GEETHANJALI COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous) Cheeryal (V), Keesara (M), Medchal Dist., 501 301

Department of CSE(AI&ML)

Five days Hands-on Faculty Development Programme (FDP) on

"**Quantum Computing and its Applications in Machine Learning**"

20th to 24th January, 2026.

Chief Patron

Sri. G. R. Ravinder Reddy, Chairman

Sri. R. Harish Chandra Reddy, Vice Chairman

Patrons

Dr. S. Udaya Kumar, Director

Dr. K. Sagar, Principal

Conveners

Dr. V. Madhusudan Rao, Professor & Dean(School of Computer Science and Informatics)

Dr. A. Nageswara Rao, Associate Professor & HOD, CSE (AI&ML)

Coordinators

Dr. P V Shalini, Associate Professor, CSE (AIML)

Dr. L Venkateswarlu, Professor, CSE(AI&ML)

Dr. C V P R Prasad, Professor, CSE(AI&ML)

Co-Coordinators

Dr. G. Bindu Madhavi, Associate Professor, CSE (AI&ML)

Shaik Akbar, Associate Professor, CSE (AI&ML)

Report

The five days Faculty Development Programme (FDP) on "**Quantum Computing and its Applications in Machine Learning**" was held from 20th to 24th January, 2026. This comprehensive program aimed at enhancing the knowledge and skills of faculty members in the rapidly advancing fields of Quantum Computing, Quantum applications in AI, ML models. The FDP provided an in-depth exploration of the latest advancements in these technologies and their application across various domains. Experts from industry and NIT warangal led the sessions, offering participants valuable insights into current trends, challenges, and opportunities within these cutting-edge fields.

Throughout the week, the participants engaged in a series of lectures, hands-on sessions, and interactive discussions. Key topics covered included: Quantum Computing, Qubits, Superposition & Entanglement, Quantum Algorithms, Shaor's & Grover's , Quantum Neural Networks (QNNs), Quantum Support Vector Machines (QSVM), Quantum Principal Component Analysis (QPCA), Quantum Clustering Techniques, Quantum Generative Models (QGANs), Quantum computing applications in Image Processing, hands-on Quantum classifier on datasets.

Additionally, faculty members were introduced to building their own Web applications using IBM Quskit, providing them with the necessary resources to incorporate these technologies into their curriculum and research projects.

The program concluded with a classification of Images in datasets, encouraging collaboration among participants from various educational institutions. Feedback from the attendees indicated a high level of satisfaction with the knowledge gained and the relevance of the topics discussed. Many participants expressed their intent to integrate Quantum, AI, and ML into their teaching and research, recognizing the need for academic institutions to adapt to the evolving technological landscape. The FDP was a successful initiative that empowered faculty members to remain at the forefront of AI and machine learning advancements, thereby ensuring that they are well-equipped to guide students through the complexities of these transformative fields.

Glimpse of the FDP:

