What's New in the Network eAcademy?

Quantum Tech & OTFN

Susanne Naegele-Jackson, FAU

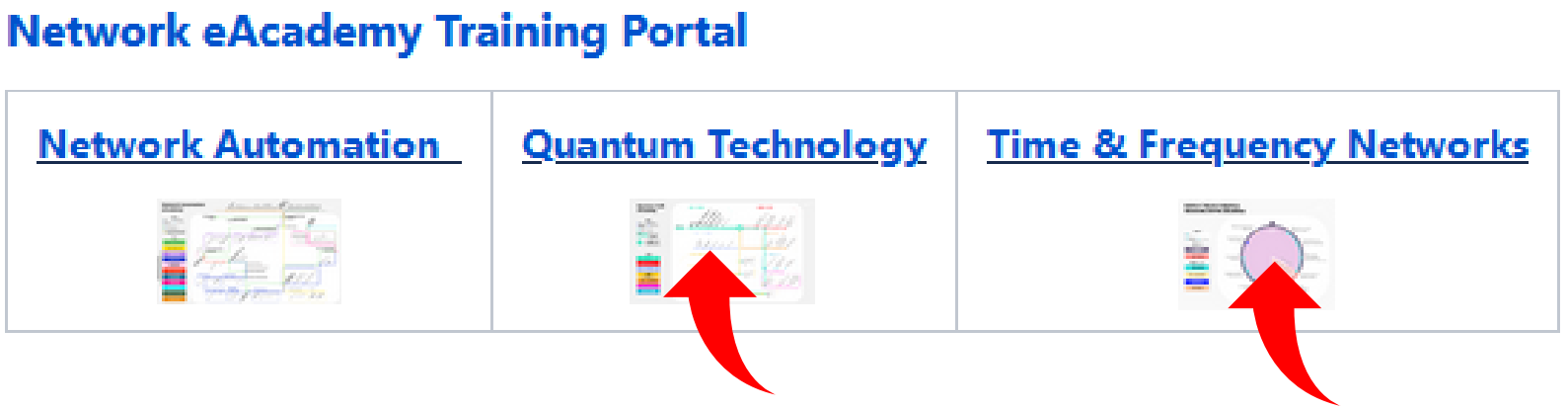
Task Leader WP6-T1 in GÉANT GN5-1

Infoshare https://events.geant.org/event/1763/

Dec. 17, 2024

Latest Additions to Network eAcademy

- The Network eAcademy Training Portal now covers
  - new research areas of **Quantum Technology**
  - and **Time and Frequency Networks**
  - Access through Network eAcademy:



- Access via **https://wiki.geant.org/display/NETDEV/Network+eAcademy**

Access in Network eAcademy Training Portal

Pages / NETDEV Home / Network eAcademy

Network eAcademy Training Portal

Created by Susanne Nägele-Jackson, last modified on Dec 09, 2024


Network Training

This Training Portal is offering courses focused on the research and education community, with external references that can be useful for us and examples that can be closer to our use cases. It is training by the community for the community. We will be publishing new classes regularly; all classes are online courses that you can follow and complete at your own pace.

Network Automation


Take network automation classes to learn about orchestration, automation and virtualisation of networks. Get started with network architecture, data modeling, data formats and protocols and CI/CD and then move on towards intelligent networks using data analytics and AI.

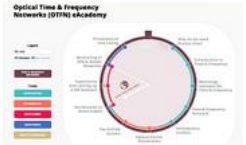
Learn more about Network Automation....

Quantum Technology


Follow our Quantum technology track to learn about basics such as QuBits, Qubit Entanglement and Teleportation. Find out about Quantum Key Distribution and quantum simulation. Or learn the latest on standards and APIs.

Learn more about Quantum Technology....

Time and Frequency Networks

Follow our track for Time and Frequency Networks to learn about the basic metrology concepts of time and frequency, or find out about working with White Rabbit in networks. Other learning units will offer an insight into Optical Carrier Distribution, or the ELSTAB system, which is which is used for Time and Frequency dissemination via optical fibers.

Learn more about Time and Frequency Networks....

Back to top

Info | Infosharing ++ Events

- **all upcoming and past events**
- **New in Network Automation: Process Flow Orchestration, Hypervisor-based Virtualisation: KVM, Nagios**

Meet us on the first Tuesday of every month
One hour for questions & answers
Just drop us an email at

