

## **CSE481 (Quantum Computing 1)**

1. **Mathematics (Linear Algebra) required for Quantum Computing (Helps to visualize maths):** [Essence of linear algebra by 3Blue1Brown \(Author: Grant Sanderson\)](#) [Youtube video]
2. **CSE 481(BRACU) LAB - Summer 2024:** [CSE481 \(Quantum Computing 1\) Lab - Summer 2024](#) [Youtube video]
3. **Quantum Computing Course - Math and Theory for Beginners by freeCodeCamp.org (RECOMMENDED)**

This quantum computing course offers a solid foundation, covering the basics and providing a clear understanding of popular quantum algorithms through a concise video. The content aligns well with the CSE481 course offered by BRAC University. If you're looking to refresh your basic concepts before enrolling in CSE481, this video can be very helpful. You can also watch it during the course to clarify certain topics. However, the course does not go into great depth in most areas.

Lecture video link: [Quantum Computing Course - Math and Theory for Beginners by freeCodeCamp.org](#)

Problem sets link:

[https://drive.google.com/drive/folders/1A-RHTQFRY\\_pipVfitQBxMU-xEexRESQj](https://drive.google.com/drive/folders/1A-RHTQFRY_pipVfitQBxMU-xEexRESQj)

### **Some CSE481 Theory Lecture Videos from Summer 2024 by Jishnu Mahmud, Lecturer, BRAC University:**

1. [CSE 481- Composite vector spaces, Tensor products and Partial Measurements](#)
2. [CSE 481- Composite vector spaces, Tensor products and Partial Measurements \(Previous\)](#)
3. [CSE 481 summer 24 postulates online class-1](#)
4. [pre midterm review CSE 481 summer 2024](#)
5. [Bloch Sphere and Single Qubit Gates](#)
6. [CSE 481 Summer 2024 Bell states and Two qubit gates](#)
7. [CSE 481- General Bell states and Quantum Parallelism \(Previous\)](#)
8. [CSE481 Teleportation, No cloning](#)
9. [CSE 481- Intro to Bell states, CNOT. Quantum Teleportation and No Cloning theorem \(Previous\)](#)
10. [CSE481: Summer 24 consultation and problem solving](#)

11. [5.3.23 CSE 481 Observables, Eigenspace, Expectation value, Variance and Heisenberg's Uncertainty \(Previous\)](#)
12. [CSE-481-01 Algorithms Part 1 \(Deutsch Algorithm\) \(Previous\)](#)
13. [CSE-481-01 Algorithms Part 2 \(Deutsch-Jozsa Algorithm\) \(Previous\)](#)

## **Some previous semesters' Quantum Computing 1 related lecture videos:**

1. **For Linear Algebra:** [Linear Algebra Done Right by Sheldon Axler](#)
2. [CSE481: Quantum Computing | Fall 2022](#) by Sadman Shahriar, Lecturer, BRAC University
3. [\[CSE490.1\] Quantum Computing - Lectures | Summer '20 | BRAC University](#) by RoughKhata
4. [\[CSE490.1\] Quantum Computing - Live Sessions | Summer '20 | BRAC University](#) by RoughKhata
5. [BRACU Quantum Computing Boot-Camp](#) by RoughKhata

## **Quantum Computing (In general)**

1. **For more QC related topics(IF YOU ARE INTERESTED): \*\*\*\*\***

YouTube Channel Link: [RoughKhata \[রাফখাতা\]](#) (You'll also find CSE482 - Quantum Computing 2 lecture videos for both theory and lab here)

Lecturer:

- i) [Sowmitra Das](#), Lecturer, BRAC University
- ii) [Mr. Shadman Shahriar](#), Lecturer, BRAC University

2. Youtube Video: [Introduction to Quantum Information Science](#) by Arfur Ekert

3. **A Free Quantum Computing Course:**

Quantum Computing Programming by [Fabio A. González](#) link:  
<https://fagonzalezo.github.io/qcp-2022-2/>

4. Youtube video: [Introduction to Quantum Computing](#) by Introduction to Quantum Computing

5. **GitHub Resources:**

- i) [Quantum Computing Resource Haven](#)
- ii) [Books on Quantum Computing](#)