MAHALAKSHMI TECH CAMPUS

INSTITUTE OF ENGINEERS

(A GROUP OF MAHALAKSHMI INSTITUTIONS)

Approved by AICTE & Affiliated to Anna University, Chennai.

INSTITUTION'S INNOVATION COUNCIL
(Ministry of HRD Initiative)

ABOUT THE INSTITUTION

Mahalakshmi Tech Campus, affiliated with Anna University, is dedicated to shaping future-ready professionals through six undergraduate programs in Computer Science and Engineering Electronics and Communication Engineering, Electrical and Electronics Engineering, Computer Science Engineering (Artificial Intelligence & Machine Learning), Computer Science Engineering (Cyber Security), B.Tech in Artificial Intelligence.

Blending theory with practical experience, our institution emphasizes ethics, sustainability, and community engagement. With innovation incubation centers and entrepreneurship development programs, we are a hub for innovation and startups, empowering students to lead in a tech-driven world.

Quantum Computing & Technology

BRIDGING THEORY AND APPLICATIONS

SIX DAYS FACULTY DEVELOPMENT PROGRAM (OFFLINE MODE)

27.10.2025 TO 01.11.2025

MISSION

- Create a conducive environment that fosters holistic development and prepares students to face modern-day challenges through quality education.
- Empower students to become independent and self-reliant individuals capable of achieving their goals.
- Instill Indian culture and values to nurture altruistic leaders with a strong sense of social responsibility.

VISION

To uplift students from diverse backgrounds; empower them with boundless knowledge and skills to meet dynamic global oppurtunities and become futuristic leaders.

Organised by

Department of Electronics and Communication Engineering

Sponsored by

ATAL - AICTE Training & Learning Academy

ABOUT ATAL

The AICTE Training and Learning (ATAL) initiative offers Faculty Development Programmes (FDPs) for faculty, postgraduate students, researchers, and industry professionals. These programs:

- Provide domain expertise and practical skills with industry connections.
- Develop leadership for academic excellence.
- Foster awareness of community, nation-building, and career growth.
- Enhance communication for effective teaching and learning.

ATAL aims to create a network of skilled professionals committed to knowledge sharing, innovation, and societal impact.

ABOUT FDP

The Faculty Development Program (FDP) on "Quantum Computing & Technology: Bridging Theory and Applications" is designed to provide faculty members, research scholars, and industry professionals with a deep understanding of quantum computing principles and their real-world applications. This program aims to demystify complex quantum theories while offering practical exposure to quantum algorithms, quantum hardware, and quantum programming platforms. Participants will explore the potential of quantum computing in revolutionizing areas like cryptography, optimization, drug discovery, and artificial intelligence. The FDP also aims to foster collaborative discussions on current research challenges and future directions in this rapidly evolving field.

REGISTRATION

Eligibility: Open to faculty members from all engineering disciplines of AICTE-approved institutions, research scholars, postgraduate scholars, and industry professionals.

Registration Deadline: October 21, 2025

Selection Notification: October 23, 2025

Note: Selection will be based on a first-come, first-served basis, with a maximum of 50 participants.

Certification: E-Certificates will be issued by AICTE ATAL.

Registration Fee: No fee is required.

How to Register: Participants can sign up and register for the program through the
AICTE ATAL website using the following links:
https://www.aicte-india.org/atal (or)
https://atalacademy.aicte india.org/signup

Accomodation : Interested participants will be offered accommodation in the College Hostels on a payment basis.

FOCUS AREAS & TOPICS

1. Quantum Computing Foundations (Superposition, Entanglement, Qubits)
2. Quantum Algorithms (Shor's, Grover's, Quantum Annealing)
3. Quantum Machine Learning (Hybrid AI & Quantum Systems)
4. Quantum Cryptography (QKD, Post-Quantum Security)
5. Quantum Communication (Quantum Internet, Satellite Communication)
6. Quantum Hardware & Platforms (Superconducting Qubits, Trapped Ions, Photonic Qubits)
7. Quantum Sensors & Metrology (Precision Measurement, Navigation, Medical Imaging)
8. Quantum Computing Frameworks (IBM Qiskit, Google Cirq, Rigetti Forest)
9. Error Correction & Noise Mitigation (Fault-Tolerant Quantum Computing)
10. Future Trends & Industry Applications (Finance, Healthcare, Material Science, AI)

