



AARUPADAI VEEDU INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

SUMMARY REPORT

Event Title:

Foundations of Quantum Computing and Quantum Cryptography: A Beginner's Perspective

Occasion:

Quantum Day Celebration 2025

Organized under the National Quantum Mission of DST in collaboration with AICTE.

Date & Time:

18th April 2025, 02:00 PM

Venue:

Research Lab, AVIT

Aarupadai Veedu Institute of Technology, Chennai Campus

Vinayaka Mission's Research Foundation

Resource Person:

Mr. Simonthomas S

Assistant Professor

Department of Computer Science and Engineering, AVIT

Organised By:

Department of Computer Science and Engineering, AVIT

Overview:

The Department of Computer Science and Engineering at **Aarupadai Veedu Institute of Technology (AVIT), Chennai Campus**, under **Vinayaka Mission's Research Foundation**, organized a highly informative seminar titled **"Foundations of Quantum Computing and Quantum Cryptography: A Beginner's Perspective"** on **18th April 2025 at 2:00 PM**. This event was conducted in celebration of **Quantum Day 2025** as part of the **National Quantum Mission of the Department of Science and Technology (DST)**, in collaboration with **AICTE**. The seminar took place at the **Research Lab, AVIT**, and was aimed at building foundational



awareness among students and faculty about the emerging and transformative fields of **quantum computing and quantum cryptography**.

The session was delivered by **Mr. Simonthomas S**, Assistant Professor in the Department of Computer Science and Engineering at AVIT, who served as the **resource person** for the seminar. With a focus on accessibility for beginners, Mr. Simonthomas presented a comprehensive overview of the key principles and potential of quantum technologies. The seminar began with an introduction to the fundamental differences between classical and quantum computing. While classical computers use bits as the smallest unit of information (0 or 1), quantum computing uses **qubits**, which can exist in **superposition**, representing both 0 and 1 simultaneously. This property, along with **entanglement** and **quantum interference**, gives quantum computers the ability to perform complex computations much faster than traditional systems.

The session also covered the importance of **quantum cryptography**, particularly **Quantum Key Distribution (QKD)**, which offers theoretically unbreakable encryption by leveraging the laws of quantum mechanics. Concepts like the **BB84** and **B92** protocols were introduced in a simplified manner, allowing students from various academic backgrounds to grasp the foundational ideas. Mr. Simonthomas also provided real-world examples and future application areas of quantum computing in domains such as secure communication, optimization problems, artificial intelligence, and drug discovery.

Attendees gained insight into how quantum computing is expected to revolutionize industries by solving problems that are currently intractable for classical computers. The seminar also touched upon current research initiatives, international collaborations, and career opportunities in the quantum technology domain. Emphasis was placed on India's strategic move toward becoming a global leader in quantum technologies through initiatives like the **National Quantum Mission**, which aligns with the objectives of the seminar.

The event saw enthusiastic participation from students, researchers, and faculty members who appreciated the clarity and engagement of the speaker. The session concluded with an interactive Q&A round, where attendees posed questions on technical, theoretical, and career-oriented aspects of quantum technologies. Feedback from participants highlighted the session's



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effectiveness in demystifying complex topics and sparking interest in further exploration of quantum computing and cryptography.

Organized by the **Department of Computer Science and Engineering**, this seminar was a successful step toward fostering awareness and academic curiosity in one of the most futuristic and promising domains in computer science. It laid a strong foundation for future workshops and research initiatives in the field of quantum technologies within the institution.

Photos:

The poster is for a seminar titled "Foundations of Quantum Computing and Quantum Cryptography: A Beginner's Perspective". It is organized by the Department of Computer Science and Engineering at AVIT. The resource person is Mr. Simon Thomas S, Assistant Professor in the Department of CSE. The seminar is scheduled for 18th April 2025 at 02:00 PM in the Research Lab, AVIT. The poster features logos for AVIT, Vinayaka Mission's Research Foundation, NAAC, and AICTE. It also mentions the seminar is for Quantum Day Celebration 2025 under the National Quantum Mission of DST in collaboration with AICTE.

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AICTE
All India Council of Technical Education

Cordially invites you all to the
Seminar on
**"Foundations of Quantum Computing and Quantum Cryptography:
A Beginner's Perspective"**
for Quantum Day Celebration 2025 under the
National Quantum Mission of DST in collaboration with AICTE