network-eacademy@lists.geant.org

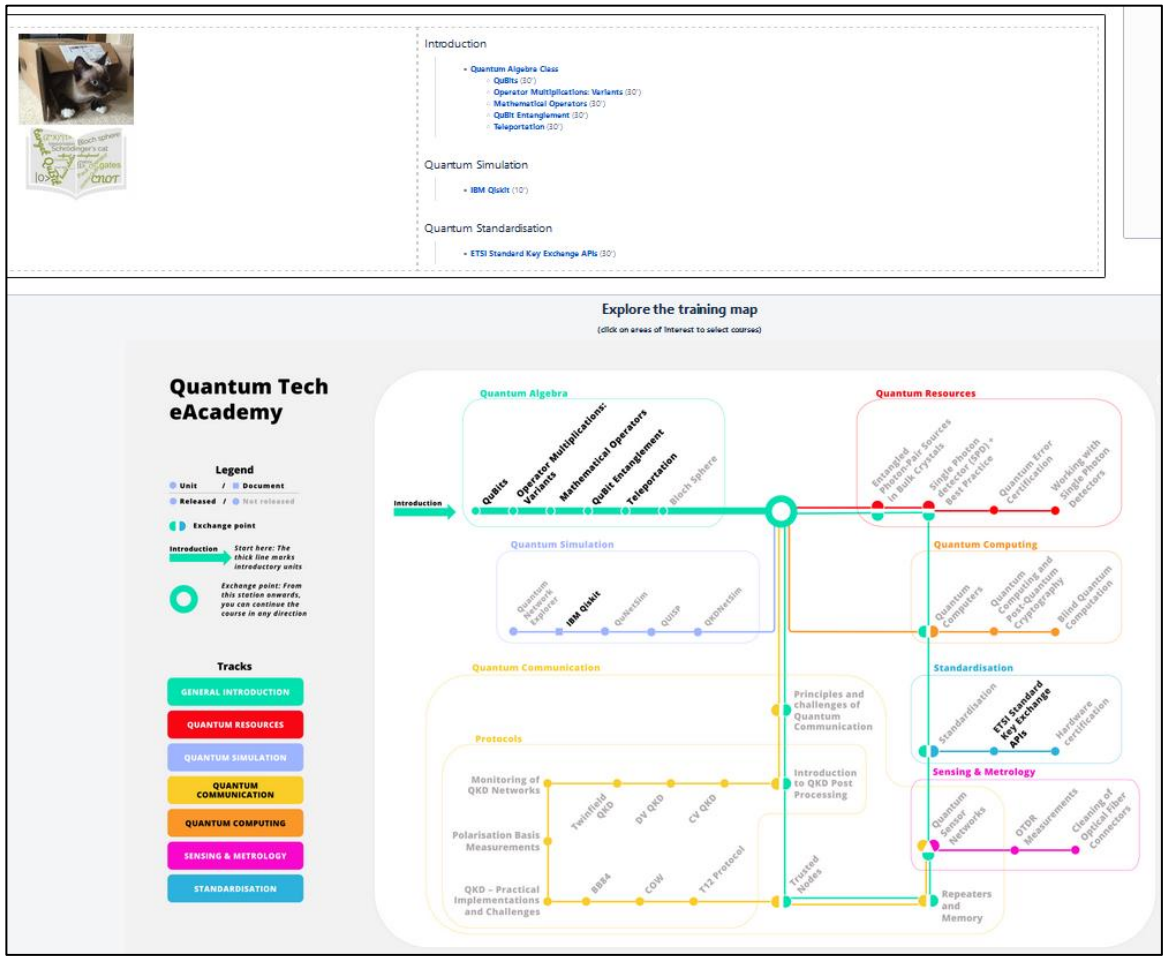
and we will send you the link.

Watch our video:

Towards Service Automation for Research and Education

Quantum Technology Training (I)

- https://wiki.geant.org/display/NETDEV/Quantum+Technology+Training



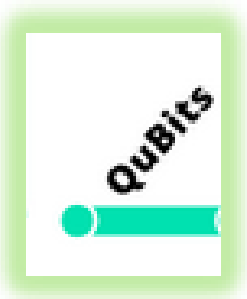
Area for text links

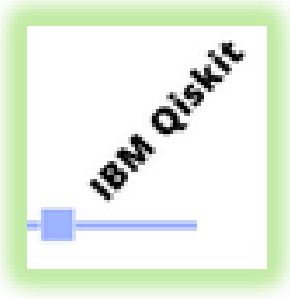
Area for text metro map links

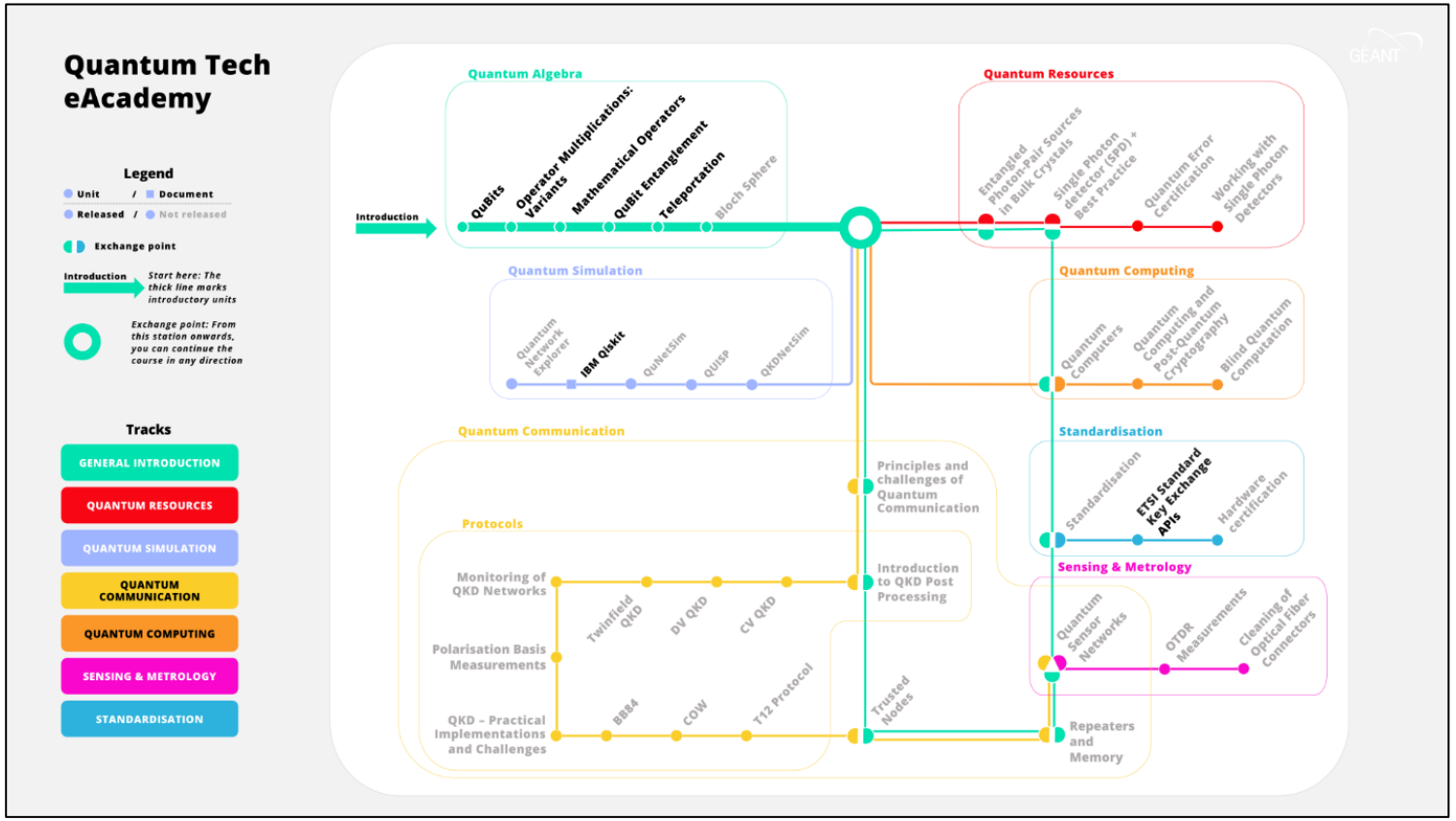
Quantum Technology Training (II)

