NESTSOFT

TechnoMaster

Since 2007, Making IT Experts & Products

Course: Quantum Computing Fundamentals

Duration: 60 Hrs (Changeable) | Fees: Individual / Batch

Since 2007, Nestsoft TechnoMaster has been providing training, internships, and services in IT technologies, both online and offline, with the expertise of **over 250 industry experts**. We have delivered internships, training, and seminars to more than 50,000 students, resulting in numerous success stories. **We offer 100% placement support through JobsNEAR.in**

Our Courses/Internship

- Python/Django Fullstack
- Artificial Intelligence
- Machine Learning
- Data Science
- Software Testing (All)
- Wordpress, Woocommerce
- Digital Marketing, SEO
- Php/MySQL, Laravel
- Flutter, Android, IOS
- Asp.net MVC
- Web Design, Javascript
- Angular JS, React JS
- CCNA, MCSA, CCNP
- AWS, GCP, Azure
- Odoo, SalesForce, Sap
- Microsoft Excel
- Ethical Hacking

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1000+ Success Stories

Syllabus on the Next Page ..

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Training by Industry Experts

Our Placement Website: **JobsNEAR.in**

Introduction

Course Syllabus

Month 1: Quantum Computing Fundamentals

Introduction to Quantum Computing

- Introduction to Quantum Computing
- History and Evolution of Computing
- Classical Computing vs Quantum Computing
- Applications of Quantum Computing
- Advantages of Quantum Technology
- Challenges in Quantum Computing
- Future Scope of Quantum Technologies

Quantum Mechanics Basics

- Introduction to Quantum Mechanics
- Quantum States and Systems
- Superposition Principle
- Quantum Measurement
- Quantum Entanglement
- Quantum Interference
- Probability Concepts in Quantum Systems

Quantum Bits (Qubits)

- Introduction to Qubits
- Classical Bits vs Qubits

- Representation of Quantum States
- Bloch Sphere Concept
- Qubit Measurement
- Multiple Qubit Systems
- Quantum Information Basics

Quantum Gates and Circuits

- Introduction to Quantum Gates
- Single Qubit Gates
- Pauli Gates
- Hadamard Gate
- Controlled Quantum Gates
- Quantum Circuit Design
- Quantum Circuit Simulation

Introduction to Quantum Algorithms

- Quantum Algorithm Concepts
- Quantum Speedup Principles
- Deutsch-Jozsa Algorithm
- Grover\'s Search Algorithm
- Shor\'s Algorithm Overview
- Quantum Algorithm Applications

Month 2: Quantum Programming & Applications

Quantum Programming with Qiskit

- Introduction to Qiskit
- Setting Up Quantum Development Environment
- Python Basics for Quantum Programming
- Creating Quantum Circuits
- Executing Quantum Programs
- Quantum Simulation Using Qiskit
- Working with IBM Quantum Platform

Quantum Machine Learning

- Introduction to Quantum Machine Learning
- Classical ML vs Quantum ML
- Quantum Data Processing
- Quantum Neural Networks Overview
- AI and Quantum Computing Integration
- Applications of Quantum AI

Quantum Cryptography and Security

- Introduction to Quantum Cryptography
- Quantum Key Distribution
- Quantum Security Concepts
- Future of Secure Communication

Quantum Computing Applications

- Quantum Computing in Healthcare
- Quantum Computing in Finance

- Quantum Optimization Problems
- Quantum Chemistry Applications
- Quantum Communication Systems
- Industry Use Cases

Quantum Hardware and Platforms

- Quantum Computer Architecture
- Quantum Hardware Technologies
- Superconducting Qubits
- Quantum Cloud Platforms
- IBM Quantum Experience
- Future Quantum Developments

Final Projects

- Quantum Circuit Simulation Project
- Quantum Algorithm Implementation
- Quantum Machine Learning Demonstration
- Quantum Optimization Project
- Real-World Quantum Application Study

Tools and Technologies

- Qiskit
- Python
- IBM Quantum Platform
- Jupyter Notebook

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* Quantum Simulators
* Quantum Algorithms
* Quantum Circuits

(Click on Course for more details)

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- Thank You -

N.B:This syllabus is not final and can be customized as per requirements / updates.