



NETAJI SUBHAS
UNIVERSITY OF
TECHNOLOGY
DELHI



SIR GANGA RAM HOSPITAL
Trust of Generations

AI in Healthcare

Professional Certification Programme

Foundations of ML, DL, Medical Imaging
and Generative AI for modern
healthcare practice.



Organised by **Centre of Excellence in Artificial Intelligence (CoE-AI)**,
NSUT, Delhi · Clinical Partner: Sir Ganga Ram Hospital, Delhi

PROGRAMME HIGHLIGHTS



120

Contact Hours



15

Weeks



Online

Mode



**Live Weekend
Sessions**



**No Coding
Prerequisite**



**Certificate
of Completion**



For doctors & clinicians



For researchers & faculty



For students & industry



Designed for multidisciplinary learners seeking **practical
AI literacy** for safe healthcare adoption.

01 WHY NOW

Healthcare AI is moving from pilots to practice.

**~38%**

Projected CAGR of the global AI-in-healthcare market through 2030.

GRAND VIEW RESEARCH, 2023

**65%**

Healthcare executives report difficulty finding professionals trained in AI.

PWC

**80%+**

Healthcare organisations investing in AI for imaging, analytics and operations.

DELOITTE, 2023

PROGRAMME HIGHLIGHTS

**HIGHLIGHT 1****Clinical use cases**

AI-assisted radiology, pathology, risk scoring, GenAI and decision-support examples.

**HIGHLIGHT 2****Practical sessions**

Dataset cleaning, model evaluation, heatmaps, SHAP/LIME and prompt design.

**HIGHLIGHT 3****Multidisciplinary cohort**

Doctors, researchers, faculty, students, industry and hospital teams learn together.

**HIGHLIGHT 4****Responsible adoption**

Privacy, bias, governance and human review are integrated throughout.



Built to help professionals move from AI awareness to clinical impact.

The focus is not on heavy programming.

It is on understanding AI workflows, reading model outputs, asking better questions and participating in safe implementation conversations.

02 REAL-WORLD IMPACT

AI in action. Real use cases shaping better healthcare.

From faster diagnoses to smarter decisions, AI is already transforming how care is delivered. Explore real-world applications where AI creates measurable impact across clinical and operational settings.

REAL-WORLD HEALTHCARE USE CASES



Radiology triage and medical-image heatmaps

AI prioritises urgent cases and highlights regions of interest to support faster, more accurate radiological assessments.



Clinical risk scores for prognosis and triage

AI models stratify patient risk to support earlier intervention, informed triage and personalised care planning.



Diagnostic model evaluation with false positives/negatives

Evaluate model performance, reduce errors and improve reliability using robust validation and test datasets.



Decision-support alerts with doctor-in-the-loop review

AI flags critical events, while clinicians validate recommendations, ensuring safe and accountable decisions.



GenAI for clinical summaries and patient education drafts

Generative AI streamlines documentation and creates easy-to-understand patient education materials.



Bias, uncertainty and subgroup performance checks

Assess fairness, uncertainty and subgroup outcomes to promote equitable and trustworthy AI in healthcare.

03 AUDIENCE & BENEFITS

Benefits are tailored for each participant group.

A multidisciplinary cohort creates shared vocabulary between clinical, research and technology teams.



BENEFIT

Doctors & clinicians

Interpret AI outputs, risk scores, thresholds and model limitations in clinical context.



BENEFIT

Radiology/pathology

Understand image classification, segmentation, heatmaps and explainability workflows.



BENEFIT

Researchers

Frame healthcare-AI questions, evaluate models and collaborate with engineering teams.



BENEFIT

Faculty members

Bring AI examples, ethics, GenAI and clinical case discussions into teaching.



BENEFIT

Students/residents

Build future-ready AI literacy before entering AI-enabled clinical practice.



BENEFIT

Industry & admins

Design safer HealthTech products and assess hospital AI readiness, governance and adoption.



Built for multidisciplinary learners and AI enthusiasts.

Clinicians, researchers, students and technology professionals learn a common framework for interpreting AI outputs through guided demonstrations and healthcare case discussions.



Concept-first learning



Online weekend mode



Healthcare case discussions

04 PROGRAMME SNAPSHOT

What you'll get and what you'll be able to do.

**DURATION****120**

contact hours

**LENGTH****15**

weeks

**MODE****Online**

mode

**SCHEDULE****4 hrs Saturday
+ 4 hrs Sunday****LEVEL****Basic**

healthcare-use focused

**CERTIFICATE****Certificate of
Completion**

FOUR LEARNING OUTCOMES

**OUTCOME****Understand AI**

Explain key ideas in AI, ML, DL, medical imaging and GenAI.

**OUTCOME****Interpret clinical outputs**

Read predictions, probabilities, thresholds and visual explanations.

**OUTCOME****Evaluate reliability**

Assess metrics, uncertainty, bias, calibration and model robustness.

**OUTCOME****Collaborate responsibly**

Work with AI engineers, researchers and hospital teams safely.

INTEGRATED HANDS-ON SESSIONS

**Learn**
concepts**Interpret**
outputs**Apply**
use cases**Validate**
reliability

05 15 WEEKS • FIVE PHASES

From AI literacy to final clinical case presentation.