- https://wiki.geant.org/display/NETDEV/Quantum+Technology+Training

- **Metro map**
  - Dark titles are clickable units
  - Light grey titles are units soon to come
  - Circles take you to a Moodle LU (Learning Unit)
  - Squares take you to documents

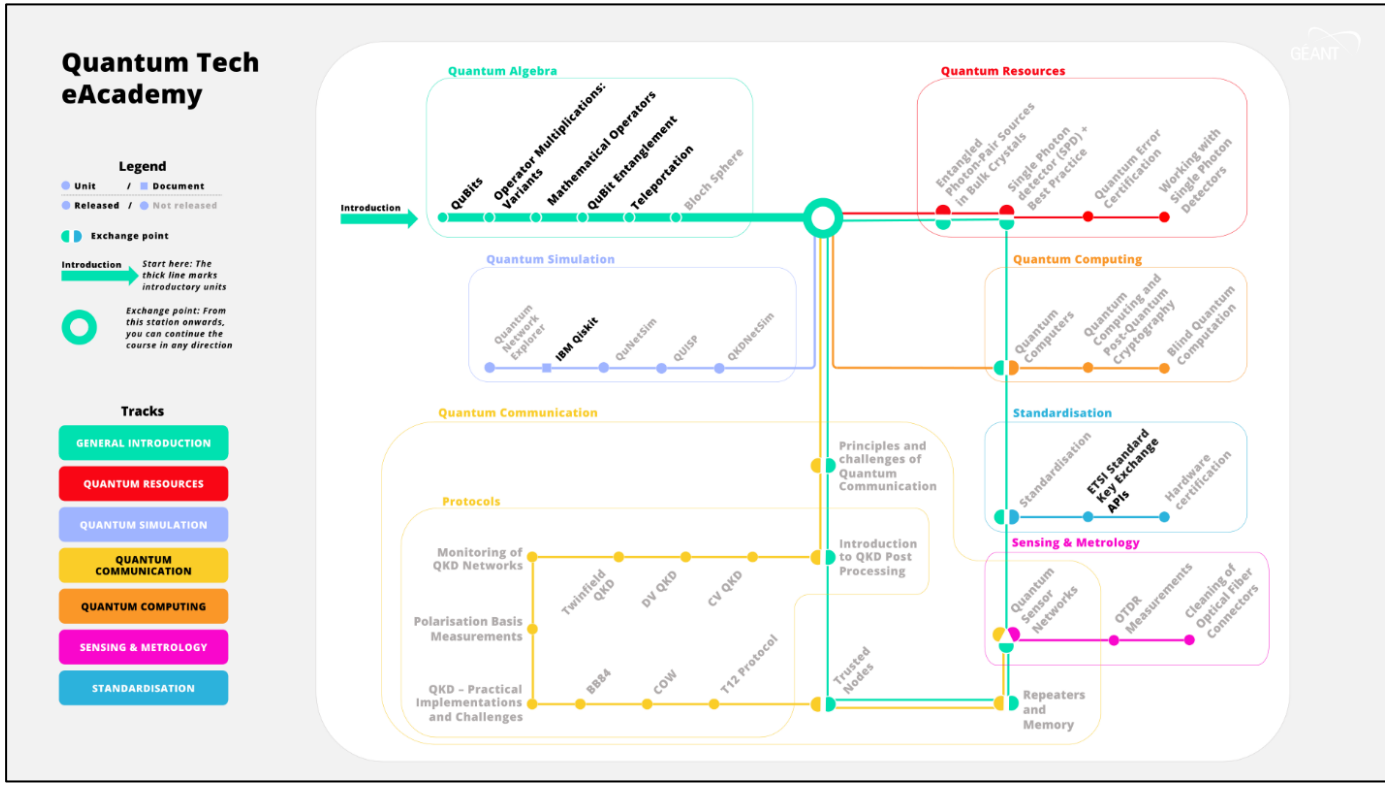






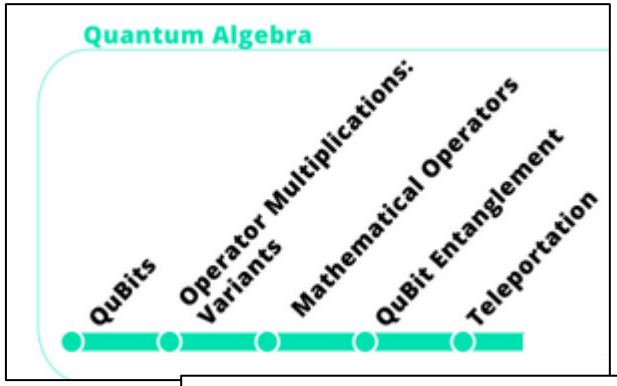
Quantum Technology Training (II)

- https://wiki.geant.org/display/NETDEV/Quantum+Technology+Training
- **Quantum Tech Metro map**
  - Green line for Introduction courses
  - Quantum algebra class to learn about
    - QuBit Entanglement and
    - Teleportation
  - Light blue line for Quantum simulation
  - Red line for Quantum resources
  - Yellow line for Quantum communication
  - Pink line for Sensing & Metrology
  - Medium blue line for Standardisation
  - Amber line for Quantum Computing



Quantum Technology Training (III)

- **Concept: Quantum Algebra Class**
  - 5 learning units to understand main concepts of entanglement and teleportation