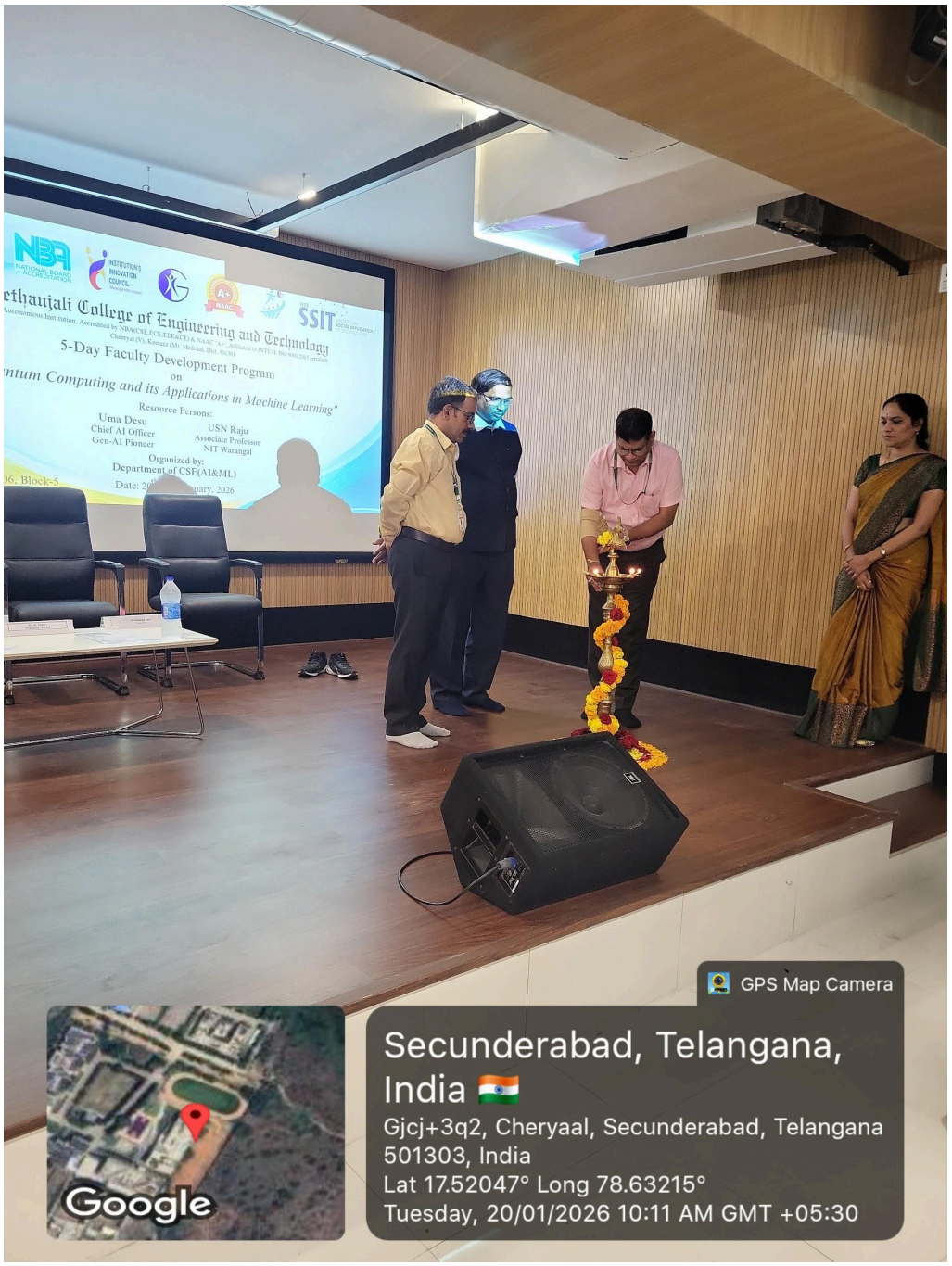
The Five Days Faculty Development Programme (FDP) on "**Quantum Computing and its Applications in Machine Learning**" from 20th to 24th January, 2026 equipped faculty members with the latest insights, tools, and applications of these technologies to enhance their teaching and research. A total of over 50 participants, from our institution from AIML, and other departments, and from outside participants from the K G Reddy College of Engineering & Technology gained knowledge of these cutting-edge technologies.

DAY 1 (20-01-2026) Inaugural Room No: Auditorium, 3rd floor, Block-5

Inauguration: Prayer song by Students

Participants at Inaugural:

