, Neural Network (NN), Deep NN, Convolution NN, etc.), When to use what? (Healthcare use cases)
- ▶ Python and MATLAB basics (Variables, Functions, Libraries), Data handling with Pandas & Numpy, Assignments: Analyze sample healthcare CSV data file, signal and images.

## Module 2: Healthcare Data & Clinical Big Data Analysis

- ▶ Overview of EMR data, medical imaging data, histopathology images, physiological signals, genomics data, IoT data, Structure of Indian hospital data (practical exposure), Case study: IBM Watson for Oncology's deployment success & limitations in India
- ▶ Key applications and challenges of healthcare data (Opportunity for problem statements)
- ▶ Overview of public healthcare dataset such as MIMIC-III dataset, BraTS challenge dataset , etc.
- ▶ Healthcare data anonymization, pre-processing, data curation, data cleaning, missing value handling, data normalization, feature engineering, data augmentation, data split for training and testing, qualitative vs quantitative analysis, accuracy evaluation metrics
- ▶ Healthcare data ethics & compliance: HIPAA, GDPR, DISHA
- ▶ Introduction to big data and big data analytics using frameworks such as Apache Spark.
- ▶ Assignment: Related to the Preprocessing sample healthcare dataset



## → PROGRAMME MODULE

### Module 3: AI Models & Predictive Analytics

- ▶ Development / implementation and optimizations of ML models such as Logistic Regression, Random Forest, SVM, Neural Network, Example Case Studies
- ▶ Development / implementation and optimizations of DL models such as Convolution Neural Networks (CNN), Recurrent Neural Networks, Generative Adversarial Networks (GANs), Transformer for various tasks such as segmentation, classification, prediction, synthetic image generation.
- ▶ Example Project Assignments Options (Python/MATLAB only):
  - CNN model for segmentation of a pathology on medical images such as X-Ray, MRI, CT, etc.
  - ML model for imaging-based diagnosis
  - ML model for physiological signal-based diagnosis
  - CNN model for diagnosis classification of images/disease
  - Image Synthesis using GAN

### Module 4: AI Applications & Healthcare Automation

- ▶ IoT sensors, data streams, real-time AI monitoring.  
Case study: AI in diabetic foot ulcers, smart watches
- ▶ Building AI-powered decision support for doctors.  
Case study: Apollo CDSS, NHS AI tools
- ▶ Automating admin tasks (billing, triage, discharge), RPA tools intro (UiPath, Automation Anywhere overview)
- ▶ Generative AI in Healthcare: LLMs, no-code tools, prompt engineering, radiology use-cases, regulatory basics AI-powered chatbots, virtual consultations.  
Case study: Niramai breast cancer AI screening.



## → PROGRAMME MODULE

### Module 5: AI Deployment & Integration

- Create AI-powered healthcare dashboards (Streamlit or MATLAB GUI), Deploy models on cloud (GCP/AWS intro)
- How AI plugs into HIS workflows; Data visualization using Streamlit or MATLAB only.  
Case Study: Streamlit-based diabetes risk dashboard used by clinical trial teams

### Module 6: Public Health & Population Analytics

- Time-series modeling for COVID-like prediction, Geo-mapping disease spread (India datasets)
- Using AI insights for healthcare planning.  
Case study 1: AI for malaria & dengue surveillance.  
Case study 2: AI in malaria surveillance & mapping in Odisha
- **Capstone Project**  
Applied AI for healthcare – develop ML/DL model or AI dashboard using Python/MATLAB, final presentation & evaluation
- **Industry Expert Roundtable**  
Healthcare innovation trends, regulatory talks, med-tech career guidance
- **Internal Assessments**  
Quizzes, short clinical AI tasks, mini viva & review of capstone
- **Final Examination**  
Term-end MCQ exam, oral viva, tool-based coding test (Python/MATLAB only)



## ➔ PREREQUISITES FOR THE PROGRAM

**Basics of Mathematics** – including Linear Algebra, Calculus, Probability, and Statistics (school-level understanding is sufficient).

**Basic Programming Knowledge** – preferably in MATLAB or Python.

## ➔ PRE-PROGRAMME SUPPORT

Webinars will be organized by the faculty **2 months before the program** to help students revise or learn these concepts.

These webinars are optional but highly recommended, particularly for students from non-technical backgrounds.



# → TOOLS & APPLICATIONS



Streamlit



seaborn



MATLAB®



TensorFlow



pandas



python™

Purpose	Tool to Be Used	Rationale
Data Analysis & Cleaning	Python (Pandas, NumPy)/ MATLAB	Industry-standard for manipulating clinical data, easy to scale and script
Visualization & Dashboards	Python (Matplotlib, Seaborn), MATLAB GUI, Streamlit (Python)	Interactive dashboards & GUI building with Python/MATLAB as front-end tools
Machine Learning Models	Python (scikit-learn), MATLAB	Covers supervised and unsupervised learning via both code and visual modeling
Deep Learning / Imaging	Python (TensorFlow/Keras), MATLAB (CNN toolbox)	Real-world applications in radiology, pathology, etc.
Data Preprocessing	Python, MATLAB	Used for handling missing values, transformations, feature engineering
NLP & EHR Mining	Python (spaCy, NLTK)	For Named Entity Recognition, text mining of clinical notes
Deployment (Simplified)	Streamlit (Python), MATLAB App Designer	Build healthcare apps/interfaces for simulation or controlled use
Cloud Awareness (Conceptual)	GCP, AWS (Introductory Only)	Tool exposure without actual development — Python/MATLAB to be used offline
Standards Handling	Python (FHIR client libs), MATLAB for DICOM	Maintain compliance with health data exchange protocols
Distributed Data Processing & Scalable Analytics	Apache Spark (PySpark)	Enables fast, large-scale processing of healthcare data—ideal for handling high-volume datasets like EHR logs or sensor streams, with seamless integration into the Python ecosystem.