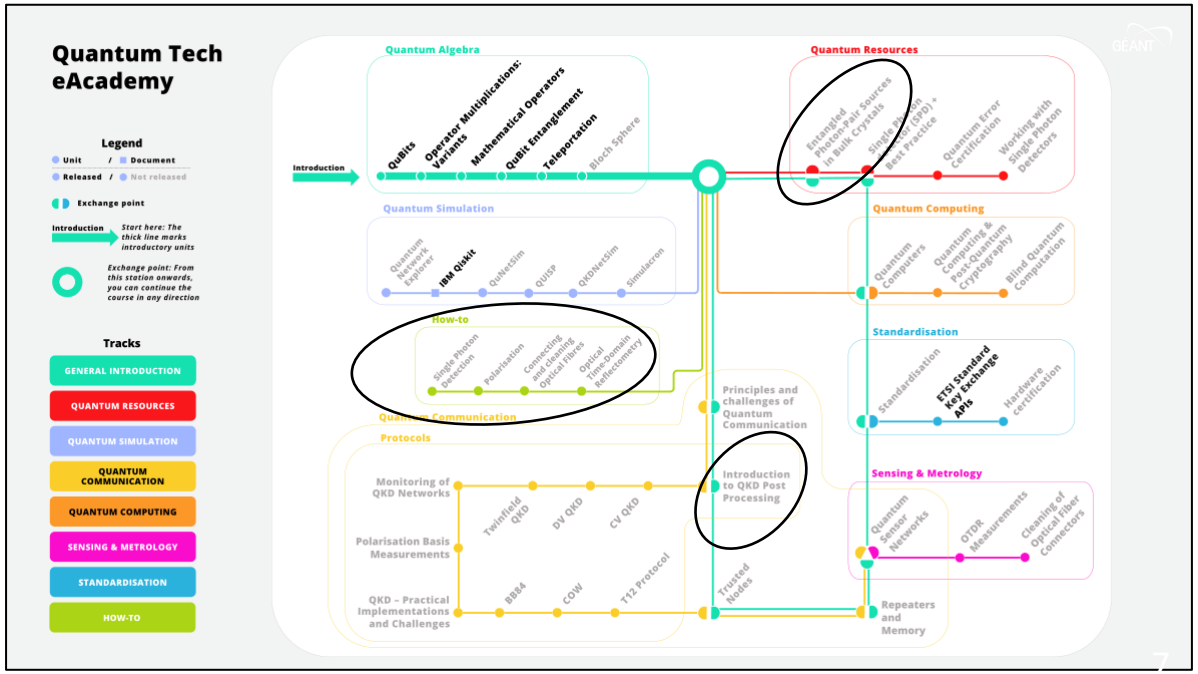


Introduction to QuBits, Quantum Algebra, Entanglement and Teleportation

(by Peter Kaufmann (DFN) and the Quantum Training Development Team)

Welcome to this learning unit which is the third in a sequence of units covering the topic of Quantum Algebra. The purpose of the Quantum Algebra class is to introduce the basic theoretical principles of QuBits, their quantum entanglement and the process of teleportation. These aspects are the fundamentals used in quantum computers, quantum networks and quantum security. For the understanding of the physics, some mathematical background aspects from the area of "Operator Algebra" are required.

- **Coming soon:**
  - Learning Unit: Entangled-Photon-Pair Sources in Bulk Crystals
  - Learning Unit: Introduction to QKD Post Processing
  - **New Concept:** Four How-to-videos:
    - Connecting and Cleaning Optical Fibres
    - Single Photon Detection
    - Polarisation
    - Optical Time-Domain Reflectometry



