



# Electronics & ICT Academy IIT Roorkee



An Initiative of  
**Ministry of Electronics  
& Information  
Technology (MeitY)**  
Government of India

## A Faculty Development Program

on

## AI in Medical Imaging

In association with

**Netaji Subhas University of Technology,  
New Delhi**

**July 21 – July 25, 2025**

**Register Before:** July 19, 2025



Venue: Hybrid Mode at : Netaji Subhas  
University of Technology, New Delhi

### Objectives of the Course

- Understand key AI/ML techniques and their applications in medical imaging.
- Preprocess and analyze medical image datasets using standard tools (e.g., Python, TensorFlow, OpenCV).
- Apply deep learning methods (CNN, U-Net, GANs etc.) for image classification, segmentation, and enhancement.
- Explore explainable AI (XAI) models for transparency and interpretability in medical diagnosis.
- Evaluate AI models in terms of accuracy, robustness, and clinical usability.
- Identify challenges and opportunities in research and academia-industry collaboration in this domain.



### Why this course ?

This FDP on "AI in Medical Imaging" offers a concise yet comprehensive overview of machine and deep learning applications in medical imaging. Participants will explore modern imaging modalities like MRI, CT, and X-rays, and gain hands-on experience in image classification, segmentation, and diagnostic support. The program emphasizes explainable AI (XAI) to ensure transparency and address ethical concerns. Designed for faculty, researchers, and professionals, it equips attendees with interdisciplinary research skills, practical AI knowledge, and tools to integrate emerging technologies into academia and industry.

### Prerequisites

No experience is required, but fundamental knowledge of any programming language would be helpful.

### Experts from Academia/Industry

#### Who Should Register?

Any Interested Faculty/PhD-Scholars  
UG/PG/ & Industry Persons can register

#### Registration Fee

Fees: ₹ 500/- Faculty/Research Scholar/ Students  
₹ 750/- Industry/Others

Note: Refund will be done in case of course  
cancellation only, with in 20 working days

**FDP Kits & Refreshment will be provided**

#### How to make Payment

Please make the payment first using the below link  
upload the payment receipt when filling out the  
Google registration form

<https://eict.iitr.ac.in/instruction-for-payment/>

**Course Code: EICTTTR-FDP-5H6-22**

#### Registration Link

<https://forms.gle/pMTg5oACRkxiXGPX9>



Scan QR for  
registration

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July 19, 2025

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### Course Outcomes

- Understand the fundamental principles of AI, machine learning, and deep learning in the context of medical imaging.
- Identify and work with various medical imaging modalities (e.g., X-ray, MRI, CT, Ultrasound) and formats (e.g., DICOM).
- Apply preprocessing techniques to enhance and clean medical image data for AI model input.
- Develop and implement AI models, including CNNs, U-Net, and transfer learning, for tasks such as image classification and segmentation.
- Evaluate model performance using appropriate metrics (e.g., accuracy, sensitivity, AUC) in clinical contexts

### Focus Areas

- AI algorithms for diagnostic imaging
- Deep learning for image segmentation/classification
- Preprocessing of real-world medical datasets
- Explainable AI for trust in clinical decisions
- Emerging trends: multimodal AI, federated learning, ethical AI
- Tools & technologies: Python, Keras, TensorFlow, MONAI, DICOM, OpenCV

### Course Features

- 40 Hours of Lectures, hands-on, and Pedagogy/Industry sessions.
- Lectures from Expert Speakers, Hands-on from industry/Academia experts.
- Access to learning material and video lectures
- Certificate by E&ICT Academy IIT Roorkee

### Who may benefit

- Academic Faculty and Students(UG/PG)
- Government Officials.
- Working Professionals in the Industry and Startups.
- Research Scientists and Technical Staff.

This certificate can be considered in alignment with other Quality Improvement Programs (QIP) as well as **NBA** and **NAAC** for recognition/credit.

### Principal Investigator

- **Prof. Sanjeev Manhas, Head, ECE Department, IIT Roorkee**

### Chief Patron:

- **Prof. Anand Srivastava, Hon. Vice-Chancellor, NSUT, New Delhi**

### Patron:

- **Dr. Satya Prakash Singh, Coordinator, CoE in AI, NSUT, New Delhi**

### Course Coordinators

- **Prof. Sanjeev Manhas, Head, ECE Dept., IIT Roorkee**
- **Dr Ankur Gupta, NSUT, New Delhi**
- **Dr Geetanjali, NSUT, New Delhi**
- **Dr Vijay Kumar Bohat, NSUT, New Delhi**
- **Dr Amit Singhal, NSUT New Delhi**

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