SCHEDULE OF THE SESSIONS IN QT-05 (QUANTUM COMPUTATION)

JULY 11 to AUGUST 2, 2025 - DAILY 2:00 - 4:00 PM

S. No	Date	Hours	Time	Topic	Subject Matter Expert
1	July 11, 2025	0	2:00 - 2:30 PM	Inaugural Session - Introduction to Course and Subject Matter Experts	Dr. Pilli Emmanuel Shubhakar
2	July 11, 2025	2	2:30 - 4:30 PM	Qubits versus classical bits, Spin-half systems and photon polarizations	Dr. Aswath Babu H., IIIT Dharwad
3	July 12, 2025	2	2:00 - 4:00 PM	Trapped atoms and ions, Artificial atoms using circuits, Semiconducting quantum dots	Dr. Aswath Babu H., IIIT Dharwad
4	July 14, 2025	1	2:00 - 3:00 PM	Quantum advantage claims, Roadmap for future	Dr. Anindita Banerjee, Project Manager, CDAC Pune
5	July 14, 2025	1	3:00 - 4:00 PM	Single and Two qubit gates – Solovay - Kitaev Theorem	Dr. Aswath Babu H., IIIT Dharwad
6	July 15, 2025	2	2:00 - 4:00 PM	Quantum correlations, Entanglement and Bell's theorems	Dr. Ritajit Majumdar, Research Scientist, IBM Quantum
7	July 16, 2025	2	2:00 - 4:00 PM	Review of Turing machines and classical computational complexity, Time and space complexity (P, NP, PSPACE)	Mr. Jinesh VN, PES University Bangalore
8	July 17, 2025	2	2:00 - 4:00 PM	Reversible computation, Universal quantum logic gates and circuits	Mr. Anandha Raman, Scientific Officer – E, NISER, Bhubaneswar
9	July 18, 2025	2	2:00 - 4:00 PM	Quantum parallelism	Dr. Aswath Babu H., IIIT Dharwad
10	July 19, 2025	2	2:00 - 4:00 PM	Quantum algorithms: Deutsch algorithm	Dr. Aswath Babu H., IIIT Dharwad
11	July 21, 2025	2	2:00 - 4:00 PM	Deutsch Josza algorithm	Dr. Aswath Babu H., IIIT Dharwad
12	July 22, 2025	2	2:00 - 4:00 PM	Bernstein - Vazirani algorithm	Dr. Aswath Babu H., IIIT Dharwad
13	July 23, 2025	2	2:00 - 4:00 PM	Simon's algorithm	Dr. Jayakumar Vaithiyashankar, CEO Anuthantra
14	July 24, 2025	2	2:00 - 4:00 PM	Database search: Grover's algorithm	Dr. Ritajit Majumdar, Research Scientist, IBM Quantum
15	July 25, 2025	2	2:00 - 4:00 PM	Quantum Fourier Transform	Dr. Mostafizur Rahaman, Research Scientist, IBM Quantum
16	July 26, 2025	2	2:00 - 4:00 PM	Prime factorization : Shor's Algorithm.	Dr. Mostafizur Rahaman, Research Scientist, IBM Quantum
17	July 28, 2025	2	2:00 - 4:00 PM	Quantum complexity classes – Q, EQP, BQP, BPP, QMA	Dr. Jayakumar Vaithiyashankar, CEO Anuthantra
18	July 29, 2025	2	2:00 - 4:00 PM	Additional Quantum Algorithms: Variational Quantum Eigensolver (VQE)	Dr. Raghavendra, SRM University Bangalore
19	July 30, 2025	2	2:00 - 4:00 PM	Additional Quantum Algorithms: HHL, QAOA	Dr. Aswath Babu H., IIIT Dharwad
20	July 31, 2025	2	2:00 - 4:00 PM	Introduction to Error correction, Fault-tolerance, Simple error correcting codes	Dr. Aswath Babu H., IIIT Dharwad
21	August 1, 2025	2	2:00 - 4:00 PM	Survey of current status , NISQ era processors	Ms. Janani A, Support Engineer, IBM Quantum
22	August 2, 2025	2	2:00 - 4:00 PM	Quantum Computer Vision	Dr. Santosh Vipparthi, IIT Ropar
22	August 2, 2025	0	4:00 - 4:30 PM	Valedictory Session	Dr. Pilli Emmanuel Shubhakar
23	**20 days**	**40**	**40 Hours**		