AI for Medical Professionals 2025 - 2026

12-week Online Certificate Course

Inauguration: 14th December 2025
Course commencement: 15th December 2025

Offered by

▶▶ **International Institute of Information Technology, Hyderabad (IIIT-H)**
▶▶ **National Academy of Medical Sciences (NAMS)**
▶▶ **IHub-Data, IIIT Hyderabad**

Integration of Machine Learning based Artificial Intelligence (AI) in healthcare is transforming the way medical professionals diagnose, treat, and manage patients. Medical experts need to be imparted with necessary skills and understanding to effectively leverage these technologies. This course is designed to equip professionals with the knowledge and tools to understand, evaluate, and apply AI in clinical settings, aimed at enhancing patient care and operational efficiency.

OBJECTIVES

> Providing a foundational understanding of AI and its relevance to healthcare
> Familiarizing participants with the applications of AI techniques in clinical practice
> Fostering awareness of ethical and governance issues related to AI in medicine

TARGET GROUP

> Postgraduate medical students (MD/MS/MDS/Equivalent)
> Faculty and medical professionals (MD/ MS/ MCH/ DM/ MDS/ MBBS/ BDS)

ELIGIBILITY

> Basic knowledge of healthcare processes and clinical practice.
> Curiosity for understanding the impact of modern technology in healthcare.

For modules, delivery, course fees, and registration, scan the QR code.

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Last date to register: 7th December 2025

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Visit: https://ihub-data.ai/

Key Contents

Module 1

Introduction to Artificial Intelligence (AI) in Healthcare

- Clinical Data Sets: Data sources and types (structured, unstructured) - Standards in data acquisition and management - Opportunities and challenges in data handling
- The Role of Smart and Intelligent Systems in Clinical Workflow: Computer Architecture and Computer Systems in Clinical workflow Traditional systems vs. intelligent systems in healthcare - Concepts of Intelligence and Smartness
- Recent Inroads / Trends of AI in Healthcare: Landmark applications in healthcare

Module 2

Basics of Machine Learning (ML)

- Introduction to AI: Definition, history, evolution, and applications of AI
- Learning Paradigms: Supervised Learning (Classification & regression) - Unsupervised Learning (Clustering) - Reinforcement Learning
- The ML Pipeline: Feature extraction, selection, and dimensionality reduction - Model building validation, and evaluation metrics
- Recent Trends in AI: Generative AI, Foundational Models, ChatGPT

ML and DL Algorithms:
- Tree-based methods (decision trees, random forests)
- Neural Networks (NN) (multilayer perceptron, support vector machine)
- Hierarchical Clustering
- Deep Neural Networks (convolutional, recurrent, transformers)

Module 3

Clinical Applications

- Case Study Framework: Clinical presentation & AI/ML role; Data prep & feature processing; Model building & evaluation; Results & inference
- Domains (any 4): Screening, Diagnosis, Prognosis, Treatment, Patient Management, Hospital Resource Management
- Specific Case Studies: Different data types (biosignals, images, tabular, molecular, textual) with relevant algorithms (tree-based, NN, DNN)
- Signal-based – ECG (cardiovascular diseases), EEG (sleep staging)
- Applications by Data Type:
  - Image-based – Retinal Scans (Diabetic Retinopathy), Chest X-ray (Pneumonia/Covid)
  - Tabular – EHRs (Covid, Sepsis)
  - Molecular – Genomics (Cancer), Structural Biology (Drug Discovery)
  - Text – Medical Q&A systems, ChatGPT Chatbots for Physical & Mental Health

Module 4

Ethics and Governance of AI

Data protection, privacy, anonymity, biases - Regulations and governance frameworks for AI as a medical device

Hands-on AI Projects (optional)
- Building a basic machine learning model
- Simple AI projects relevant to healthcare

Course Delivery and Certification

Lectures: Pre-recorded lectures (short multiple videos) released every week for participants to enable flexible learning at their convenience.

Online Contact Sessions: Weekly 1-hour live sessions covering lecture summaries, tutorials, Q&A, and demonstration of case studies.

Expected study-time per week: 3 hours

Assessment: Short quizzes / assignments after every contact session. Post-course assessment to measure learning outcomes.

Certification: Certificate of course completion will be issued jointly by IIIT-H, IHub-Data, & NAMS.

Course Fees:

Faculty and medical professionals (MD/MS/MCH/DM/MDS/MBBS/BDS or equivalent): Rs. 30,000 (all inclusive)
Postgraduate medical students (MD/MS/MDS or equivalent) : 15,000 (all inclusive)

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Scan to register

NB: Please refer to the course content before you register. Please write to midhuna.chandran@ihub-data.iiit.ac.in / judish.raj@ihub-data.iiit.ac.in, if you have any questions before registering for the course. The fee is non-refundable.