Training Course on Quantum Computing in Education: A Primer for Leaders

Professional Development Training Course Outline

Category	Educational Leadership and Management	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

As the world advances into the quantum era, educational institutions must stay ahead of the curve. Quantum computing in education is not just a trend; it’s a necessity for equipping learners with next-generation skills. Training Course on Quantum Computing in Education introduces education leaders to the fundamentals of quantum computing, exploring its transformational potential in STEM education, curriculum design, pedagogy, and institutional innovation. With quantum technologies rapidly evolving, there is a growing demand for strategic leadership that bridges the gap between classical education and quantum futures.

This training provides school administrators, policy makers, and educational influencers with practical tools, strategic insights, and emerging trends to implement quantum computing concepts effectively. Participants will explore quantum information science, quantum logic gates, quantum machine learning, and their applications in education. By the end of this course, leaders will be well-equipped to make informed decisions on curriculum alignment, talent development, resource integration, and institution-wide innovation.

Programme Curriculum

Training Course on Quantum Computing in Education

Introduction

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Course Objectives

1. Define quantum computing and its implications for the education sector.
2. Understand key concepts such as qubits, superposition, entanglement, and quantum algorithms.
3. Explore the intersection of quantum computing and AI in educational contexts.
4. Identify emerging careers related to quantum technology.
5. Evaluate quantum curricula integration strategies for K-12 and higher education.
6. Analyze the impact of quantum cloud platforms in classrooms.
7. Apply quantum thinking models for problem-solving and innovation.
8. Examine ethical considerations in quantum data privacy and information security.
9. Explore partnership models with quantum research institutions and EdTech companies.
10. Lead faculty development initiatives in quantum literacy.
11. Design quantum-inclusive STEM education pathways.
12. Align institutional goals with national quantum workforce development agendas.
13. Develop strategic implementation roadmaps for long-term adoption.

Target Audiences

1. K-12 School Principals and Superintendents
2. Higher Education Deans and Provosts
3. Curriculum Developers and Instructional Designers
4. Education Policy Makers
5. EdTech Entrepreneurs and Innovators
6. Professional Development Coordinators
7. Government Education Planners
8. Corporate Learning Leaders

Course Duration: 5 days

Course Modules

Module 1: Introduction to Quantum Computing

- History and evolution of quantum technology
- Key concepts: qubits, superposition, entanglement
- Differences between classical and quantum computing
- Introduction to quantum logic gates
- Quantum vocabulary and literacy for educators
- **Case Study:** IBM Q Experience integration in a high school STEM lab

Module 2: Quantum Information and Algorithms

- Understanding quantum bits and quantum states
- Quantum algorithms: Grover’s and Shor’s
- Cryptography and quantum resilience
- Quantum parallelism and processing power
- Use of simulators in classroom teaching
- **Case Study:** Google’s Quantum Supremacy experiment explained in AP physics

Module 3: Quantum Computing and Artificial Intelligence

- Synergy of quantum computing and machine learning
- AI-driven quantum education tools
- Optimizing learning models with quantum AI
- Quantum NLP in adaptive education
- Real-world AI-quantum crossover applications
- **Case Study:** D-Wave's quantum machine learning used in personalized learning platforms

Module 4: Quantum Curriculum Development

- Designing K-12 and higher ed quantum modules
- Age-appropriate quantum learning models
- Integrating quantum into STEM pathways
- Developing quantum teacher guides
- Open-source and proprietary curriculum tools
- **Case Study:** MIT's Quantum Curriculum for first-year college students

Module 5: Quantum Infrastructure and Classroom Tech

- Quantum cloud platforms (IBM Q, Microsoft Azure Quantum)
- Hardware vs. simulator access in education
- Infrastructure requirements for deployment
- Choosing EdTech partners for quantum platforms
- Budgeting and grants for quantum initiatives
- **Case Study:** Quantum Computing Club at a California charter school

Module 6: Strategic Leadership for Quantum Readiness

- Vision-setting for quantum integration
- Stakeholder buy-in and advocacy strategies
- Policy frameworks for educational innovation
- Leading quantum literacy across faculty
- Funding and sustainability models
- **Case Study:** State-level quantum policy implemented in New York public schools

Module 7: Ethics, Equity, and Inclusion in Quantum Education

- Quantum data privacy and surveillance concerns
- Addressing the digital divide in quantum access
- Inclusive learning materials and representation
- Ethical responsibility of educational institutions
- Promoting equity in next-gen tech education
- **Case Study:** Community college program bridging minority students into quantum careers

Module 8: Building Industry and Academic Partnerships

- Collaborations with quantum research labs
- Internship and fellowship pathways
- Government incentives and public-private alliances
- Industry-led certifications and microcredentials
- International collaboration on quantum curricula
- **Case Study:** Partnership between Rigetti Computing and public universities

Training Methodology

- Interactive virtual or in-person sessions

- Expert-led lectures with real-world examples
- Group discussions and breakout think-tanks
- Hands-on exploration of simulators and cloud platforms
- Peer-reviewed capstone projects with action plans
- Access to exclusive research papers and toolkits

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training CenterANCY LD account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
21 Sep 2026	25 Sep 2026	Online	$1,000
21 Sep 2026	25 Sep 2026	Physical	$1,500
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0

Start Date	End Date	Location	Price
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0

Ready to enroll or request a customized program? Book online or contact us:

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