ORGANIZING TEAM

Chief Patron:
Mr. R. Ravi
Chairman, Mahalakshmi Tech Campus, Chennai

Patron:
Mr. R. Guhan
Vice Chairman, Mahalakshmi Tech Campus, Chennai

Advisory Committee:
Dr. Srinivas Gumparthi, Dean - Strategic Planning
Mr. P. Prince Packiaraj, Director (Official)

Coordinator:
Prof. Dr. Ushaa Eswaran
Principal and Professor, Department of ECE, MTC

Co-Coordinator:
Mrs. S. Lakshmi
Assistant Professor, Department of Physics

Organizing Team:
Mr. K. R. Yuvaraj, Mr. R. Thiyagarajan, Mr. M. Gowthaman, Mr. Jaya Prakash, Mrs. S. Ramalakshmi

Resource Persons:
Dr. K. Venkata Subba Reddy, NIT Warangal
Mr.Shadab Hussain, Senior Associate, Math Co, Dallas, Texas, USA
Mr. Durai Karthi Ganesh, Founder & CEO, KwantumG Research Labs Pvt. Ltd., Bengaluru
Dr. Kapil Kumar Soni, NIT Raipur
Dr. Subramani, IIITDM Kancheepuram
Dr. S. Angel Deborah, SSN COE, Chennai
Dr. Rajalakshmi, SSN COE, Chennai
Mr. R. Mageswar, TNstartup, Chennai
Ms.P. Vanitha, Quantum Computing Researcher and Trainer, KwantumG Research Labs Pvt. Ltd., Bengaluru

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SCHEDULE OF BASIC FDP

FDP Application Number: 1743137666
Title of the FDP: *Quantum Computing & Technology: Bridging Theory and Applications*
FDP Start Date: 27 October 2025 **FDP End Date:** 1 November 2025

