



Faculty Development Program



VIT[®]
Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

Event Outcome

Title : Quantum Machine Learning, Quantum Cryptography, and Qiskit Hands-on

Date : 2025-10-06 - 2025-10-10

Time : 10:00 - 17:30

Venue : PRP 117

- Explain the core principles of quantum computing and its impact on future technologies.
- Apply the concepts of Quantum Machine Learning to simple classification optimization and pattern recognition problems
- Understand and evaluate quantum cryptographic protocols, including Quantum Key Distribution (QKD) and their role in secure communications.
- Design and simulate quantum circuits using IBMs Qiskit framework.
- Implement basic quantum algorithms eg Deutsch Jozsa, Grovers search variational models in a hands on environment.

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|  | <p>Resource Person 1 - Details Name : Mr Karthiganesh Durai Designation : Founder and CEO, KwantumG Research Labs Pvt Ltd University/ Company : KwantumG Research Labs Pvt Ltd, Bengaluru Address : India, 560064.</p> |
|  | <p>Resource Person 2 - Details Name : Dr Mahima Mary Mathews Designation : Assistant Professor , IIIT Kottayam University/ Company : IIIT Kottayam , Valavoor Pala Kottayam Address : India, 686635.</p> |
|  | <p>Resource Person 3 - Details Name : Mr Moses Sam Paul Johnraj Designation : Head Quantum Finance Research Group, Quantum Finance Research Group University/ Company : Quantum Finance Research Group , Bengaluru Address : India, 632002.</p> |
|  | <p>Resource Person 4 - Details Name : Dr Harihara Gopalan Designation : Founder and CEO Zyphron Technologies, Zyphron Technologies University/ Company : Zyphron Technologies, Bangalore Address : India, 560037.</p> |
|  | <p>Resource Person 5 - Details Name : Mr Dhinakaran V Designation : Research Scientist, IBM Quantum AI Innovation University/ Company : IBM Quantum AI Innovation, Bangalore Address : India, 560071.</p> |
|  | <p>Resource Person 6 - Details Name : Balakrishnan S Designation : Associate Professor Grade 2, School of Advanced Sciences University/ Company : VIT, Vellore Address : India, 632014.</p> |
|  | <p>Resource Person 7 - Details Name : Dr J V Bibal Benifa Designation : Associate Dean, IIIT Kottayam University/ Company : IIIT Kottayam , Valavoor PO Pala Address : India, 686635.</p> |
|  | <p>Resource Person 8 - Details Name : Dr H ASWATH BABU Designation : Assistant Professor, HoD Department of Arts Science and Design University/ Company : IIIT Dharwad, Dharwad Address : India, 580030.</p> |

Resource Person's Profile :

1. Profile of Mr Karthiganesh Durai

Mr. Karthiganesh Durai an Entrepreneur ,Quantum Computing Architect ,Data Scientist, Software Architect, Power BI Consultant, Python Expert, Professor of Practice, Evergreen Student Bengaluru, Karnataka, India Has hands-on experience in QISKit and PennyLane for QML. Power BI, Python, MS-Project and SharePoint, Practicing Data Scientist with hands-on experience in Python, Teradata, Big Data, R, SharePoint and Excel VBA. Passionate Trainer on Data Science, Quantum Computing, Python, SharePoint an

2. Profile of Dr Mahima Mary Mathews

Dr Mahima Mary Mathews holds an MTech in Data Security and a PhD in Quantum-Safe Cryptography from IIIT Kottayam. She has 6 years of academic experience as Assistant Professor and 3 and half years in industry as SAP Techno-Functional Consultant at Accenture. Her expertise spans Quantum Safe and Quantum Cryptography, Applied Cryptography, Quantum Computing and Cryptanalysis, and Blockchain Since 2021 she has served as Research Coordinator and Consultant at CyberLabs IIIT Kottayam

3. Profile of Mr Moses Sam Paul Johnraj

Moses Sam Paul Johnraj Head Quantum Finance Research Group QuantumComputingIndia Founder Growth FlowEngineering Author, Internet of Value has 6 years of experience across diverse organizations and now serves as Managing Partner at Community Venture Studio. Author of The Internet of Value, he bridges technology, policy, and finance with wit. From Tirunelveli to PSG Tech to NUS (as a Li Ka Shing Scholar), he has worked with TCS-Microsoft, driven growth at Helpr, and studied gig econom

4. Profile of Dr Harihara Gopalan

Dr Haihara Goplan, CEO of Zyphron Technologies and Professor with 15 years of teaching experience, is a passionate academician, researcher, and cybersecurity strategist. With expertise in cybersecurity, wireless systems, secure software development, and emerging tech, he mentors students, drives research, and fosters industry collaboration. At Zyphron, he delivers VAPT, compliance, and security architecture solutions, bridging theory and practice to strengthen digital ecosystems.

5. Profile of Mr Dhinakaran V

Mr Dhinakaran Vinayagamurthy is a Research Scientist at IBM Research India and India Lead for IBM Quantum Ambassadors. He manages the IIT Madras IBM Quantum partnership, focusing on quantum error mitigation, cryptography, and security. His work spans blockchain interoperability, privacy-preserving ML, and encrypted databases. A PhD graduate from the University of Waterloo, he has published in top venues like NeurIPS, NDSS, and PETS, and holds patents in quantum and cryptography.

6. Profile of Balakrishnan S

Dr S Balakrishnan, Associate Professor of Physics at VIT University, Vellore, brings over 15 years of teaching experience and numerous research publications. He has been honored with the OSA Student Travel Grant in 2008 and the CSIR Senior Research Fellowship from 2010 to 2012, reflecting his research excellence and significant contributions to physics.

7. Profile of Dr J V Bibal Benifa

Dr JV Bibal Benifa is an Assistant Professor at IIIT Kottayam with a PhD in Information and Communication Engineering from Anna University in 2018 and M.E in Software Engineering 2011 and B.E in Computer Science in 2009. She has over 13 years of experience and established a private cloud infrastructure at Noorul Islam Centre for Higher Education and developed a Siddha-based prediction system for rheumatology. She has also delivered hands-on training sessions, including OpenNebula workshops.

8. Profile of Dr H ASWATH BABU

Dr Aswath Babu Physicist and Quantum Computing researcher has 17 years of academic and industry experience with expertise in QNLP, QML, and Quantum Internet simulations. He has received multiple international grants and fellowships, and actively contributes to quantum education in India through curriculum design, mentoring, and workshops. He currently leads a global project with NVIDIA and the University of Bonn, advancing scalable QNLP frameworks for under-resourced languages.

This FDP aims to provide faculty members with an in-depth understanding of emerging quantum technologies, focusing on their applications in machine learning, cryptography, and quantum programming. The programme will equip participants with both theoretical foundations and practical exposure through hands-on sessions using IBM's Qiskit framework. The program introduces fundamental concepts of quantum computing and its transformative role in emerging technologies and aims exploring the principles and applications of Quantum Machine Learning (QML) in solving complex computational problems. Also the event prepare faculty members to integrate quantum computing concepts into academic curricula and future research initiatives.

IBMs Qiskit

Coordinator's: Prof. JABANJALIN HILDA J 13298 - Assistant Professor Sr. Grade 1 - SCOPE
Prof. VINILA JINNY 18779 - Associate Professor Grade 2 - SCOPE