QT Access via GLAD

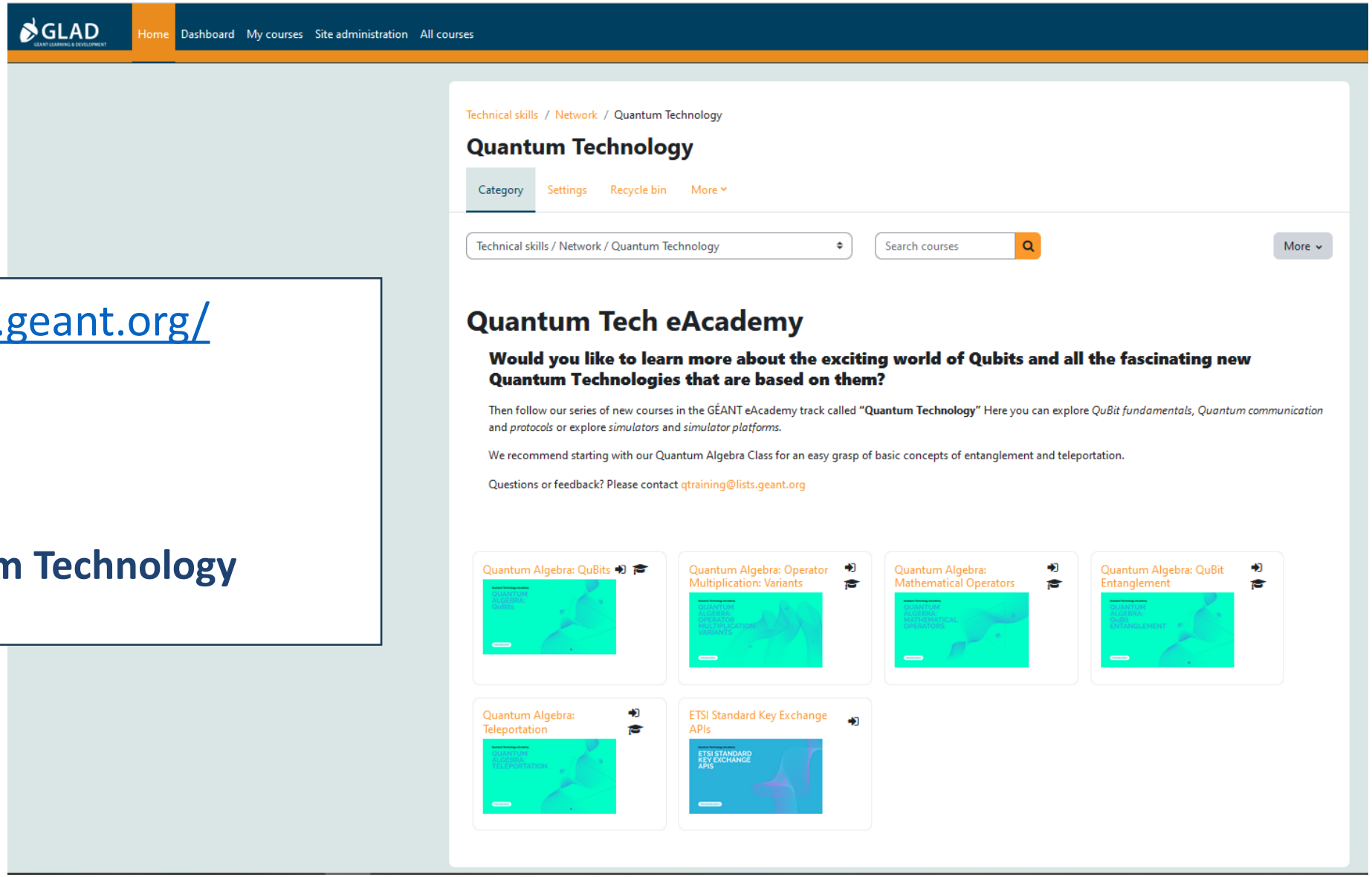
- https://e-academy.geant.org/

➢ All courses

➢ Technical Skills

➢ Network

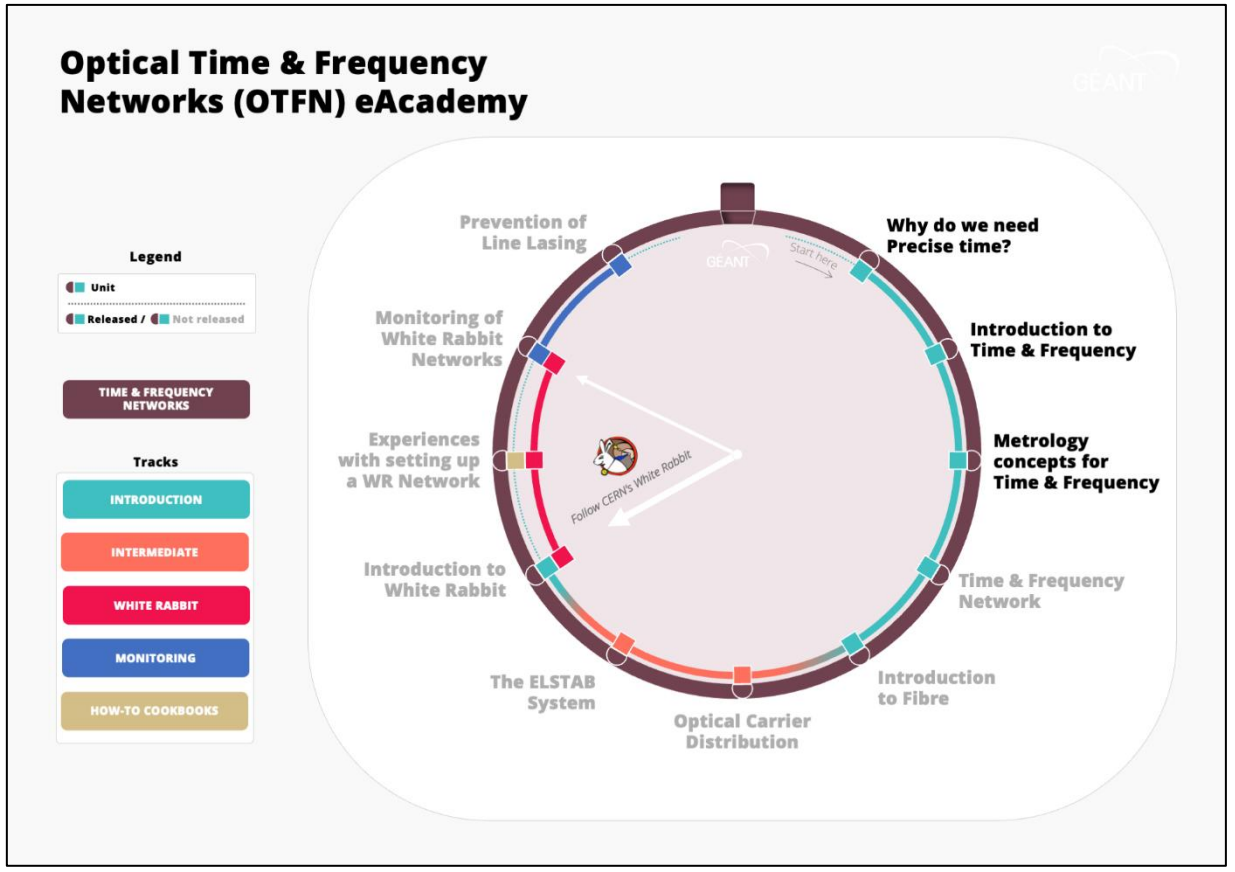
➢ **Quantum Technology**



Training in Time and Frequency Networks

- https://wiki.geant.org/display/NETDEV/Time+and+Frequency+Networks+Training

  - Dark titles are clickable units
  - Light grey titles are LU to come
  - Green line for Introduction courses
  - Orange Line for advanced courses
  - Red line for White Rabbit
    - NeA for NREN related material
    - More details via link to CERN
  - Medium blue line for Monitoring
  - Beige line: How-to Cookbooks



