



Hybrid
FACULTY DEVELOPMENT PROGRAMME (FDP)

on
Quantum Computing: From Fundamental Concepts to Emerging Opportunities

(15th – 20th June 2026)

Organized By

E & ICT Academy & Department of Electronics & Communication Engineering, NIT Warangal

In Association With

Department of Electronics & Communication Engineering, Aditya University.

(Sponsored by the Ministry of Electronics and Information Technology (MeitY), GOI)



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FDP Week Tentative Schedule

Date/Day	Forenoon Session		LUNCH BREAK	Afternoon Session	
	9:00 – 11:00	11: 10 – 1:10		2: 00 - 4: 00	4: 10 – 5:40
15.06.2026 Monday (Offline)	8:30 - 9:00 Inaugural Function	S2: Mathematics for Quantum computing: Probability, Vector spaces, Inner product, Hilbert space, Tensor product, Dirac notations (AnB)	BREAK (11:00 – 11:10)	S3: Qubits vs Classical Bits, Quantum Bits (Qubits): Physical Realizations, State Representation & Bloch Sphere (VS)	S4: Quantum Gates: Single and two qubit gates, Reversible computation, Universal quantum logic gates and circuits, Design (AnB)
	S1: Introduction to Quantum Computing: History, Motivation & Global Landscape (AnB)				
16.06.2026 Tuesday (Offline)	S5: Quantum Image Processing (QIP): Foundational Mechanics & QIP State Preparation, Quantum Geometric Transformations & Spectral Domain, QFT & QWT (USNR)	S6: Parallel Edge Detection & Filtering Protocols, Quantum Feature Extraction (USNR)		S7: Classical computational Complexity, Time and space complexity (P, NP, PSPACE), Quantum Correlations: Entanglement and Bell's theorems (VS)	S8: Quantum Gates: Design, Simulation & Visualization – Hands-on Lab Session (VS)

Date/Day	Forenoon Session		LUNCH BREAK	Afternoon Session		Evening Session	
	9.30 – 11: 00	11: 15 – 12: 45		01: 30-3: 00	3: 15 – 4: 45		5:00 – 6:00
17.06.2026 Wednesday (Online)	S9: A qualitative overview of salient aspects of quantum physics (SN)	S10: Information Theory Fundamentals, Shannon Entropy, Quantum Information Metrics (SiD)	BREAK (11:00 – 11:15)	S11: Quantum Communication: Teleportation, Superdense Coding & Entanglement Distribution (AB)	S12: Quantum Key Distributions (BR)	BREAK (4:45-5:00)	S13: Quantum Key Distributions – Hands On (BR)
18.06.2026 Thursday (Online)	S14: Quantum Oracles: Deutsch-Jozsa, Bernstein-Vazirani Algorithm (KKS)	S15: Simon's Algorithms – Comparative Analysis of Oracles (KKS)		S16: Quantum Parallelism: Grover's Search Algorithm & Amplitude Amplification, Shor's Factoring Algorithm, Quantum Fourier Transform Simulation & Visualization (JV)	S17: Quantum Programming with Qiskit / Cirq – Hands-on Lab Session (JV)		
19.06.2026 Friday (Online)	S18: Foundation of Optical Physics, Polarization Optics, Spin-half systems and photon polarizations, Trapped atoms and ions (AB)	S19: No Cloning Theorem & Eaves drop Detection (RP)		S20: Simple Error Correcting Codes & Fault Tolerance (RM)	S21: Research Applications on Quantum Computing (AS)		
20.06.2026 Saturday (Online)	S22: Quantum Repeaters / Routing Protocols, Security Challenges in Long-Distance Quantum Communication (AB)	S23: Band structure Calculation (SuD)		S24: Devices for photonic quantum computing and communications (SuD)	S25: Nearest Neighbor Design of Quantum Circuits (AnB)		Quiz & Valedictory