Day 1	Day 2	Day 3	Day 4	Day 5	Day 6
9.00 – 9.30 Inauguration					
9.30 – 12.00 **Session 1** 1.**Name of the Expert:** Dr.S. Angel Deborah 2.**Designation:** Assistant Professor 3.**Organization:** SSN College of Engineering 4.**Experience in Years**: 11 5.**Topic to be taught:** Quantum Computing Foundations (Superposition, Entanglement, Qubits)	**9.30 – 12.00** **Session 3** 1.**Name of the Expert:** Mr.Shadab Hussain 2.**Designation:** Senior Associate 3.**Organization:** Math Co, Dallas, Texas, USA 4.**Experience in Years:** 10 5.**Topic to be taught:** Quantum Machine Learning (Hybrid AI & Quantum Systems)	**9.30 – 12.00** **Session 5** 1.**Name of the Expert:** Dr. K.Venkata Subba Reddy 2. **Designation:** Associate Professor 3. **Organization:** NIT Warangal 4. **Experience in Years**: 15 Years 5. **Topic to be taught:** Quantum Communication (Quantum Internet, Satellite Communication)	**9.30 – 12.00** **Session 7** 1. **Name of the Expert:** Dr.Subramani 2. **Designation: Assistant Professor** 3. **Organization:** IIITDM, Kancheepuram 4. **Experience in Years:** 12 Years 5. **Topic to be taught:** Quantum Sensors & Metrology (Precision Measurement, Navigation, Medical Imaging)	**9.30 – 1:00** **Industrial Visit** **Name of the Organization:** Centre for Development of Advanced Computing (C-DAC), Chennai **Complete Address with Pincode:** TIDEL Park, 8th Floor, 'D' Block (North & South), No. 4, Rajiv Gandhi Salai, Taramani, Chennai, Tamil Nadu 600113, India **Industry Type:** Autonomous Scientific Society under the Ministry of Electronics and Information Technology (MeitY), Government of India **Area of Specification:** High-Performance Computing	**9.30 – 12.00** **Session -10** 1.**Name of the Expert:** Ms.P.Vanitha 2.**Designation:** Quantum Computing Researcher and Trainer 3.**Organization:** KwantumG Research Labs Pvt. Ltd., Bengaluru 4.**Experience in Years: 10 years** 5.**Topic to be taught:** Quantum Machine Learning (Hybrid AI & Quantum Systems)
12:00 – 1:00 **Article Discussion** **Title of the Research Paper**: A Quantum-Inspired Bi-level Optimization Algorithm for the First Responder Network Design Problem **Name of the Journal**: INFORMS Journal on Computing **Year of Publication**: 2024 (Pending/Forthcoming)	**12:00 – 1:00** **Article Discussion** **Title of the Research Paper:** Quantum processor-inspired machine learning in the biomedical sciences **Name of the Journal:** Patterns **Year of Publication:** 2021	**12:00 – 1:00** **Article Discussion** **Title of the Research Paper**: An Application of Combinatorial Optimization to Statistical Physics and Circuit Layout Design **Name of the Journal**: Operations Research **Year of Publication**: 1988	**12:00 – 1:00** **Article Discussion** **Title of the Research Paper**: Quantum Machine Learning: A Tutorial **Name of the Journal**: Neurocomputing **Year of Publication**: July 2021		**12:00 -1:00** **Article Summary**
1:00– 2:00 **Lunch**	**1:00– 2:00** **Lunch**	**1:00– 2:00** **Lunch**	**1:00– 2:00** **Lunch**	**1:00– 2:00** **Lunch**	**1:00– 2:00** **Lunch**
2:00 -4:30 **Session-2** 1.**Name of the Expert:** Dr. S. Rajalakshmi 2.**Designation:** Assistant Professor 3.**Organization:** SSN College of Engineering 4.**Experience in Years:** 19 5.**Topic to be taught:** Quantum Algorithms (Shor's, Grover's, Quantum Annealing)	**2:00 -4:30** **Session-4** 1.**Name of the Expert:** Mr. R.Mageswar 2.**Designation:** Associate Vice President 3.**Organization:** TNstartup 4.**Experience in Years: 10 Years** 5.**Topic to be taught:** Quantum Cryptography (QKD, Post-Quantum Security)	**2:00 -4:30** **Session 6** 1.**Name of the Expert:** Dr. Kapil Kumar Soni 2.**Designation:** Associate Professor 3.**Organization:** NIT, Raipur 4.**Experience in Years:** 15 Years 5.**Topic to be taught:** Quantum Hardware & Platforms (Superconducting Qubits, Trapped Ions, Photonic Qubits)	2:00 -4:30 **Session 8** 1.**Name of the Expert:** Mr. Durai Karthi Ganesh 2.**Designation:** Founder & CEO 3.**Organization:** KwantumG Research Labs Pvt. Ltd., Bengaluru 4.**Experience in Years: 15 years** 5.**Topic to be taught:** Quantum Computing Frameworks (IBM Qiskit, Google Cirq, Rigetti Forest, Fault-Tolerant Quantum Computing)	2:00 -4:30 **Session 9** 1.**Name of the Expert:** Dr.Ushaa Eswaran 2.**Designation:** Professor 3.**Organization:** Mahalakshmi Tech Campus 4.**Experience in Years**: 36 5.**Topic to be taught:** Respect, Responsibility, and Resilience: The Core of Indian Classroom Culture	**2:00 -4:00** **MCQ & Reflection Journal**
4:30 – 5:30 **Hands on Training/ Labs**	**4:30 – 5:30** **Hands on Training/ Labs**	**4:30 – 5:30** **Hands on Training/ Labs**	**4:30 – 5:30** **Hands on Training/ Labs**	**4:30 – 5:30** **Hands on Training/ Labs**	**Valedictory Session**

SPEAKERS

Shadab Hussain
Senior Associate
Math Co, Dallas, Texas, USA

Prof.Dr.Ushaa Eswaran
Principal
Mahalakshmi Tech Campus

Dr. M. Subramani
Assistant Professor
IIITDM, Kancheepuram

Durai Karthi Ganesh
Founder & CEO
KwantumG Research Labs Pvt. Ltd., Bengaluru

Mageswar Radhakrishnan
Associate Vice President
TNStartup, Chennai

Dr. Kapil Kumar Soni
Assistant Professor
NIT, Raipur

Prof. P Venkata Subba Reddy
Associate Professor
NIT, Warangal

Ms. P. Vanitha
Quantum Computing Researcher and Trainer
KwantumG Research Labs Pvt. Ltd., Bengaluru

Dr. S. Rajalakshmi
Assistant Professor
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Mr. T. Jaya Kumar
Quantum Researcher, Qiskit Programmer
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