GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2025-2026

Quantum Computing (C003668)

Course size *(nominal values; actual values may depend on programme)*

Credits 6.0 **Study time 180 h**

Course offerings and teaching methods in academic year 2025-2026

A (semester 2)	English	Gent	seminar
			lecture

Lecturers in academic year 2025-2026

Verstraete, Frank	WEO5	lecturer-in-charge
Burgelman, Lander	WEO5	co-lecturer

Offered in the following programmes in 2025-2026	crdts	offering
Master of Science in Teaching in Science and Technology(main subject Mathematics)	6	A
Master of Science in Teaching in Science and Technology(main subject Physics and Astronomy)	6	A
Master of Science in Mathematics	6	A
Master of Science in Physics and Astronomy	6	A
Master of Science in Physics and Astronomy	6	A
Exchange Programme in Mathematics (master's level)	6	A
Exchange Programme in Physics and Astronomy (Master's Level)	6	A

Teaching languages

English

Keywords

Quantum computing, quantum entanglement

Position of the course

This course aims to explain basic concepts of quantum computing and quantum entanglement .

Contents

- Quantum entanglement
- Quantum computing

Initial competences

Knowledge of Linear algebra and Quantum mechanics

Final competences

Basic knowledge about quantum computing and quantum entanglement.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Seminar, Lecture

Study material

Type: Syllabus

Name: Syllabus'
Indicative price: Free or paid by faculty
Optional: no

References

A. Kitaev, Classical and Quantum Computation, AMS
M. Nielsen & I. Chuang, Quantum Computation and Quantum Information,
Cambridge University Press

Course content-related study coaching

Outside lecture hours the teachers are available for further explanation.

Assessment moments

end-of-term assessment

Examination methods in case of periodic assessment during the first examination period

Written assessment

Examination methods in case of periodic assessment during the second examination period

Written assessment

Examination methods in case of permanent assessment

Possibilities of retake in case of permanent assessment

not applicable

Extra information on the examination methods

The written exam consists of a theory part (closed book) and an exercise part
(open book).

Calculation of the examination mark

The final score is the weighted average of the scores on the theory part (60%) and
the exercise part (40%).