

Course Package

Quantum for the Curious – Q1

Name module	Quantum for the Curious – Q1
Educational programme	BSc Applied Physics
Period	First semester (Quartile 1)
Study load	30 ECTS

Quantum for the Curious			
Quartile 1	Quartile 2	Quartile 3	Quartile 4
Quantum Concepts 202400117 (5 EC)			
Quantum technology Hardware and Software Engineering 202400118 (5 EC)			
Quantum Technology Applications and Strategies 202400119 (5 EC)			

Required preliminary knowledge: Linear Algebra and a Technical Bachelor.

202400117 - Quantum Concepts

This course is part of the 15 EC minor “Quantum for the curious”. In the course “Quantum concepts” the physics concepts behind quantum technology will be introduced. As a prerequisite to this course, it will be assumed that the student has followed some elementary course on linear algebra. Topics that will be addressed are superposition, quantization, entanglement, qubit states, operators, time-evolution, technology platforms.

202400118 - Quantum technology Hardware and Software Engineering

This course is part of the 15 EC minor “Quantum for the curious”. In the course “Quantum technology hardware and software engineering” the different aspects of quantum technologies will be addressed. Cleanroom technology, cryogenics and measurement equipment will be introduced. Three experimental assignments will be worked on: Quantum Key Distribution, Bell inequality violation, and NV-center qubit. Two software assignments will be made: quantum teleportation, quantum algorithm.

202400119 - Quantum Technology Applications and Strategies

This course is part of the 15 EC minor “Quantum for the curious”. In the course “Quantum technology applications and strategies” the different applications, business strategies, policies, didactics and ethics will be introduced. The students will work in teams on a quantum project given by industrial or academic partners.

The modules are tentative and subject to change. Please check [the website](#) regularly.