TEACHING METHODOLOGY



Interactive lectures



AI demonstrations

Medical-imaging
AI exposurePrompt-engineering
workshop

Case-study analysis

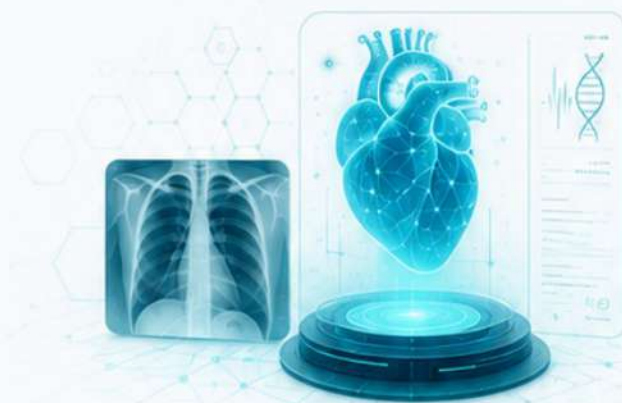


Final presentation



06 THE 15-WEEK PLAN · PART ONE

Foundations through medical imaging.



WEEK 1

Introduction to AI in Healthcare

AI vs ML vs DL; AI in diagnosis, prognosis, triage and workflow support; myths and limitations.



CASE

Where AI can support doctors and where human supervision is necessary.



WEEK 2

Learning Paradigms in Healthcare

Supervised, unsupervised and semi-supervised learning; weak labels and limited labelled data.



CASE

Why labelled medical data is hard and how weak or semi-supervised learning helps.



WEEK 3

Healthcare Data & Pre-processing

Cleaning, missing values, coding systems, annotation, class imbalance and train-test split.



PRACTICAL

Clean a small clinical dataset and prepare it for model training.



WEEK 4

Clinical Statistics & AI Interpretation

Risk factors, features, labels, probability, sensitivity and specificity without heavy mathematics.



PRACTICAL

Interpret probability, risk score, sensitivity and specificity on clinical examples.



WEEK 5

Classical ML for Clinical Prediction

Regression, decision trees, random forest, SVM, KNN, clustering and patient stratification.



PRACTICAL

Build a simple clinical prediction model using tabular data.



WEEK 6

Model Evaluation in Healthcare

Feature selection, ensembles, cross-validation, accuracy, F1, ROC-AUC and calibration.



PRACTICAL

Evaluate a diagnostic model and interpret false positives/false negatives.



WEEK 7

Introduction to Deep Learning

Neural networks, ANN, CNN, RNN/LSTM, activation, loss, training and generalisation – intuitive.



DEMO

Train a simple neural network and understand model behaviour.



WEEK 8

CNNs for Medical Imaging

Image classification, localisation, object detection, segmentation, heatmaps and Grad-CAM.



PRACTICAL

Medical image classification using a CNN; visual explanation using heatmaps/Grad-CAM.

07 THE 15-WEEK PLAN · PART TWO

Explainability, GenAI & decision support.

**WEEK 9****Benchmark DL Architectures**

U-Net, ResNet, YOLO and Vision Transformers - practical overview.

DISCUSSION

Outcome-based study of architectural benchmarks.

**WEEK 10****Explainable AI for Clinical Use**

SHAP, LIME, Grad-CAM, uncertainty, confidence, interpretability and risk stratification.

PRACTICAL

Explain a model prediction using SHAP/LIME/Grad-CAM.

**WEEK 11****Generative AI in Medical Assistance**

GenAI tools, ChatGPT, AutoML, NLP in healthcare, clinical LLM applications and prompt engineering.

DEMO

GenAI for clinical summaries, patient education and responsible prompt design.

**WEEK 12****AI-Based Clinical Decision Support**

Risk-score generation, thresholds, classification, alert generation and doctor-in-the-loop review.

CASE

Interpret risk scores, choose thresholds and compare sensitivity-specificity trade-offs.

**WEEK 13****Reliability, Validation & Risk**

Error analysis, robustness, uncertainty, data shift, subgroup performance and edge cases.

CASE

Analyse errors via confusion matrix, ROC, calibration and subgroup performance.

**WEEK 14****Privacy, Ethics & Governance**

Consent, anonymisation, data security, responsible AI and regulatory issues.

DISCUSSION

Privacy, bias, ethics and responsible use of AI in hospitals.

**WEEK 15 · FINAL INTERACTIVE CASE PRESENTATION****Healthcare-AI case study and interpretation**

Guided presentation, model interpretation and viva/discussion that brings the full programme together.



08 FINAL DETAILS

Assessment, faculty, fees and application timeline.



ASSESSMENT

Final presentation		50%
Quizzes / MCQs		30%
Case studies		20%



CERTIFICATION CRITERIA

Participants who complete the programme with minimum 75% attendance and satisfactory performance in assessments and final presentation receive a Certificate of Completion in AI in Healthcare.



WHO WILL TEACH

Expert faculty from IITs, IIITs, NSUT and South Asian University, along with distinguished industry experts from India and USA.

Academia

Research

Industry



ORGANISED BY

CoE-AI, NSUT Delhi

AI ecosystem and academic delivery

Sir Ganga Ram Hospital, Delhi

Clinical partner and healthcare context



FEES • GST INCLUSIVE



STUDENTS • UG / PG / PHD

₹25,000

Inclusive of GST • valid student ID required



PROFESSIONALS / INDUSTRY

₹40,000

Inclusive of GST • doctors, faculty and industry participants



PROGRAMME TIMELINE & ADMISSION PATHWAY



Programme starts: August 01, 2026



Application deadline: July 15, 2026



Register / enquire



Fee payment



Confirmation



Orientation & classes



Final presentation



Certificate



OFFICIAL EMAIL

coe.ai@nsut.ac.in

READY TO REGISTER

Ready to Register?

AI in Healthcare Professional Certification Programme

Scan the QR code or use the link below to register and complete the programme fee payment through the NSUT portal.



Open NSUT registration & payment portal



https://www.imsnsit.org/imsnsit/elearn_programeregistration.php



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