Dr. Mahdy Rahman Chowdhury
Associate Professor, Dept. of ECE, North South University,
Dhaka, Bangladesh.

Certification: To Whom It May Concern

It is a great pleasure to recommend/certify Mr. Sakil Ahmed for completing the Quantum Mechanics (QM) course taught by me. However, I am providing this recommendation letter after checking his well-written assignment of the **MATRIX MECHANICS PART** **(2nd half: last 8 classes among 15 classes)** of the course. **Each of the classes was minimum 3.5 hours long. This letter has been provided only to the participants who have completed the assignment in a proper way.**

This QM course, which was conducted online, covered **both the wave mechanics and the matrix mechanics.** As Quantum Mechanics is still not included in the engineering universities of Bangladesh (and also in other countries), this course was arranged privately (a paid course for skill development purpose). Several faculty members (including Full Professor, Assistant Professor and so on), PhD and MSc students and BSc students from almost all the universities of Bangladesh have participated the course; and the detailed website (**and the list of all the participants**) of the course is given below:

https://sites.google.com/view/onlinecoursebymdy/home?authuser=1&fbclid=IwAR2zN0Ci3wvnImNBFS2GQJ1IxX0-XnK0IK7aRsO6eCBeI9rqamWOX0uxJ78

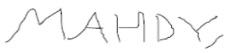
Total 15 classes (each of them around 3 and half hours long) have been taken to cover the big syllabus of the QM course. **I certify that Mr. Sakil Ahmed has participated in the full course.**

The MATRIX Mechanics Part of Quantum Mechanics course has covered: Photon polarization and state vector formalism (physical approach to BRA & KET), the free Particle-Box Quantization, Electron facing potentials & tunneling problems: solving them using Matrix mechanics (I.e. real semiconductor cases), Eigenvalue-Eigenvector approach (& operator mechanics: how & why) & Matrix formulation, Detail calculations on quantum measurement theory using Matrix mechanics & their physical interpretations (Several selected maths has been solved for this part by properly explaining the physical meaning of each part of the calculation), Uncertainty principle and Ehrenfest theorem using matrix mechanics, Probability amplitude method to solve quantum mechanical systems, Electron spin, Stern-Gerlach experiment and uncertainty of spin, Quantum harmonic oscillators, Ladder operators, Wave function of Multiple quantum objects, EPR paradox and Einstein's actual journal's full math., Concept of Bell inequality with math., quantum entanglement, Introductory Quantum computing and quantum algorithms, introduction to COMSOL simulation and introductory simulations of photonics and quantum mechanics using COMSOL.

I believe that Mr. Sakil Ahmed has strong interest for learning. Otherwise, he would never enroll this private (paid) course. His completed assignment also strongly supports my words. I believe that he will excel in anything relevant to the MATRIX MECHANICS PART of the Quantum Mechanics. If you have any further query, please do not hesitate to make contact with me.

[Please note: I have not certified anyone else whose identity is not given in the aforementioned website. All the participants are available in the list given in the website. This letter has been provided only to the participants who have completed the assignment very carefully in a proper way.]

Dr. Mahdy Rahman Chowdhury.

Signature: 

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