Inauguration: Lighting of lamp



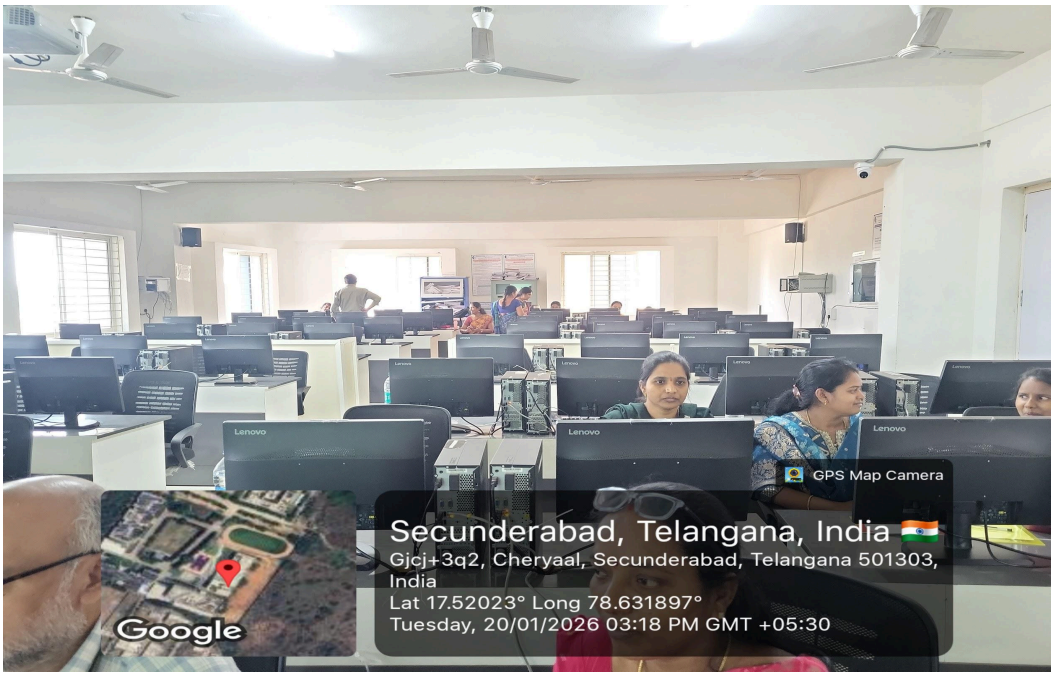
Resource Person: **Uma Desu,** Chief AI Officer, GenAI, Vijayawada.

Welcome resource person with sapling

DAY 1 (20-01-2026) Sessions in Lab E-05,06, ground floor, Block-5

Topics Covered:

- Introduction to Quantum Computing,
- Qubits,
- Superposition & Entanglement
- Quantum Algorithms Shaor's & Grover's
- Hands on Qiskit