Resource Person

Mr. Simon Thomas S
Assistant Professor
Department of CSE, AVIT

18th April 2025
02:00 PM
Research Lab, AVIT

Organised by
**Department of Computer Science
and Engineering**

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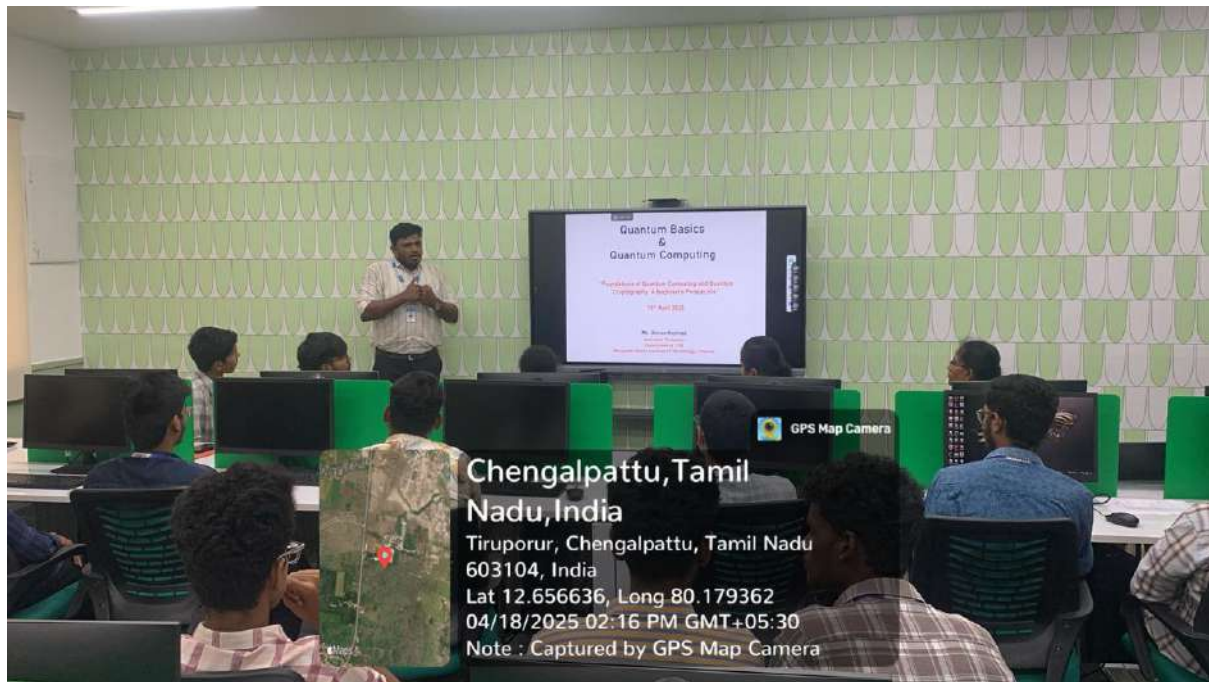
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VINAYAKA MISSION'S RESEARCH FOUNDATION
25th Anniversary



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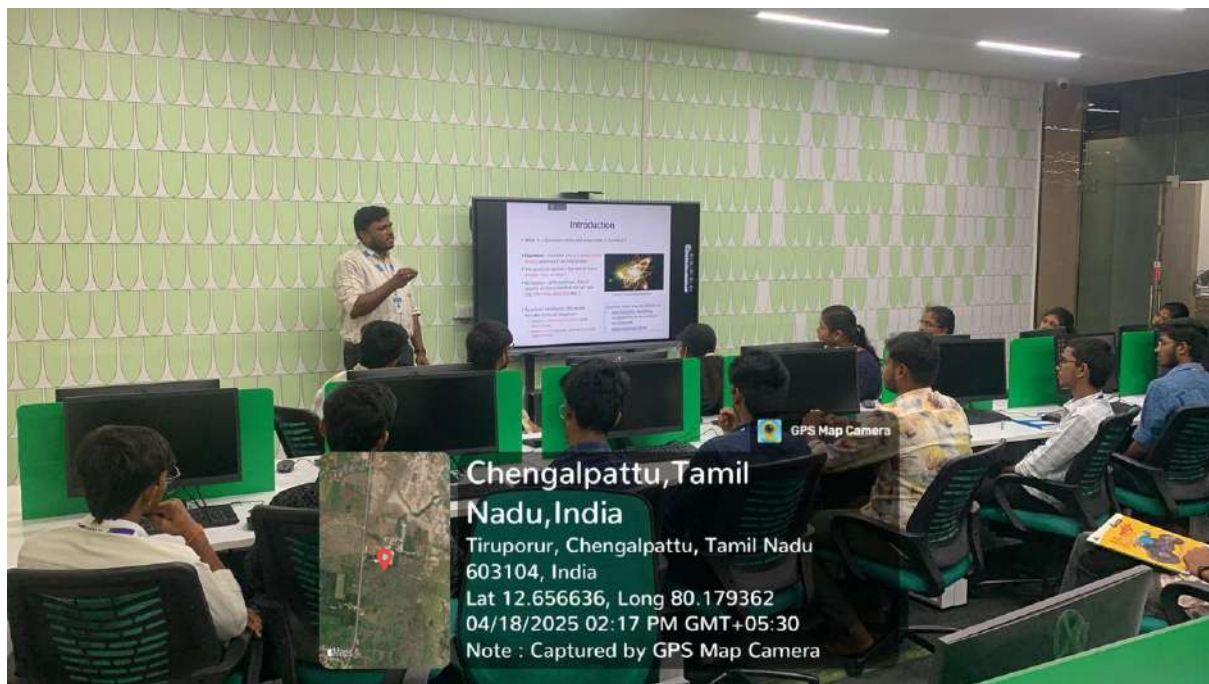
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