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Detailed Schedule

	8:30 - 9:00	15.06.2026	Inaugural Function	----	Dignitaries	NITW & Aditya University
S1	9.30 – 11: 00	15.06.2026	S1: Introduction to Quantum Computing: History, Motivation & Global Landscape	AnB	Dr. Anirban Bhattacharjee	NIT Surat
S2	11: 05 –12: 35	15.06.2026	S2: Mathematics for Quantum computing: Probability, Vector spaces, Inner product, Hilbert space, Tensor product, Dirac notations	AnB	Dr. Anirban Bhattacharjee	NIT Surat
S3	01: 40 –03: 10	15.06.2026	S3: Qubits vs Classical Bits, Quantum Bits (Qubits): Physical Realizations, State Representation & Bloch Sphere	VS	Dr. Varsha Sambhaje	SRM University
S4	03: 15 –04: 45	15.06.2026	S4: Quantum Gates: Single and two qubit gates, Reversible computation, Universal quantum logic gates and circuits, Design	AnB	Dr. Anirban Bhattacharjee	NIT Surat
S5	9.30 – 11: 00	16.06.2026	S5: Quantum Image Processing (QIP): Foundational Mechanics & QIP State Preparation, Quantum Geometric Transformations & Spectral Domain, QFT & QWT	USNR	Dr. USN Raju	NIT Warangal
S6	11: 05 –12: 35	16.06.2026	S6: Parallel Edge Detection & Filtering Protocols, Quantum Feature Extraction	USNR	Dr. USN Raju	NIT Warangal
S7	01: 40 –03: 10	16.06.2026	S7: Classical computational Complexity, Time and space complexity (P, NP, PSPACE), Quantum Correlations: Entanglement and Bell's theorems	VS	Dr. Varsha Sambhaje	SRM University
S8	03: 15 –04: 45	16.06.2026	S8: Quantum Gates: Design, Simulation & Visualization – Hands-on Lab Session	VS	Dr. Varsha Sambhaje	SRM University
S9	9.30 – 11: 00	17.06.2026	S9: A qualitative overview of salient aspects of quantum physics	SN	Dr. Sanjib Naik	NIT Warangal
S10	11: 05 –12: 35	17.06.2026	S10: Information Theory Fundamentals, Shannon Entropy, Quantum Information Metrics	SiD	Dr. Siddharth Das	IIIT Hyderabad
S11	01: 40 –03: 10	17.06.2026	S11: Quantum Communication: Teleportation, Superdense Coding & Entanglement Distribution (AB)	AB	Dr. Ashwath Babu	IIIT Dharwad
S12	03: 15 –04: 45	17.06.2026	S12: Quantum Key Distributions	BR	Dr. Bhawana Rudra	NIT Suratkal
S13	05.00 – 06: 00	17.06.2026	S13: Quantum Key Distributions – Hands on	BR	Dr. Bhawana Rudra	NIT Suratkal
S14	9.30 – 11: 00	18.06.2026	S14: Quantum Oracles: Deutsch-Jozsa, Bernstein-Vazirani Algorithm	KKS	Dr. Kapil Kumar Soni	NIT Raipur
S15	11: 05 –12: 35	18.06.2026	S15: Simon's Algorithms – Comparative Analysis of Oracles	KKS	Dr. Kapil Kumar Soni	NIT Raipur



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S16	01: 40 –03: 10	18.06.2026	S16: Quantum Parallelism: Grover's Search Algorithm & Amplitude Amplification, Shor's Factoring Algorithm, Quantum Fourier Transform Simulation & Visualization	JV	Dr. Jayakumar Vaithiyashankar	The founder and CEO of Anuthantra Pvt. Ltd. IBM Quantum Educator and an IBM Qiskit Advocate Mentor
S17	03: 15 –04: 45	18.06.2026	S17: Quantum Programming with Qiskit / Cirq – Hands-on Lab Session	JV	Dr. Jayakumar Vaithiyashankar	The founder and CEO of Anuthantra Pvt. Ltd. IBM Quantum Educator and an IBM Qiskit Advocate Mentor
S18	9.30 – 11: 00	19.06.2026	S18: Foundation of Optical Physics, Polarization Optics, Spin-half systems and photon polarizations, Trapped atoms and ions	AB	Dr. Ashwath Babu	IIIT Dharwad
S19	11: 05 –12: 35	19.06.2026	S19: No Cloning Theorem & Eaves drop Detection	RP	Dr. R. Prabhu	IIT Dharwad
S20	01: 40 –03: 10	19.06.2026	S20: Simple Error Correcting Codes & Fault Tolerance	RM	Dr. Ritajit Mazumder	Research Scientist, IBM Quantum, India Research Lab
S21	03: 15 –04: 45	19.06.2026	S21: Research Applications in Quantum Computing	AS	Dr. Anuradha S	NIT Warangal
S22	9.30 – 11: 00	20.06.2026	S22: Quantum Repeaters / Routing Protocols, Security Challenges in Long-Distance Quantum Communication	AB	Dr. Ashwath Babu	IIIT Dharwad
S23	11: 05 –12: 35	20.06.2026	S23: Band structure Calculation	SuD	Dr. Suryansh Dongre	NIT AP
S24	01: 40 –03: 10	20.06.2026	S24: Devices for photonic quantum computing and communications	SuD	Dr. Suryansh Dongre	NIT AP
S25	03: 15 –04: 45	20.06.2026	S25: Nearest Neighbour Design of Quantum Circuits Quiz & Valedictory	AnB	Dr. Anirban Bhattacharjee	NIT Surat
S26	05.00 – 06: 00	20.06.2026	Quiz & Valedictory	--	Dignitaries	NITW & Aditya University