spaCy



NumPy



Keras



Google Cloud Platform



NLTK



scikit-learn



APACHE Spark™



## → PROGRAMME FEES

Particulars	Amount (₹)
Programme Fees	₹ 1,20,000
GST @ 18%	₹ 21,600
<b>Total Fees</b>	<b>₹ 1,41,600</b>

### Note:

- All fees should be submitted in the IITD CEP account only, and the details will be shared post-selection.
- The receipt will be issued by the IIT Delhi CEP Account for your records, which can be downloaded from the CEP Portal
- Easy EMI options available.
- Loan and EMI Options are services offered by Teamlease Edtech. IIT Delhi is not responsible for the same.
- **GST @ 18% will be charged extra in addition to the fee**

## → WITHDRAWAL & REFUND FROM PROGRAMME

- Candidates can withdraw within 15 days from the programme start date. A total of 80% of the total fee received will be refunded. However, the applicable tax amount paid will not be refunded on the paid amount.
- Candidates withdrawing after 15 days from the start of the programme session will not be eligible for any refund.
- If you wish to withdraw from the programme, you must email [cepaccounts@admin.iitd.ac.in](mailto:cepaccounts@admin.iitd.ac.in) and [cepdelhi@digiversity.com](mailto:cepdelhi@digiversity.com), stating your intent to withdraw. The refund, if applicable, will be processed within 30 working days from the date of receiving the withdrawal request.

## → PAYMENT SCHEDULE

Installment	Installment Date	Amount (₹)
I	Due within 3 days of offer letter	₹ 60,000+GST
II	31st October, 2025	₹ 60,000+GST

Total fees – ₹ 1,20,000+GST [No cost EMI available]

### Note:

- GST @ 18% will be charged extra in addition to the programme fees.
- Loan and EMI Options are services offered by Teamlease Edtech. IIT Delhi is not responsible for the same.

## → PROGRAMME TIMELINES

Application Closure Date	31th July, 2025
--------------------------	-----------------

**APPLY NOW**



# → PROGRAMME E-CERTIFICATE

<b>Participation Certificate</b>	Awarded with a minimum of 50% attendance and less than 40% overall marks.
<b>Successful Completion Certificate</b>	Awarded with a minimum of 50% attendance and 40% or above overall marks.

  **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 (@-Rang@IITD)



  **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 successfully completed 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 (@-Rang@IITD)



- The above e-certificate format is for illustrative purposes only and may be modified at the discretion of IIT Delhi.
- Only e-certificates will be issued and will be provided by CEP, IIT Delhi.
- The organizing department for this programme is the Centre for Biomedical Engineering, IIT Delhi.



## → PROGRAMME COORDINATORS



### **DR. ANUP SINGH**

Professor

**CENTRE FOR BIOMEDICAL ENGINEERING, INDIAN INSTITUTE OF TECHNOLOGY DELHI.**

Prof. Anup Singh is a leading researcher and educator in biomedical imaging, currently serving as faculty at the Centre for Biomedical Engineering, IIT Delhi, and the Department of Biomedical Engineering, AIIMS New Delhi. He is also an associate faculty at Yardi School of AI at IIT Delhi. With a PhD from the Department of Mathematics and Statistics at IIT Kanpur and postdoctoral experience from the Department of Radiology at the University of Pennsylvania, Dr. Singh brings over a decade of expertise in advanced MRI techniques, quantitative imaging, machine learning & deep learning for medical imaging, along with an experience in the development of MRI-compatible devices. He has authored 80+ peer-reviewed papers (including in Nature Medicine), holds 5 US/ Indian patents, and is actively involved in translational biomedical imaging research.



### **PROF. AMIT MEHNDIRATTA**

**CENTRE FOR BIOMEDICAL ENGINEERING, INDIAN INSTITUTE OF TECHNOLOGY DELHI.**

A physician-engineer, Dr. Amit Mehndiratta holds an MBBS from Dr. MGR Medical University, a Master's from IIT Kharagpur, and a D.Phil. from the University of Oxford. He currently serves as joint faculty at IIT Delhi and AIIMS New Delhi, focusing on neuro-assistive technologies and biomedical imaging. His past affiliations include Harvard Medical School, Massachusetts General Hospital, and the German Cancer Research Center. He has received multiple awards, including the SERB Technology Translation Award and the Ericsson Innovation Award. Dr. Mehndiratta leads CARE-DAT, a CoE in Assistive Technology supported by ICMR.



## → SYSTEM REQUIREMENTS

This programme includes online learning classes conducted on Zoom. To attend a online learning 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 online learning classes. Zoom works on a variety of PCs/ Laptops/ Mac systems and also on phones and tablets.

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


We recommend that you attend classes from a PCs/ Laptops/ Mac.







**Service provided by**



 **TeamLease EdTech Ltd.**  
B-903, Western Edge II, Borivali East,  
Mumbai 400066

**Akshay Kumar**  
Manager – Premier BD

 9634230707  
 [akshay.kumar@teamlease.com](mailto:akshay.kumar@teamlease.com)

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.

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