Electronics & ICT Academy
IIT Roorkee

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

A Faculty Development Program
on
Machine Learning and Generative AI with Quantum Programming

In association with

Delhi Technical Campus, Greater Noida

June 16th – June 20th, 2025

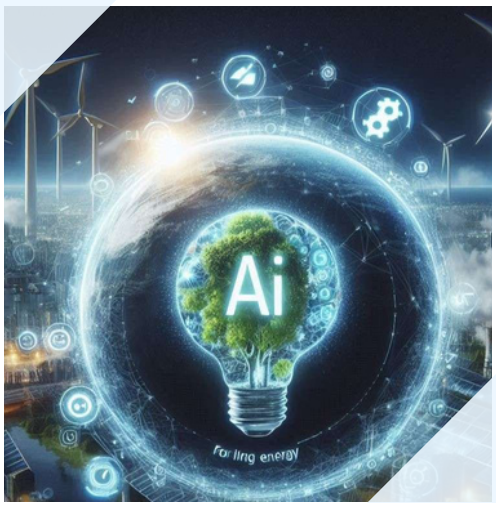
Timings: 09:30 AM – 6:00 PM

Register Before: June 13th , 2025

Venue: Hybrid Mode at Delhi Technical Campus, Greater Noida

Objectives of the Course

- To build a strong theoretical foundation in classical machine learning techniques.
- To introduce the architecture, principles, and implementation of generative AI models.
- To provide hands-on experience with current AI/ML development tools and libraries.
- To equip participants with skills to develop and deploy practical AI solutions.
- To demystify quantum computing concepts relevant to future AI applications.
- To enable participants to implement and simulate quantum algorithms using open-source platforms.
- To align participant knowledge with NEP 2020 goals, promoting research-driven and interdisciplinary pedagogy.



Why this course ?

This course is essential for faculty, researchers, and professionals aiming to stay ahead in the rapidly evolving fields of Artificial Intelligence and Quantum Computing. It offers a unique blend of classical machine learning, generative AI, and quantum programming, providing both foundational theory and practical hands-on skills. With the increasing relevance of technologies like GANs, large language models, and quantum-enhanced AI, this program empowers participants to integrate these innovations into teaching, research, and real-world applications. Aligned with NEP 2020, it fosters interdisciplinary learning, curriculum development, and future-ready education, making it a vital step toward academic and industry relevance in emerging tech domains.

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: ₹ 250/- Faculty/Research Scholar/ Students
₹ 500/- 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/

EICT Course Code: EICTIITR-FDP-5H6-05

Registration Link

https://forms.gle/v61AZci4nSftEicn8

Scan QR for registration

Register before:
June 13th , 2025

Click on icon to follow us on:

Course Outcomes

- Participants will acquire foundational and practical knowledge in machine learning and generative AI.
- Ability to build and experiment with AI models using industry-standard tools.
- Understanding of generative model workflows and their applications in various domains.
- Skills to integrate cutting-edge AI tools and concepts into academic curricula.
- Proficiency in writing and simulating quantum programs using Qiskit or PennyLane.
- Readiness to explore interdisciplinary research involving AI and quantum computing.
- Enhanced ability to contribute to curriculum development and student mentoring in line with emerging technologies and industry trends.

Focus Areas

- Foundations of classical machine learning algorithms (supervised, unsupervised, reinforcement learning).
- Generative AI models including Generative Adversarial Networks (GANs), Variational Autoencoders (VAEs), and Large Language Models (LLMs).
- Hands-on development using modern AI frameworks (e.g., TensorFlow, PyTorch, Hugging Face).
- Practical applications and APIs for real-world ML and generative AI use cases.
- Introduction to quantum computing fundamentals and principles.
- Programming quantum algorithms using tools like Qiskit and PennyLane.

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 benifits

- 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
ECE Department, IIT Roorkee

Course Coordinators

- Prof. Sanjeev Manhas, IIT Roorkee
- Prof. Krishna Kant Singh, Delhi Technical Campus, Greater Noida

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