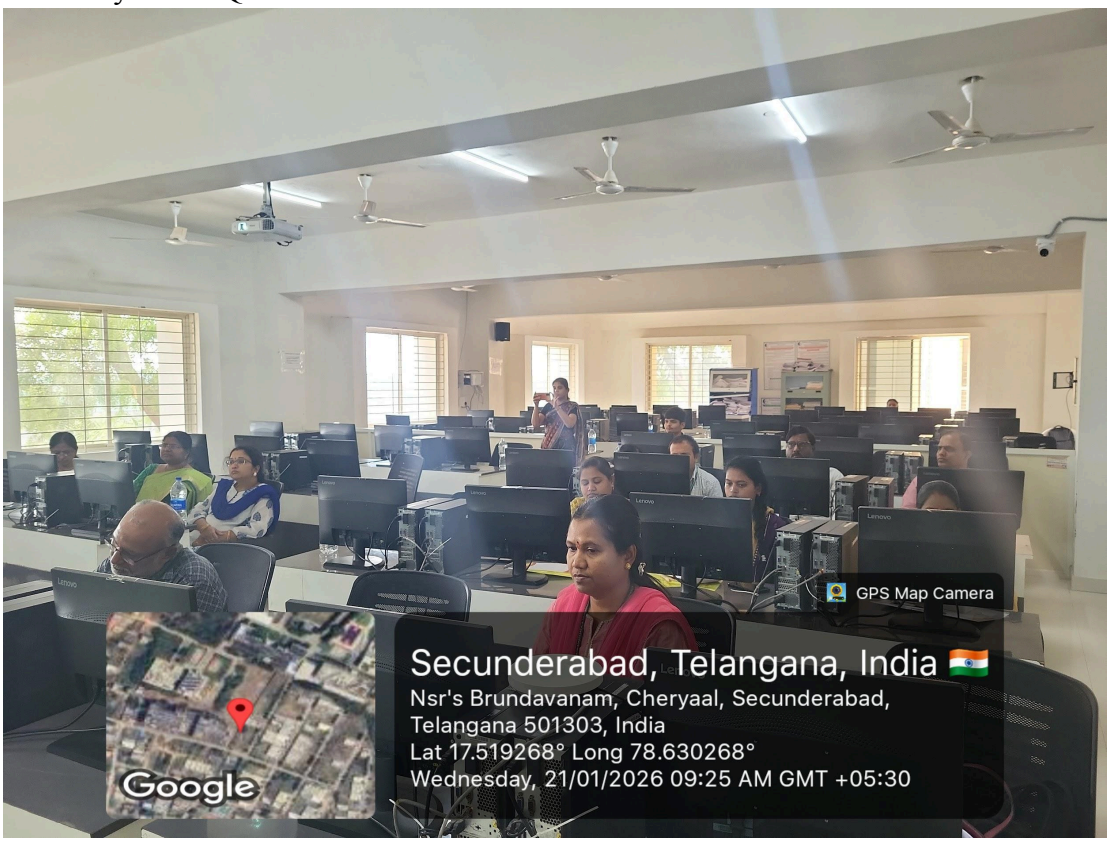


DAY 2 (21-01-2026) Room No: 05, 06 Lab, Ground floor, Block-5.

Resource Person: **Uma Desu,** Chief AI Officer, GenAI, Vijayawada.

Topics Covered:

- Introduction to Quantum Machine Learning, how is it different from traditional ML
- Quantum Neural Networks (QNNs)
- Quantum Support Vector Machines (QSVM)
- Python + Qiskit + Classical ML



-

Day 2 Interactions with participants

Day 2 Hands-on sessions

DAY 3 (22-01-2026) Room No: 05, 06 Lab, Ground floor, Block-5.

Resource Person: **Uma Desu,** Chief AI Officer, GenAI, Vijayawada.

Topics Covered:

- Quantum Principal Component Analysis (QPCA)
    - Utilizing QPCA for high-dimensional classification, feature extraction, and dimensionality reduction
- Quantum Clustering Techniques
    - Quantum K-Means Algorithm
    - Quantum Fuzzy C-Means Clustering
- Quantum Feature Mapping and Kernel Methods
    - improve classification or regression performance on non-linear, high-dimensional datasets

Sessions

Interactions of participants with resource person

DAY 4 (23-01-2026) Room No: 05, 06 Lab, Ground floor, Block-5.

Resource Person: **Uma Desu,** Chief AI Officer, GenAI, Vijayawada.

Topics Covered:

- Quantum Generative Models (QGANs)
  - quantum data embedding, and applications like image generation and financial data modeling
- QAOA optimization for ML task
  - optimizing data clustering configurations or least squares fitting

Sessions

Memento to resource person:

Group photos of participants with resource persons


GENAI
GPS Map Camera
Secunderabad, Telangana, India
Gjcj+2m5, Cheryaal, Secunderabad, Telangana 501303, India
Lat 17.520141° Long 78.631802°
Friday, 23/01/2026 12:40 PM GMT +05:30
Google


Geethanjali College of Engineering and Technology
GPS Map Camera
Secunderabad, Telangana, India
Gjcj+2m5, Cheryaal, Secunderabad, Telangana 501303, India
Lat 17.520034° Long 78.631807°
Friday, 23/01/2026 03:01 PM GMT +05:30
Google

