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INSTITUTION'S INNOVATION COUNCIL (Ministry of HRD Initiative)

ANRF SPONSORED

INTERNATIONAL WORKSHOP ON "QUANTUM MATHEMATICS AND IMAGING FOR SMART MANUFACTURING AND INDUSTRY 4.0" QMI-2025 (HYBRID MODE)

This workshop bridges Quantum Mathematics and Imaging with Smart Manufacturing and Industry 4.0, fostering interdisciplinary innovation and practical applications.

QMI-2025

Monday - Friday
15-19, December 2025

Time
09.00 AM - 04.00 PM

Vellore Institute of Technology
Chennai

Visit us at: https://qmi2025.onrender.com

QU BIT

ORGANIZED BY

Department of Mathematics
School of Advanced Sciences
VIT - Chennai, 600 127

VIT - A PLACE TO LEARN, A CHANCE TO GROW

ABOUT VIT

Vellore Institute of Technology (VIT) was founded in 1984 as Vellore Engineering College, a self-financing inistitution dedicated to providing quality higher education. In 2001, the Union Ministry of Human Resource Development conferred university status on the institution under Section 3 of the University Grants Commission (UGC) Act, 1956. VIT is led by its visionary founder and Chancellor, Dr. G. Viswanathan, a former Parliamentarian and Minister in the Government of Tamil Nadu. In recognition of his exceptional contributions to education, Dr. G. Viswanathan was awarded an honorary doctorate by West Virginia University (USA) in 2009 and the State University of New York (USA) in 2024 With a commitment to delivering world-class education on par with international standards, VIT continually adopts innovative approaches to teaching and research. Our Memeranda of Understanding with various international universities, being a major strength, enable meaningful collaborations via student and faculty exchanges and foster joint research projects. Many of our students, working in international organizations and universities, deliver high-quality solutions and conduct research that bring esteem to India and make us proud of our legacy. At VIT, the pursuit of excellence in education and research is complemented by a dynamic ecosystem of innovation, research and global engagement. As we advance steadily, we remain steadfast in our mission to mature leaders and innovators who can make a meaningful impact on the world.

ABOUT VIT CHENNAI

VIT Chennai was established in 2010 and has since become a beacon of excellence in higher education. Spearheaded by Vice-President Dr. G. V. Selvam, a pioneering visionary who laid the foundation of VIT Chennai, he is an insightful architect of its evergreen campus and an ingenious leader whose comprehensive vision and mission have shaped its growth. Under his guidance, VIT Chennai has rapidly evolved into a hub of innovation and academic distinction. The leadership team, including Vice-Chancellor Dr. V. S. Kanchana Bhaaskaran, Pro-Vice Chancellor Dr. T. Thyagarajan, Director Dr. K. Sathiyanarayanan and Additional Registrar Dr. P. K. Manoharan, drives its mission of delivering transformative education and impactful research. Strategically located in the capital city of Tamil Nadu, VIT Chennai is a globally engaged, competitive, and research-enriched institution.

VIT Chennai proactively addresses industrial, social, economic and environmental challenges, fostering application-based learning that produces industry-ready professionals. Known for its cosmopolitan atmosphere, VIT Chennai attracts students from across the globe, fostering a vibrant and multicultural community.

Committed to maximizing industrial connectivity and establishing Centers of Excellence in cutting-edge research areas, VIT Chennai enriches technological and managerial human capital through a collaborative and inclusive academic environment. It serves as a platform for intellectual exchange, encouraging the convergence of diverse ideas to drive innovation and learning. Dedicated to societal and industrial advancement, VIT Chennai leverages its resources to benefit the community, supports national knowledge-building initiatives and fosters international collaborations for mutual progress in research and education. With a clear vision and an unwavering mission, VIT Chennai continues to redefine the landscape of higher education in India and beyond.

ABOUT SAS

The School of Advanced Sciences (SAS) at Vellore Institute of Technology (VIT) Chennai, comprises Department of Mathematics, Physics and Chemistry. It offers the following programmes:
- Ph.D
- M.Sc Data Science, M.Sc Physics, M.Sc Chemistry

The school also offers a plethora of core and elective courses facilitating B.Tech, M.Tech, MCA, Integrated M.Tech, Management and Law programmes.

ABOUT QMI-2025

QMI-2025 is an international five-day workshop dedicated to advancing the integration of quantum mathematics and imaging technologies in the context of Smart Manufacturing and Industry 4.0. The title 'QMI' highlights the convergence of mathematical foundations, quantum-inspired techniques, and imaging innovations, fostering interdisciplinary collaboration across science, engineering, and industrial domains. Designed as a synergy of theory and practice, the workshop provides a platform to explore the transformative role of quantum mathematics and cutting-edge imaging in enabling intelligent, efficient, and sustainable manufacturing systems. Participants will gain in-depth insights into theoretical frameworks, computational tools, and industrial applications, while also engaging with emerging trends and future directions. QMI-2025 aspires to spark innovation, inspire cross-disciplinary research, and empower attendees to contribute to the evolving landscape of Industry 4.0 through the lens of quantum mathematics and imaging.

