



Online Faculty Programme on Basic Quantum Programming

May 16- June 6, 2025

Twenty Days (Mon to Sat)

Time: 2 – 4 PM (Daily 2 Hours)



**Chairman, EICT Academy &
Director MNIT Jaipur**
Prof. Narayana Prasad Padhy

Chief Investigator, EICT Academy
Prof. Vineet Sahula, ECE

Coordinator, EICT Academy
Dr. Satyasai Jagannath Nanda, ECE

Co- Chief Investigators, EICT Academy
Prof. Lava Bhargava, ECE
Dr. Pilli Emmanuel Shubhakar, CSE
Dr. Ravi Kumar Maddila, ECE

Objective (Electronics & ICT Academy-Phase II)

1. To conduct specialized FDPs for faculty/mentor training in line with the vision of MeitY by promoting emerging areas of technology and other high-priority areas that are pillars of both the "Make in India" and the "Digital India" programs.
2. To promote synergy and collaboration with industry, academia, universities and other institutions of learning, especially in emerging technology areas.
3. To support the National Policy on Electronics 2019 (NPE 2019) which envisions positioning India as a global hub for ESDM sector, including MeitY Schemes/policies such as Programme for Semiconductors and Display Fab Ecosystem; India AI; National Programme on AI, Production Linked Incentive Scheme for IT Hardware & Large-Scale Electronics Manufacturing; EMC; SPECS; Chips to System (C2S); etc.
4. To promote standardization of FDPs through Joint Faculty Development Programmes.
5. To support the vision of the National Education Policy (NEP 2020), which mandates that Indian educators go through at least 50 hours in professional development programmes per year.
6. To design, develop & deliver specialized FDPs on emerging technologies/ niche areas / specialized modules for specific research areas for Faculty in Higher Education Institutions (HEI), besides FDPs on multi-disciplinary areas connected with ICT tools and technologies and other digital hybrid domains, covering a wide spectrum of Engg. and non-engineering colleges, polytechnics, ITIs, and PGT educators.

An intensive **20 Day - 40 Hours** Training Programme in Online Mode is being organized for faculty and doctoral students of engineering, science and technological institutions. It is also open to working professionals from industry / organizations. The programme will be run for **only two hours** in the afternoon **from 14:00 to 16:00 hours Daily (Mon to Sat)**.

Basic Quantum Programming (QT - 03) is the **third** in a series of Faculty Development programmes aligning to the courses in the recently approved **Minor Course Curriculum on Quantum Computing** by AICTE, DST and IBM. <https://facilities.aicte-india.org/Minor Quantum Technologies.pdf>

Experts / Speakers – IBM Partners:

Dr. L. Venkata Subramaniam, IBM Quantum India Leader
Dr. Jayakumar Vaithiyashankar, IBM Educator, CEO Anuthantra
Dr. Mostafizur Rahaman, Research Scientist, IBM Quantum

Programme Modules:

Basics of programming- Data structures, classes, Object-oriented programming; Data storage and retrieval, Memory allocation; Scientific plotting, documentation of codes. Simple algorithms and benchmarking run time- Sorting; Searching; Arithmetic algorithms like GCD, Prime factorization
Numerical Integration and Differential Equations- Linear 2nd Order ODEs with constant and variable coefficients; Boundary Value Problems (Poisson Equation, Laplace Equation, Wave Equation, Diffusion Equation) Numerical Techniques in Linear Algebra: Matrix Inverse, Eigenvalue Problem, Diagonalization of Matrices, Singular Value Decomposition
Numerical techniques in Probability & Statistics: Random Number Generation; Statistical Moments for Data Samples; Least Squares Fitting; Error Analysis; Hypothesis Testing; Monte Carlo Sampling
Applications to Quantum Mechanics: Eigen energies of coupled two-level systems, Jaynes-Cummings Model, Rabi Problem, Driven damped oscillator — coherent states () Applications to Electromagnetic Theory: Electrostatic Charge Distributions, Magnetostatic Current Distributions, Finite Element Techniques for Electromagnetic Simulations

Coordinators:

Dr. Emmanuel S. Pilli 954 965 8131 (M) 946 293 7359 (WA)	Dr. Vikash Kumar 844 286 2900 (M/WA)	Mr. M. Ramesh Babu 800 358 3228 fdp.academy@mnit.ac.in
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Contact for any query:

Registration:

Registration is open to faculty, working professionals, industry persons, doctoral, postgraduate and graduate students. Participants will be admitted on first-come first-served basis.

Register online at- <http://online.mnit.ac.in/eict/>



Certification Fee: Academic (Faculty / Students): ₹ 500/-

Industry Professionals / Others: ₹ 1500/-

(A) The fee covers online participation, material and certification charges.

(B) Webinar Classes will be on Cisco **WebEx**, Notes / Slides will be shared and Quizzes / Assignments will be conducted on **Canvas** e - Learning Platform, Communication will be through **WhatsApp** group.

Malaviya National Institute of Technology (MNIT) Jaipur one of the oldest NITs, the institute has a rich heritage of sixty years producing world class engineers, managers, architects and scientists. Ranked 43rd nationally in the NIRF ranking-2024 (Engineering), the institute offers learning opportunities for undergraduate, postgraduate students, and researchers in various domains. Having a lush green campus of over 317 acres within the heart of the pink city, close to Jaipur International Airport, the Institute offers a world class teaching infrastructure, state-of-art laboratories and a safe & lively environment.