OTFN Access via GLAD

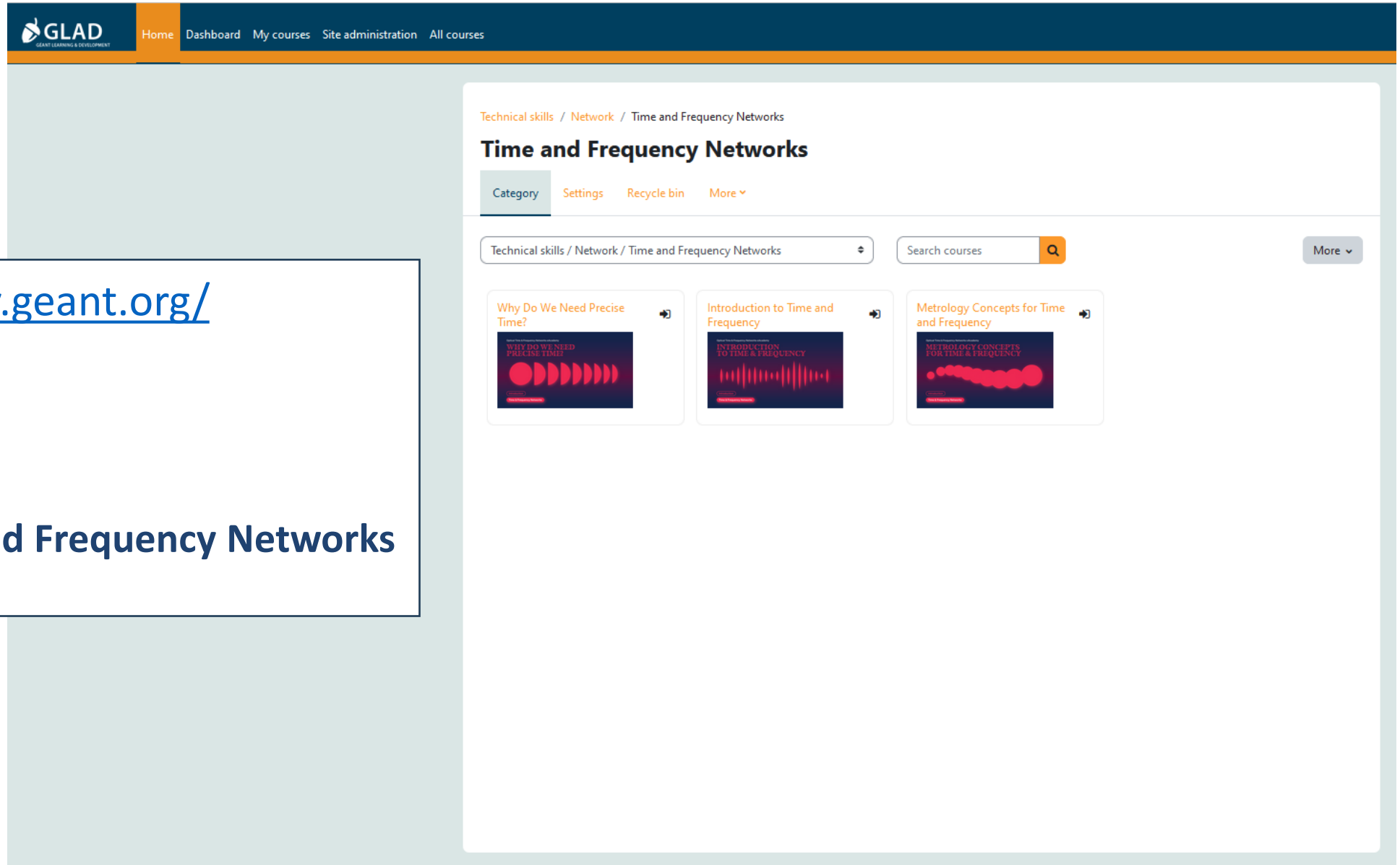
- https://e-academy.geant.org/

➢All courses

➢Technical Skills

➢Network

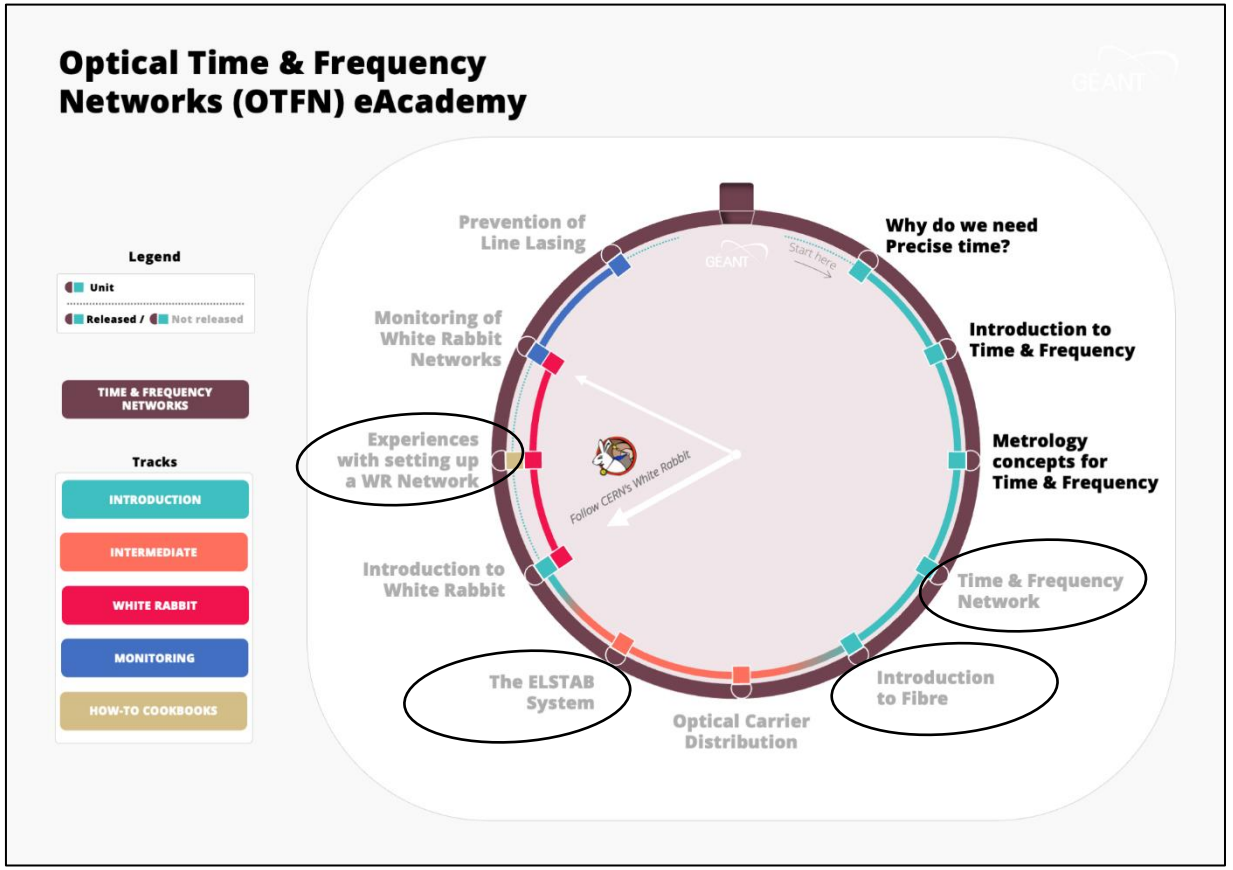
➢**Time and Frequency Networks**



Training in Time and Frequency Networks

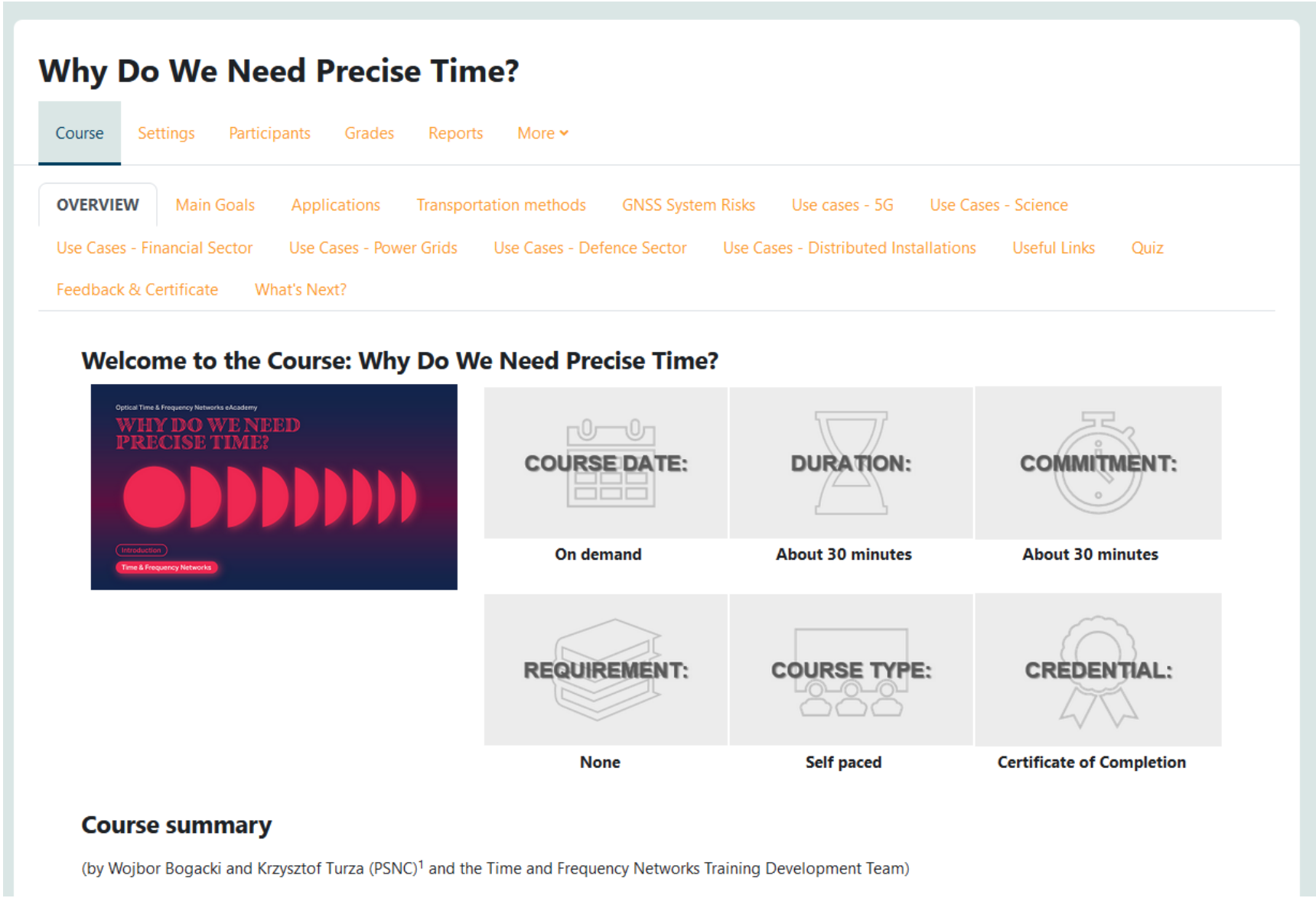