TOPICS TO BE COVERED

- Fundamentals of Image Processing and Machine Learning
- Introduction to Quantum Computing with Hands-on Training
- Quantum Algorithms and their Mathematical Foundations
- Quantum Image Processing and Representation
- Quantum Cryptography and Security for Industry 4.0

Keynote Speakers

Dr. Amit Kumar Chauhan
Senior Research Associate
QNu Labs Pvt. Ltd.,
Bengaluru

Dr. Aswath Babu H.
IBM Qiskit Advocate
Assistant Professor, IIIT Dharwad

Prof. P. Balasubramaniam
Senior Professor of Mathematics
Dean School of Sciences,
The Gandhigram Rural Institute-
Deemed to be University, Tamil Nadu

Ms. Janani A.
Quantum Engineer
IBM Research,
Bengaluru

Dr. T. Kalaiselvi
Associate professor
Department of Computer Science and
Applications, The Gandhigram Rural
Institute - Deemed University, Tamil Nadu

Mr. Karthiganesh Durai
Founder & CEO
KwantumG Research Labs Pvt. Ltd.,
Bengaluru

Dr. Keerthana Jaganathan
Lecturer
School of Computer Science,
Northumbria University
Newcastle, UK

Dr. Kunwar Singh
Associate Professor
Department of CSE,
NIT Trichy, Tamil Nadu

Dr. Mostafizur Rahaman
Quantum Research Scientist
IBM Quantum Research Lab,
Bengaluru

Dr. Pranab Dutta
CEO & Co-founder
GDQ Labs, Bengaluru

Prof. Raveendran Paramesran
Honorary Professor
Dept of Electrical Engineering,
Universiti Malaya, Kuala Lumpur, Malaysia

Mr. Sagar Dollin
Team Lead, Quantum Software
QpiAI India Pvt. Ltd., Bengaluru

Dr. D. Saraswathi
Associate Professor
School of Computer Science Engineering,
VIT Chennai, Tamil Nadu

Committee Members

CHIEF PATRON

Dr. G. Viswanathan
Founder & Chancellor, VIT

PATRONS

Mr. Sankar Viswanathan
Vice President, VIT
Dr. Sekar Viswanathan
Vice President, VIT
Dr. G.V. Selvam
Vice President, VIT

CO-PATRONS

Dr. V. S. Kanchana Bhaaskaran
Vice Chancellor, VIT
Dr. T. Thyagarajan
Pro-Vice Chancellor, VIT Chennai

CONVENOR

Dr. N. Ramesh Babu
Assistant Professor, VIT Chennai

CO-CONVENORS

Dr. S. Harshavarthini
Assistant Professor, VIT Chennai
Dr. N. Padmaja
Assistant Professor, VIT Chennai

ORGANIZING MEMBERS

Faculty Members
Department of Mathematics (SAS), VIT Chennai

ADVISORY COMMITTEE

Dr. G. Vinitha
Professor and Dean-SAS, VIT Chennai
Dr. A. Manivannan
Associate Professor and Head Department of Mathematics-SAS, VIT Chennai

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REGISTRATION

ELIGIBILITY CRITERIA

The workshop is open to postgraduate students, research scholars, faculties and industry professionals from central/state/private/international academic institutions/ colleges/ universities with an interest in quantum computing.

Event	Date
Opening Date for Registration	01/11/2025
Last Date for Early-Bird Registration	20/11/2025
Last Date for Late Registration	22/11/2025

Seats are limited
Register early to secure your spot!
Participation will be restricted to a selected number of participants.

Category	Fees details	
	Early-Bird Registration	Late Registration
UG/PG Students	Rs. 750	Rs. 1000
Research Scholar	Rs. 1000	Rs. 1500
Faculty/Industrial Delegates	Rs. 1500	Rs. 2000
International Delegates	$ 50	$ 65

*NOTE: Online mode is only applicable for international delegates.

To encourage active participation, a daily quiz will be conducted at the end of each day's sessions. Participants' scores will be consolidated, and on the final day, the top three performers will be recognized with prestigious awards:

🥇**First Prize – QMI Excellence Award**
🥈**Second Prize – QMI Distinction Award**
🥉**Third Prize – QMI Merit Award**

Winners will receive mementos and certificates of recognition during the valedictory session.

ACCOMMODATION

Accommodation shall be provided only to the outstation participants on prior request within the campus at nominal charges.

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