



1 NOV – 30 NOV 2026

ONLINE COURSE · FOR ONE AND ALL

Quantum Computing

A beginner-friendly online course that takes you from the basics of qubits to building and running your own quantum circuits with Qiskit.

13 Video Sessions

Hands-on with Qiskit

Basic Level

24×7 · Learn at Your Own Pace

ABOUT THE COURSE

Quantum computing uses the principles of quantum mechanics to process information in ways that classical computers cannot. This course builds the foundation step by step: the essential mathematics, how qubits work, superposition and entanglement, quantum gates and circuits, and the challenges of real quantum hardware. It ends with a hands-on session in which you write and run quantum circuits using Qiskit.

13

Video sessions

24×7

Access, self-paced

Online

Learn from anywhere

1 – 30 Nov

Course window, 2026

WHAT YOU WILL LEARN

- The core ideas behind quantum computing and how it differs from classical computing
- The mathematics you need: vectors, matrices and probability
- Qubits, superposition, entanglement and interference
- Quantum gates, measurement and the circuit model
- Errors in quantum systems and today's quantum hardware
- Building and running circuits hands-on with Qiskit

WHO CAN JOIN

The course is open to one and all. No prior background in quantum physics is required.

School & college students

Computer science teachers

Engineers & IT professionals

Researchers

Technology enthusiasts

COURSE FORMAT

- Pre-recorded video sessions, available 24×7
- Learn at your own pace within the course window

COURSE FEE

₹1500/-

50% CONCESSION

₹750/-

Concession valid for the first 25 registrations only

For queries, contact Dr. Ojas Garg, Co-Director

99962 30859



SCAN TO REGISTER

programsandevents.aacst.org

COURSE CURRICULUM

13 Sessions

1 Introduction to Quantum Computing
What quantum computing is, how it differs from classical computing, and why it matters.

2 Essential Mathematics
Complex numbers, vectors, matrices and Dirac notation used throughout the course.

3 Qubits & Information Representation
How a qubit stores information; basis states and the Bloch sphere.

4 Superposition, Entanglement & Interference
The three quantum effects that give quantum computers their power.

5 Multi-qubit Systems & Tensor Products
Describing several qubits together and combining their state spaces.

6 Quantum States, Measurement & Probability
How measurement works and why quantum outcomes are probabilistic.

7 Quantum Gates & Unitary Matrices
Gates as unitary operations: Pauli, Hadamard, phase and rotation gates.

8 Basic Gate Operations
Applying single- and two-qubit gates, such as CNOT, step by step.

9 Quantum Circuits & the Circuit Model
Reading, drawing and composing quantum circuits.

10 Phase Kickback & Quantum Oracles
Key building blocks behind quantum algorithms.

11 Errors in Quantum Computing
Noise, decoherence and an introduction to error correction.

12 Quantum Simulation & Hardware
Quantum simulators and the physical technologies used to build qubits today.

13 Hands-on: Quantum Circuits with Qiskit
Build and run your own quantum circuits using Qiskit.

HOW IT WORKS

1 · Register

Scan the QR code or click the registration link on page 1.

2 · Learn

Watch the 13 video sessions anytime between 1 and 30 November 2026.

3 · Practise

Apply what you learn by building circuits in Qiskit.

COURSE TEAM

RESOURCE PERSON

Mr. S. Kathiresan

DRDO Scientist (Retd.)
Life Member, AACST

DIRECTOR

Dr. Abha Khandelwal

AACST Learning Hub
Founder, AACST

CONTACT

Dr. Ojas Garg

Co-Director, AACST Learning Hub

99962 30859**Register now: limited seats at the concession fee**

Registration QR code and link are on page 1. For queries, contact Dr. Ojas Garg, Co-Director:

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Association of All Computer Science Teachers · AACST Learning Hub

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