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Hands-on session for quantum circuits and simulation of noisy algorithms - part 1

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Quantum algorithms are typically expressed as a quantum logic circuits, where the qubits of a quantum computer are sequentially operated by quantum gates. These gates are quantum mechanical counterparts of classical logic gates such as NOT, XOR etc. that enable more powerful computing by using quantum superposition and entanglement.

This hands-on training covers the following

- introduction to quantum circuits
- how to write quantum circuits with Qiskit, IBM's open-source Python library for quantum algorithms
- how to simulate errors and environmental noise during quantum algorithms

Prerequisites

For this hands-on you will need to preinstall **Python** with packages **qiskit** and **Jupyter notebooks** for viewing and running the notebooks of the session. Instructions for installing qiskit can be found here: <https://qiskit.org/documentation/getting> and as a video here: <https://www.youtube.com/watch?v=M4EkW4VwhcI> (only first 4.5 minutes are relevant).

Installing conda (as instructed in the above links) is not compulsory, but might help things run smoothly. This hands-on serves as an introduction to quantum computing and does not require previous experience.

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Session Classification : Quantum Circuits Tutorial