- https://wiki.geant.org/display/NETDEV/Time+and+Frequency+Networks+Training

  - **Coming soon:**
    - Time and Frequency Network
    - Introduction to Fibre
    - Experiences with Setting Up a WR System
    - The ELSTAB System



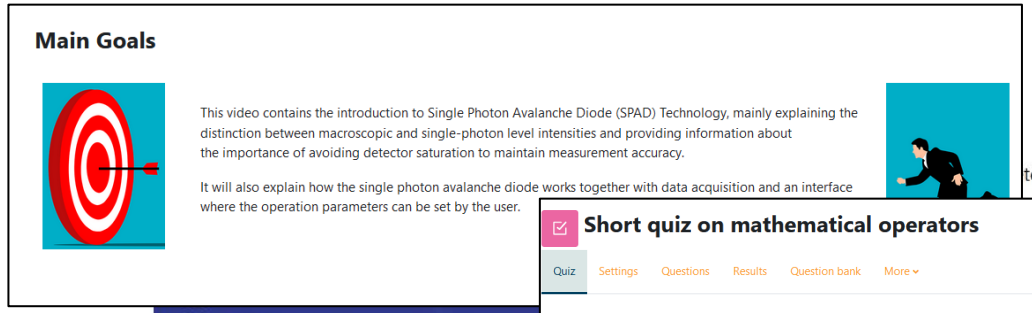
General Class Structure (I)