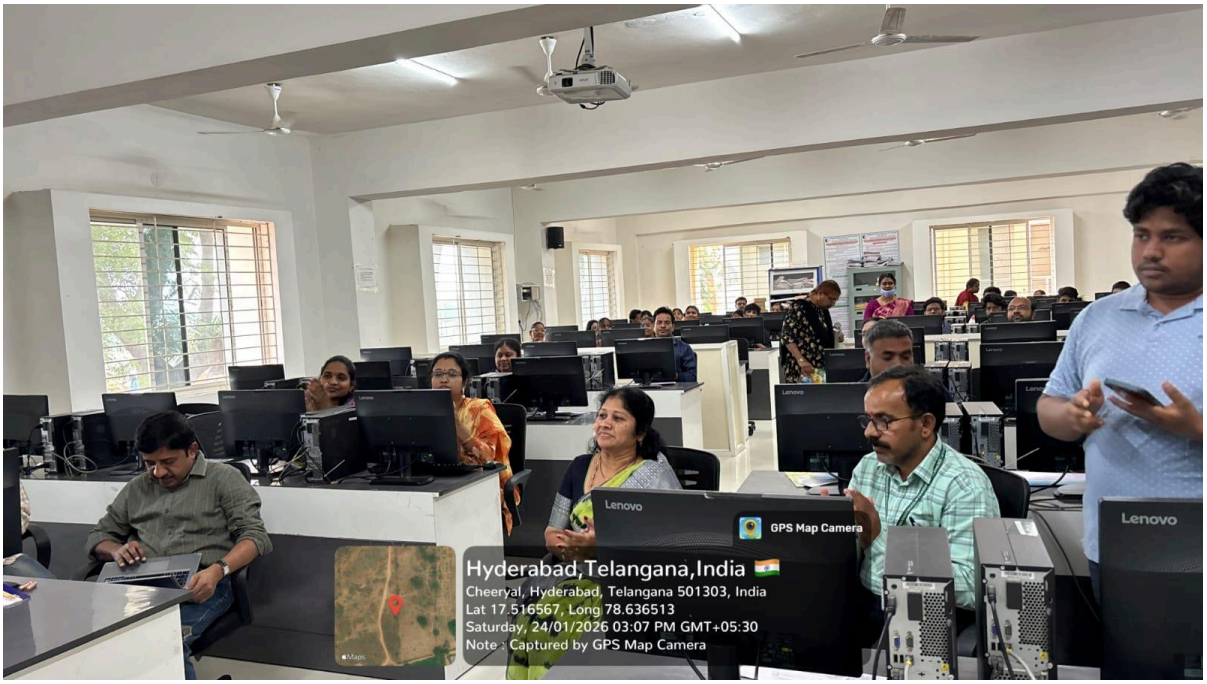
DAY 5 (24-01-2026) Room No: 05, 06 Lab, Ground floor, Block-5.

Resource Person: **Dr. U S N Raju,** Associate Professor, NIT Warangal.

Topics Covered:

- Quantum computing applications in Image Processing
- Quantum classifier on a simple dataset
- Quantum feature map for iris dataset

