

QUANTUM COMMUNICATIONS & NETWORKING

Certified Quantum Network Engineer

CQNE TRAINING

Assess quantum networking, quantum key distribution and their integration with classical communications.

ON DEMAND

~40 hours

Self-paced

LIVE TRAINING

24 hours

Across four days

LEVEL

Foundational

Certification preparation

Evaluate quantum networking in practice.

WHAT YOU WILL LEARN

- ✓ Explain QKD protocols, their assumptions and their security properties.
- ✓ Evaluate network architectures and quantum networking hardware.
- ✓ Analyze implementation vulnerabilities and side-channel risks.
- ✓ Design integration approaches and assess deployment and vendor maturity.

WHO SHOULD ATTEND

Network and security engineers, telecom professionals, government and defense specialists, and technical evaluators of quantum networking.

PREREQUISITES

None. The course builds from fundamentals; no quantum physics background is required.

Preparation for the CQNE certification

Completing training does not confer the credential. You must pass the separate exam.

What you will study

Seven modules connecting core concepts with applied professional decisions.

01 Quantum Networking Fundamentals

Examine photons, entanglement and the no-cloning principle. Distinguish quantum key distribution from entanglement networking and place both alongside PQC.

02 QKD Protocols

Compare BB84, decoy-state, measurement-device-independent, twin-field and continuous-variable approaches. Assess key rates, distance, security assumptions and hardware requirements.

03 Quantum Network Architectures

Evaluate point-to-point, trusted-node, entanglement-based and satellite approaches. Compare trust assumptions, distance limitations and technology readiness.

04 Hardware Evaluation

Assess photon sources, detectors, random-number generators and optical components. Compare system-level key rates, distance, operational requirements and cost.

05 Security Analysis

Examine the gap between theoretical proofs and implementation security. Assess photon-number splitting, detector blinding, Trojan-horse attacks and countermeasures.

06 Classical-Quantum Integration

Integrate quantum-derived keys with classical encryption. Address key lifecycle, link monitoring, failures, operational maintenance and existing security architecture.

07 Where QKD Is Actually Deployed

Review operational deployments, government programs, vendors and standards activity. Evaluate which capabilities are mature and which remain developmental.

Applied learning

The course draws on Quantum Systems Integration by Marin Ivezic and practical faculty experience with quantum engineering. It connects physical principles to operational evaluation.

Plan your participation

Training formats and fees

Online on-demand	US\$1,999
Live online	US\$2,499
In person	US\$2,999
Private team training	Custom quote

Live online and in-person delivery: four days, six hours of instruction per day. On-demand delivery: approximately 40 hours at your own pace.

Includes a certificate of completion. This is not a professional certification.

Included with training

- Course handbook with the full material and written instructor notes.
- PDF copy of Quantum Systems Integration by Marin Ivezić, included at no extra cost.
- 180 days of online on-demand access. Where that course is not yet published, the 180 days start on the day it is.

Training and exam options

On-demand + exam	US\$2,399
In-person + exam	US\$3,399
Exam only	US\$599

Quantum Networking Path: US\$4,499 online
CQNE + CQNA training and both exams. CQNE must be active before CQNA training.

The CQNE exam

100 questions: 90 scored + 10 unscored pilot items.

150 minutes; closed book; proctored.

Multiple-choice and scenario questions.

Passing score: 700 on a 100-900 scale.

Plan 20-40 hours of independent study in addition to the course.

After certification

An active CQNE credential is the prerequisite for CQNA Network Architect Training. Quantum Networking and QKD Essentials offers a shorter companion course.

Three-year validity. US\$149 annual maintenance covers all active Quantum Academy credentials. See the [credential page](#) for renewal and exam terms.

Explore dates and enrollment

View the CQNE program at QuantumAcademy.com



On-demand enrollment opens soon. Check the course page for live dates and availability.

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