



# Quantum Computing Basic Course

Section	Order	Course	Section	Order	Course	
Basic knowledge	1	Computing & Computer	Mathematical expression	9	Introduction to Linear Algebra (Vector, Matrix)	
	2	Qubit		10	Mathematical Expression of Qubits and Quantum Gates	
	3	From Classical Computing to Quantum Computing (Xgate, CNOTgate, CCNOTgate)		11	Matrix Calculation of Tensor Products and Circuits	
Quantum gate, circuit and classic quantum algorithm	4	Quantum Computing Circuit Model (Hgate, Preparation Bell State)		12	The Matrix of Grover Algorithm (1)	
	5	Deutsch Algorithm		13	The Matrix of Grover Algorithm (2)	
	6	Quantum Computing Circuit Model (Application and Measurement of Z, CZ, Toffoli gates)		Building quantum computer	14	How to make a quantum computer
	7	Preparation of Quantum State and Transformation of Quantum Combinational Gate			15	Quantum Chip
	8	Grover Algorithm		Course expansion (optional)	16	Extended Application of Grover Algorithm
			17	Shor Algorithm		