Sessions



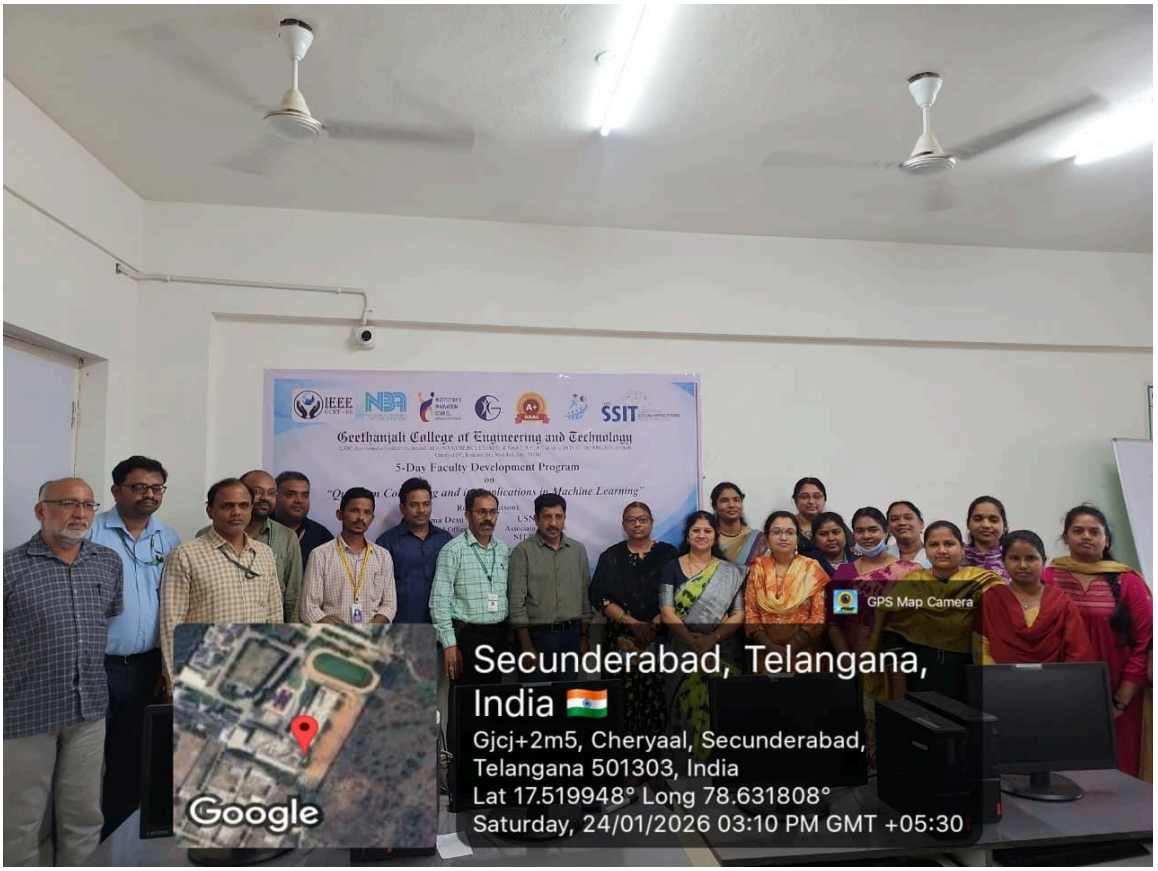
Valedictory Session

Vote of thanks by Mrs. T Kranthika

Memento to resource person

Certificate distribution to participants

Group Photograph of all participants, committee members, coordinates, HoD with Resource person.



This FDP took place over five enriching days, filled with engaging sessions, workshops, and interactive discussions. From the very first day, participants were immersed in a learning environment that encouraged growth and knowledge-sharing. Expert speakers and facilitators led insightful sessions, addressing various aspects of professional development, skill building, and cutting-edge trends in academia and industry.

Over the course of the program, participants not only gained valuable insights but also had the opportunity to network with peers and experts in their respective fields. Each day was marked by thought-provoking sessions, group activities, and practical applications that made the learning experience both theoretical and hands-on.

As the program came to a close, a final session was conducted to reflect on the key takeaways and learnings from the entire week. The event concluded with a vote of thanks, where heartfelt gratitude was expressed to the distinguished speakers, facilitators, and all the participants for their active engagement and contribution. Special appreciation was given to the organizing team, who worked tirelessly behind the scenes to ensure the smooth execution of the event.

The vote of thanks acknowledged the collaborative spirit that made the FDP successful and highlighted how the experience had enriched everyone's professional journey. Participants left the program feeling inspired, empowered, and equipped with valuable tools to apply in their respective fields. All participants received their certificates of participation at the end of the event.

Organizing Committee:

Registration Committee:

Dr. B Adithya, Associate Professor

Mr. M Suresh Babu, Sr. Assistant Professor

Mrs. M Gayatri, Sr. Assistant Professor

Mr. G Rama Krishna, Assistant Professor

Mrs. B Nalini, Assistant Professor

Stage Committee:

Dr. K Arpitha, Associate Professor

Mrs. Ch Sushma, Sr. Assistant Professor

Mrs. M Supriya, Assistant Professor

Mr. H V Ramana Rao, Assistant Professor

Mrs. P Swathi, Assistant Professor

Transportation Committee:

Mr. G Vedavyas, Associate Professor

Mr. G Venu Gopal, Assistant Professor

Hospitality Committee:

Mr. K Naresh Babu, Associate Professor

Mr. V Rakesh Datta, Assistant Professor

Mr. V A Prem Kumar, Assistant Professor

Anchoring Committee:

Mrs. Preethi Prasada, Sr. Assistant Professor

Mrs. T Kranthika, Assistant Professor

Attendance Sheets of Participants: