COURSE DETAIL

QUANTUM COMPUTING
Country Germany
Host Institution Technical University Berlin
Program(s) Technical University Berlin
UCEAP Course Level Upper Division
UCEAP Subject Area(s) Computer Science
UCEAP Course Number 131
UCEAP Course Suffix
UCEAP Official Title QUANTUM COMPUTING
UCEAP Transcript Title QUANTUM COMPUTING
UCEAP Quarter Units 5.50
UCEAP Semester Units 3.70

Course Description

This course provides theoretical as well as practical introduction to quantum computation. By the end of the course students understand the basics of quantum mechanics, quantum logic and computation, important quantum-algorithms, and work with actual quantum computers and quantum simulators. Covered topics include a basic introduction to quantum mechanics to understand quantum computation, quantum algorithms, Simon's algorithm, the prime factorization algorithm, Grover's search algorithm, mathematical models of quantum computation, their relationships to each other, and to physical systems, and quantum error correcting codes. The exercise component of the course includes a background section on the need for quantum computing and then addresses the following topics: hardware technologies for quantum computers, quantum logic, computation on a quantum computer, and programming on IBM Q.

Language(s) of Instruction
English

Host Institution Course Number
0434 L 984,0434 L 10659

Host Institution Course Title
QUANTUM COMPUTING

Host Institution Campus

Host Institution Faculty
FAKULTÄT IV ELEKTROTECHNIK UND INFORMATIK

Host Institution Degree

Host Institution Department
Institut für Softwaretechnik und Theoretische Informatik

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