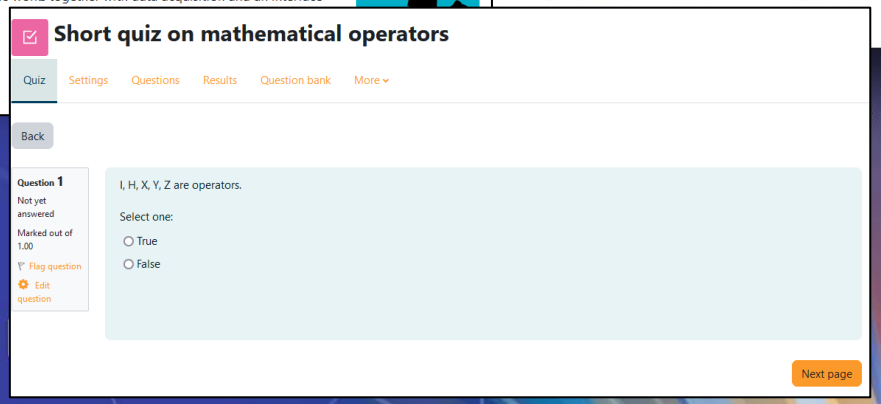
- **Overview information**
  - available on demand
  - Indicators for duration / commitment
  - Prerequisites (if any)
  - Certificate of Completion!

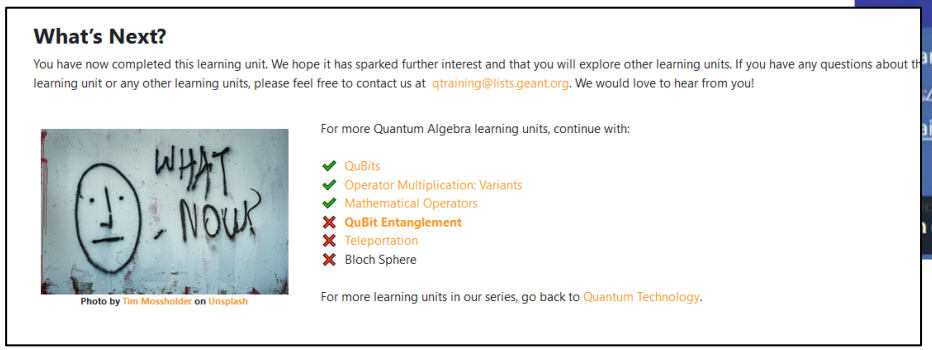


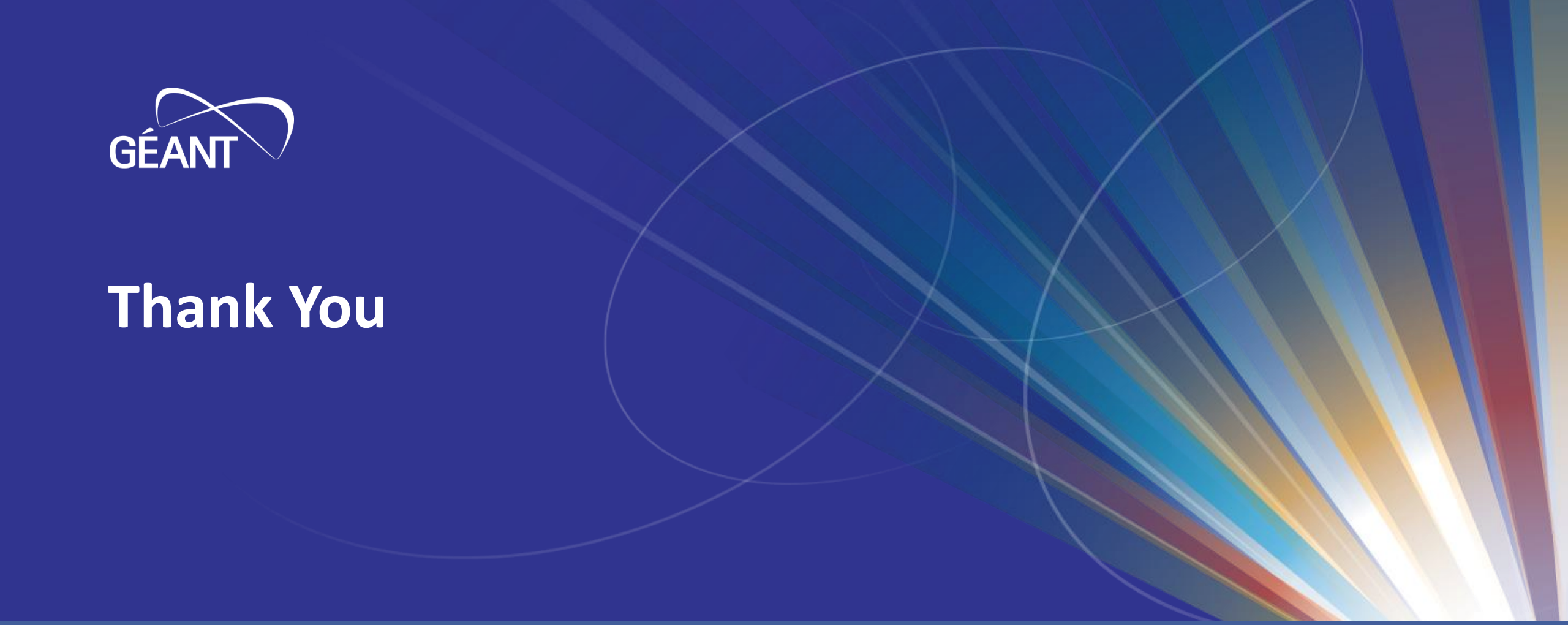
General Class Structure (II)

- Main Goals
- Video /pdf sections
- Exercise sections
- Useful links
- Quiz
- Feedback & Certificate
- What's Next?
- **For questions please contact**
  - **network-eacademy@lists.geant.org**









Thank You

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